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Who benefits from big government? A life satisfaction approach

Bodo Knoll[1] · Hans Pitlik[2]

Abstract   Which impact does government size have on life satisfaction, and how do effects of bigger government differ between income groups in society? Previous studies typically employed country averages and thus neglected possibly heterogeneous happiness effects between income groups. This paper addresses empirically the effects of government spending on subjective well-being of individuals belonging to different income groups. Our analysis is based on individual data from 25 European countries participating in the European Social Survey. In contrast to most previous studies we take account of the endogeneity between relative income position and reported life satisfaction by an instrumental variable approach. Our results suggest, first, that most government spending categories, including social protection, are on average negatively related to individual well-being. Secondly, estimated marginal effects of health, education and social protection spending at different income levels show that spending increases always have a stronger negative effect on high income groups' well-being than on low income groups' life satisfaction. For all government spending categories, marginal happiness effects of higher public spending are clearly negative for income groups at the top.

✉ Hans Pitlik
hans.pitlik@wifo.ac.at

Bodo Knoll
bodo.knoll@rub.de

[1]   Institute of Economics, University of Bochum, 44799 Bochum, Germany

[2]   Austrian Institute of Economic Research (WIFO), Arsenal Objekt 20, 1030 Vienna, Austria

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1 Introduction

Research on the determinants of subjective well-being has become exceptionally popular over the past few decades. Numerous studies report that individual characteristics (e.g., age, personal income status, number of children, health status, marital status, employment status, education level, etc.), macroeconomic (e.g., unemployment rates, inflation, per capita GDP), and institutional variables (governance quality, participation rights, etc.) influence happiness and personal life satisfaction (e.g., Di Tella et al. 2003; Clark et al. 2008; Frey 2008; Bjørnskov 2012).[1] Less attention has been paid to the impact of certain policies on well-being, conditional on personal life situation, productivity, or distinctive policy preferences.[2] With only a few exceptions (Bjørnskov et al. 2008; Hessami 2010), research neglects that different groups of society are affected differently by policies.

The present paper tries to fill this gap and examines effects of government size on subjective well-being of individuals belonging to distinctive income groups. In particular, we assess empirically whether government spending on health, education, and general social protection affects well-being of people at opposing ends of the income distribution scale differently. It is hardly surprising that social transfers considered to benefit low income earners, financed through taxes on high income earners, will increase well-being of net recipients and will reduce well-being of net contributors. Yet, policies do not always address relative income directly, though they may intend to improve the economic situation mainly of low income groups. Health and education policies are expected to increase the well-being of poorer segments of society by improved economic opportunities; social protection and insurance systems are designed to reduce (life time) income uncertainty which is particularly harmful for low income earners. As a consequence, one would generally expect such expenditures to provide higher benefits to the poor than to the rich, thus (partly) correcting a higher life satisfaction of high income earners.

As is well-known, personal income is among the most important determinants of subjective well-being (Clark and Oswald 1996; McBride 2001; Ferrer-i-Carbonell 2005). Helliwell and Huang (2008) show that once basic needs are met, the main well-being effect comes from improvements of the relative income position rather than from absolute income increases. Explaining individual well-being by relative income, however, is associated with endogeneity problems that are frequently ignored in empirical analyses. Most importantly, personal life satisfaction proves to be a determinant of productivity and success in the labor market (De Neve and Oswald 2012). Unobservable personality traits influence choice of occupation, income, and subjective perceptions of well-being. This paper contributes to the empirical life satisfaction literature by addressing these endogeneity concerns through an instrumental variables approach.

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[1] Notwithstanding the existing differences, the terms "happiness", "life satisfaction" and "subjective well-being" are used interchangeably in the present paper.

[2] Knoll et al. (2013) report evidence for positive effects of low economic regulation on subjective well-being. Paradoxically, people who are ideologically opposed to market-oriented policies sometimes benefit most from deregulation in terms of increased life satisfaction.

Summarizing briefly, our results support the idea of differential effects of government size on well-being, conditional on the relative income position. Estimates of the marginal effects of spending at different intra-nation income levels show that higher expenditures almost always have a negative effect on well-being, which is stronger for high income groups than for low income groups. While health, education and social protection spending at least do not reduce the reported subjective well-being of income groups at the bottom of the income distribution, marginal happiness effects of higher spending are clearly negative for the income groups above the 5th income decile. Our results thus support the notion that government spending in European countries has reached a level that is detrimental to overall life satisfaction of citizens.

2 Life satisfaction and government size

The scholarly debate about optimal government size is frequently focused on the question whether economic prosperity, as measured by GDP per capita, is fostered by more or less government spending, or by larger or smaller government interventions. While the relationship between government and growth has been addressed in numerous papers, with rather inconclusive results (see Gemmell and Au 2013 for a recent survey), the relationship between government size and well-being has been investigated far less often. Interestingly, from a theoretical perspective it is ambiguous whether an increase of government size has a positive or a negative impact on subjective life satisfaction (Bjørnskov et al. 2007). In fact, the relationship depends strongly on the underlying theoretical assumptions about government behavior.

A hypothetical, benevolent, well-informed and welfare maximizing government would choose government size only according to citizens' preferences. This implies that the marginal costs and (the sum of) marginal benefits of increasing government size are equalized in equilibrium (Samuelson 1954). At the margin, utility is not affected by government size expansion. If life satisfaction is considered a good measure of net utility, this allows for a direct test whether governments succeed in reaching welfare optimal levels of public goods and services by testing hypothesis

H1a   Increasing government size has no impact on subjective life satisfaction.

In a Public Choice perspective government size is not determined by an omnipotent and benevolent maximizer of social welfare. A well-established idea in the literature is that the interplay of politicians seeking for re-election, budget- or slack-maximizing bureaucrats, well-organized special interest groups seeking for governmentally secured rents, and rationally uniformed voters is likely to cause an overexpansion of interference and an oversupply of publicly provided goods, as compared to the hypothetical social optimum (cf. Mueller 2003 for an overview). Against this background, increasing government size would reduce average overall happiness in equilibrium, which leads to the testable implication

H1b Increasing government size has a negative impact on subjective life satisfaction.

From a theoretical perspective, government size could yet also be too small. Governments may provide too little public goods if they lack (bureaucratic) capacity to do so, and/or if they are not prepared to collect the tax revenues required to provide a sufficient amount of services. Under these circumstances, a testable implication would be

H1c Government size has a positive impact on subjective life satisfaction.

Testing incentives and self-interested behavior of political decision makers yet requires a more disaggregate view in, at least, two dimensions. Firstly, governments do not only provide "pure public goods" but intervene in private markets, engage in the production of quasi-private goods, and redistribute wealth and income by means of taxes and transfers. A heterogeneous influence on subjective well-being among different subgroups of society should above all be expected for fiscal policies. Many government expenditures combine the production of a partially rival good with redistributive or merit motivations. Spending on health care, or schooling and university education clearly have a strong private utility component in addition to its collective goods character. The same holds true for social protection spending, like pensions or unemployment benefits, which surely contributes to overall social peace (the collective good-part) but also has a substantial benefit exclusive for recipients. And secondly, analysis has to take into account that individuals have heterogeneous preferences over different government policies and spending categories, given their tax burdens.

In developed countries, substantial shares of public spending are devoted to welfare services and redistribution in favor of the relatively poor. The incidence of the associated higher tax burden is often assumed to fall on high income earners, mainly through progressive income and wealth taxation. Hence, from this stand-alone effect, one would expect those at the lower tail of the income distribution to benefit more from big government than individuals at the upper tail. Assuming narrow self-interest of all citizens, a simple median voter model with policy options restricted on proportional taxation and per capital lump sum grants would predict large government size as a result of a redistribution from the rich to the poor (Meltzer and Richard 1978, 1981). As the median voter is decisive in the choice of the tax-transfer system, the political outcome is not optimal for the average income earner. Provided that the median voter earns less than the mean income, she will set tax rates and transfers such that at the point that maximizes personal utility. Redistribution, government size and government growth are expected to be too large. Empirically, the Meltzer-Richard-model does not only predict that government size is too large for mean income earners (hypothesis H1b); it also implies that optimal tax rates rise and optimal lump sum transfers fall with income. Hence, we can infer for net utility (life satisfaction) of different income groups:

H2a Increasing government size has a negative impact for above-median income earners.

H2b   Increasing government size has no impact on the income median.

H2c   Increasing government size has a positive impact for below-median income earners.

The Meltzer-Richard-model assumes that all government activity is motivated by redistribution only. As described above, government expenditures may serve multiple functions. Nevertheless, H2a–H2c are expected to hold for expenditures that are intended to correct income inequality and to redistribute resources from the rich to the poor. This does not necessarily imply that in sum the rich lose from big government. If welfare spending reduces income inequality successfully, redistribution might increase life satisfaction of high income earners as well, as people dislike economic inequality for various reasons. Evidence on the relation between inequality and aggregate (country-level) happiness levels, however, is far from conclusive (Berg and Veenhoven 2010; Ferrer-i-Carbonell and Ramos 2012; Rözer and Kraaykamp 2012; Hajdu and Hajdu 2014).[3]

Empirical studies of the life satisfaction-government size relationship are also inconclusive. Veenhoven (2000) finds no relation between the size of the welfare state and country averages of well-being. Moreover, welfare state size does not seem to be related to increased equality of life satisfaction within a country. Bjørnskov et al. (2007) report that country averages of life satisfaction decrease with higher government consumption in a cross-section of up to 74 countries. The impact appears to be conditional on the effectiveness of the public sector (see also Ott 2011), the degree of political competition and the ideology of the government. Public investment and social spending are unrelated to aggregate life satisfaction. More recently, Rode (2013) does not find a positive association between government size, as measured by the Economic Freedom of the World-index, and well-being. All papers yet employ well-being data aggregated on the country level.

Using individual level data, Bjørnskov et al. (2008) report that government final consumption is not significantly related to individual well-being in a world-wide sample of about 90,000 respondents on average. Yet, government consumption contributes negatively (!) to life satisfaction in a sub-sample of poorer individuals, whereas the effect on high income earners in the sample is not statistically significant. Summing up, empirical evidence supports the view that lower income groups do not benefit from public consumption, though it is not clear if this also holds for social transfer spending and capital expenditures. Employing panel data from Australia, Frijters et al. (2012) investigate who benefits most from income in terms of utility gains, and elaborate on consequences for the design of an optimal tax-transfer system. They find that, in order to maximize an additive life satisfaction function, taxes are too high for some groups, like the young, and too low for other groups, as the elderly. Flavin et al. (2014) report empirical evidence for a positive impact of various government policies on life satisfaction both for low and high

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[3] Gandelman and Porzecanski (2013) report that income inequality also transforms into happiness inequality, but due to decreasing marginal utility of income happiness inequality is only about half the size of income inequality, as measured by Gini coefficients.

income earners, using pooled World Values Surveys data for OECD countries in five survey waves spanning a period from 1981 to 2007.

Most closely related to our study is Hessami (2010). Hessami uses individual data from the Eurobarometer surveys and tests if the size and composition of government spending have a positive or negative impact on life satisfaction in EU countries. In ordered probit and OLS regressions Hessami finds an inversely U-shaped relationship between government size and life satisfaction for the time period 1990–2000. Some of the results indicate that the poor, as well as people who describe themselves as political left-wingers, benefit more from government spending than the rich and respondents with more right-wing attitudes. One of the paper's conclusions is that enlargement of government size in the time period under consideration "… has been in the best interest of citizens in the EU" (Hessami 2010: 376). Moreover, the positive impact of government spending on life satisfaction is larger in countries with a higher share of education spending on total expenditure.

These studies, however, do not take into account possible endogeneity and reverse causality issues between life satisfaction and personal income, as mentioned in the introduction. The ensuing bias may well be so eminent that the results for income position alone, as well as for government size conditional on relative income, are seriously flawed. In the remainder of the paper we describe the data and the model, perform some standard estimates and then report the results of a suitable instrumental variables strategy to overcome the potential bias.

3 Data and stylized facts

The main purpose of the paper is to test the hypothesis that income groups at the bottom of the distribution benefit from increased government spending on health, education, and social protection issues through increased life satisfaction, whereas big government may be detrimental for life satisfaction of high income groups. For this exercise we use data from the European Social Survey (ESS). The ESS has been conducted biannually since 2002 until 2012. Our sample includes 151,244 individual observations from 25 developed European countries. Details on the country-sample composition can be found in the "Appendix", Table 7. To assess individual well-being, people are asked to respond to the standard question on a scale from 0 (dissatisfied) to 10 (satisfied): "All things considered, how satisfied are you with your life as a whole these days?" (STFLIFE).

While use of the life satisfaction scale is common practice in empirical analyses of determinants for well-being, the definition of government size is more controversial, as it may include regulatory as well as tax and spending measures. We expect government expenditures in various policy fields to have a quite different impact on life satisfaction of rich and poor households. We proxy government size by total general government spending (GOVTE), and three spending sub-categories, namely

- Total government spending for health (HEALTH);
- Total government spending for education (EDUCATION), and
- Total spending for social protection issues (SOCPROTECT), which includes inter alia public pensions, unemployment benefits, or family allowances.

The functional spending categories are taken from the COFOG statistics provided by EUROSTAT. All data are expressed as a percentage of GDP. Government expenditures differ substantially in the country sample. Total spending GOVTE ranges from 32.1 % of GDP to 66.1 % of GDP, with a sample mean of 46.3 %; the range of government health expenditure (HEALTH) is 1.8–8.5 % of GDP (mean: 6.4 %). The sample average of education spending is 5.6 % of GDP, with a minimum of 2.9 % and a maximum of 8.0 % of GDP. And social protection expenditures are in a range of 9.9–25.3 % of GDP, with a sample mean of 17.2 %. Table 8 in the "Appendix" provides some information on the sample means by country and expenditure category.

As regards information on relative income, ESS has changed its definition of income categories during the sample period, making a recoding necessary. In survey waves 1 and 2 household income is originally coded into 12 income categories according to intervals (in Euro) being the same across all countries. E.g., the lowest income category comprises annual household income up to 1800€, the highest income category denotes annual household income of more than 120,000€.[4] Rounds 3–6 employ a relative income concept, i.e. income categories are based on deciles of the national income distribution of the respective year. In order to obtain comparable income categories, we re-coded income variables of all survey waves into deciles, labeled them 0–9 (and quartiles 0–3 for the robustness tests), based on the sample distribution in each country and each survey wave. Precisely, we recoded absolute income groups in waves 1 and 2 by dividing the observations of a specific country in a specific wave into 10 equally sized income groups. If absolute and relative income groups overlap, observations are assigned randomly to either the higher or lower decile. This randomization adds some noise to our relative income indicator. See "Appendix" Tables 9 and 10 for descriptive statistics of variables at the individual level and at the country level, respectively.

4 Model and estimation strategy

To assess the impact of government size on life satisfaction, conditional on the relative income position of the respondent, we perform regressions of personal life satisfaction ($STFLIFE_{ijt}$) on government size ($GOVSIZE_{jt}$), individual income position (INCOME), and a multiplicative interaction $GOVSIZE_{jt} \times INCOME_{ijt}$ (subscripts 'i' for individuals, 'j' for countries, and 't' for the ESS wave):

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[4] Further income categories are: 2nd category: 1800–3600€; 3rd category: 3600–6000€; 4th category: 6000–12,000€; 5th category: 12,000–18,000€; 6th category: 18,000–24,000€; 7th category: 24,000–30,000€; 8th category: 30,000–36,000€; 9th category: 36,000–60,000€; 10th category: 60,000–90,000€; 11th category: 90,000–120,000€.

$$STFLIFE_{ijt} = \beta_0 + \beta_1 GOVSIZE_{jt} + \beta_2 INCOME_{ijt} + \beta_3 \big(GOVSIZE_{jt} \times INCOME_{ijt}\big)$$
$$+ \beta_4 INDCNTRL_{ijt} + \beta_5 MACROCNTRL_{jt} + c_j + \phi_t + \varepsilon_{ijt} \qquad (1)$$

According to hypotheses H2a–H2c, the main interest of our study is on coefficients β_1, β_2 and β_3. β_1 represents the marginal effect of an increase in governments size for the lowest income quantile. Hence, we expect $\beta_1 > 0$. Relative income should have a positive effect, especially if government size is extremely low. Therefore, a positive impact of income on life satisfaction would be in line with our hypotheses ($\beta_2 > 0$). The interaction term captures the idea that individuals with high and low income levels have different benefits from big government. We expect $\beta_3 < 0$ as the impact of government size on individual life satisfaction gets smaller the higher the income quantile of the individual.

Controls include a full array of individual characteristics (*INDCNTRL*$_{ijt}$) including age, gender, personal health, employment status and educational status, and country-wide covariates (*MACROCNTRL*$_{jt}$); we use real Gross Domestic Product (GDP) per capita (in logs of PP adjusted international Dollars) and the growth rate of real GDP (data from Eurostat's AMECO data base).[5]

We have observations from a total of almost 150,000 different individuals in six ESS waves between 2002 and 2012. Some countries participated in only one or two survey waves. Survey wave dummies (ϕ_t) capture any unexplained heterogeneity over time, and a set of country dummy variables (c_j) absorbs time invariant unexplained variation across countries.

Our data has a clustered multi-level structure. Life satisfaction, income position and further control variables are from an 'individual level'. Here, observations share the same institutional and macroeconomic environment, i.e., they are nested in identical macro structures. Macro level data comprise various *GOVSIZE* variables and the above mentioned macro control variables. Employing standard OLS to mixed-level data would lead to exaggerated significance levels for the coefficient estimates because observations within a country are not independent (Moulton 1990). To account for this bias, a customary approach is to employ robust standard errors, clustered at the country-level.

5 Results from baseline OLS regressions

Table 1 displays results from simple OLS-estimates. Results are shown for all measures of government size. For the moment we do not take into account endogeneity of life satisfaction and relative income position. However, we include interaction terms of INCOME and GOVSIZE measures and implement fixed effects for countries and waves.

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[5] We also employed income inequality measures as macro control variables but these never turned out to be statistically significant.

Table 1 Interaction effects: life satisfaction, income position and government size

	(1) GOVTE	(2) HEALTH	(3) EDUCATION	(4) SOCPROTECT
GOVSIZE	−0.017	−0.033	−0.033	−0.059
	(0.010)	(0.051)	(0.098)	(0.042)
Income deciles	0.147**	0.154****	0.206****	0.125****
	(0.070)	(0.046)	(0.043)	(0.043)
Income × GOVSIZE	−0.001	−0.006	−0.017**	−0.001
	(0.001)	(0.007)	(0.007)	(0.002)
At 1st income decile	−0.017	−0.033	−0.033	−0.059
	(0.010)	(0.051)	(0.098)	(0.042)
At 5th income decile	−0.020****	−0.058	−0.100	−0.062
	(0.007)	(0.041)	(0.083)	(0.038)
At 10th income decile	−0.023***	−0.090*	−0.184**	−0.066*
	(0.009)	(0.052)	(0.077)	(0.036)
Male	−0.122****	−0.122****	−0.122****	−0.122****
	(0.017)	(0.017)	(0.017)	(0.018)
Age	−0.042****	−0.042****	−0.041****	−0.042****
	(0.005)	(0.005)	(0.005)	(0.005)
Age (sq.)/100	0.050****	0.050****	0.050****	0.050****
	(0.005)	(0.005)	(0.005)	(0.005)
Health (subjective)	−0.660****	−0.660****	−0.660****	−0.660****
	(0.026)	(0.026)	(0.026)	(0.026)
Ys of education	0.046****	0.044****	0.045****	0.046****
	(0.013)	(0.013)	(0.013)	(0.013)
Ys of education (sq.)/100	−0.138****	−0.135****	−0.136****	−0.139****
	(0.038)	(0.039)	(0.038)	(0.038)
Looking for job (d)	−0.995****	−1.000****	−0.994****	−0.994****
	(0.072)	(0.074)	(0.073)	(0.072)
Unemployed (d)	−0.640****	−0.644****	−0.641****	−0.640****
	(0.093)	(0.093)	(0.092)	(0.093)
Retired (d)	0.207****	0.209****	0.206****	0.208****
	(0.036)	(0.035)	(0.036)	(0.036)
Children (d)	0.101****	0.099****	0.102****	0.100****
	(0.021)	(0.021)	(0.021)	(0.021)
GDP per capita (log)	1.856***	2.197****	2.106****	1.493*
	(0.698)	(0.705)	(0.670)	(0.731)
GDP growth (%)	0.011	0.016	0.015	0.006
	(0.027)	(0.027)	(0.028)	(0.027)
Adj. R-squared	0.271	0.271	0.271	0.271
No. of clusters	25	25	25	25

Table 1 continued

	(1) GOVTE	(2) HEALTH	(3) EDUCATION	(4) SOCPROTECT
No. of cases	151,244	151,244	151,244	151,244

OLS with clustered standard errors. All estimates include country and wave fixed effects. Standard errors in parentheses in second row

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.025$; **** $p < 0.01$

In all specifications, controls are in line with theoretical considerations and previous empirical investigations. Women report higher life satisfaction than men. We also observe the usual u-shaped relation of age to life satisfaction, while the number of education years appears to have an inverse u-shaped relationship with happiness levels. Being unemployed substantially reduces life satisfaction, and the effect is most pronounced for people who are still looking for a job. A bad individual health status is negatively associated with reported well-being, while retiring and having children at home are positively related to life satisfaction. GDP per capita is positively associated with personal well-being, while GDP growth is not significant, indicating that our STFLIFE measure is more responsive to longer-run developments.

In line with expectations, people living in high income households report higher levels of life satisfaction. The estimated marginal effect of one step upwards on the income deciles ladder varies between $+0.13$ and $+0.21$, and is highly significant across all model specifications. The GOVSIZE variables are all negatively related to STFLIFE, but not significant at conventional levels. All interactions INCOME $\times$ GOVSIZE have a negative sign. Yet, only the interaction of INCOME $\times$ EDUCATION has a coefficient that is also statistically significant from zero.

Coefficients of INCOME and GOVSIZE, however, must not be read independently from the interaction term. For example, the coefficient of the GOVSIZE variables in Table 1 shows the marginal effect of increased spending on life satisfaction of respondents from the lowest income decile. Simple OLS results indicate that neither total spending (GOVTE), nor HEALTH, EDUCATION, or social protection (SOCPROTECT) spending have any effect (positive or negative) on life satisfaction for members of the 1st income decile. Although such benefits are certainly aimed to insure citizens against all kinds of income losses from risks, e.g. unemployment, injuries and disease, they do not appear to impact positively on life satisfaction of the poorest deciles.

Turning to the 10th income decile, all spending categories are negatively related to life satisfaction of the income group at the top, meaning that increases in public spending generally reduce their happiness levels, probably through the impact on tax burdens. Coefficients are statistically significant and substantially bigger than for the lowest income decile.

In the middle of the income distribution (5th decile) we find a significantly negative relationship to life satisfaction of GOVSIZE increases in the case of total spending GOVTE, and social protection spending SOCPROTECT (borderline

significant, *p* value of 0.114). Education and health spending in general are not related to life satisfaction at the 5th income decile.

In general, the coefficients of the average marginal effects are small (close to zero) in all specifications. For total expenditures, as well as for health and social protection spending coefficients are also not significant at any conventional level. Note that the marginal effects get considerably large for higher income levels, anyway.

6 Accounting for endogeneity of personal income

The relationship between individual income position and reported happiness may yet be characterized by reverse causality or driven by omitted variables. Powdthavee (2010, p. 78) lists five major sources for a potential bias of life satisfaction-income estimates: Reverse causality could lead to an overestimation as happy people tend to be more productive and have higher wages compared to unhappy ones. If relative income is more important than absolute income levels, missing information on the income of relevant peer groups biases estimates downwards. Sources for an omitted variable bias come from the difficulty to control for the adaption and aspiration to income; and several factors may be related to an individual's use of time for family and work. As some of these factors point to an overestimation of the real effect in simple OLS-regressions, while others suggest an underestimation, the overall effect is not clear a priori. Except for a few quasi-experimental studies (e.g. Frijters et al. 2004; Gardner and Oswald 2007) endogeneity issues are, however, rarely addressed adequately.

Recently, a few studies use an instrumental variables two stage-least squares (TSLS) approach to overcome a potential bias. Lydon and Chevalier (2002) predict income in a first stage by the income of one's spouse or partner. Powdthavee (2010) instruments real equivalent household income by the proportion of household members reporting payslip information from the British Household Panel Survey (BHPS). Luttmer (2005) instruments household earnings by aggregated earnings information of industries and occupations at a given point in time. Knight et al. (2009) employs two main sources of income as instruments: The years of education of the respondent's father and the respondent's own productive assets. All in all the findings of available IV-studies show a considerably stronger effect of individual income position on subjective well-being. This may explain why most studies report surprisingly low effects of income on life satisfaction: OLS simply appears to underestimate the causal effect.

Finding good instruments for relative income levels of survey respondents is crucial to identify causal effects here. Following Luttmer (2005) and Knight et al. (2009), we instrument individual income positions by two excluded instrumental variables, i.e. the mean income of respondents with the same occupation and in the same residence country as the respondent, and the mean income of respondents with the same education level of the respondent's father.

Using average income levels of different occupations assumes that occupation categories determine labor market income to a considerable degree, without having

a direct effect on people's life satisfaction. ESS provides information on respondents' occupations using the ISCO 88- and ISCO 08-classification of occupations.[6] We use average income of sub major groups (i.e. the first two digits of the ISCO-classification scheme) as instruments. From a conceptual point of view, the ISCO-classification groups together different jobs according to the similarity of skills considering both similarity in skill levels and skill specialization (Hoffmann and Scott 1993). Except for the "Armed forces", occupations in each sub major group can be considered to be at the same broad skill level. As occupations with higher skill levels and higher skill specialization require more human capital and higher abilities we expect these occupations to be correlated with higher relative income levels.

Concerns relate to the validity of the instrument. Working in different occupations does not only explain different income levels; it may also contribute to job satisfaction, and therefore life satisfaction, directly. Working as a highly specialized expert or as a manager with large discretionary power may be more satisfactory than doing repetitive tasks as a machine operator or a freight handler. Note, however, that sub-major occupation groups are broadly similar in required skill level and skill specialization; nevertheless they comprise occupations that are sufficiently diverse in their tasks, social interaction and status. Hence, job characteristics relevant for life satisfaction do not only vary across sub major groups but also within these groups. For example, the group "Sales and Services Elementary Occupations" comprises both "Garbage collectors" and "Door-to-door and telephone salespersons". The group "Life Science and Health Associate Professionals" includes "Farming and forestry advisers", "Pharmaceutical assistants" and "Faith healers". We presume that characteristics of these jobs are more important for the direct effect on life satisfaction than differences between sub major groups.

Second, we rely on the identifying assumption that parents' education has an impact on their children's relative income position. There is evidence for intergenerational income transmission taking place with education being an important factor.[7] Hence, we expect that the father's education level is correlated with respondent's income. Indeed, first stage regressions using mean income by fathers' education levels as single instrument (not reported here) confirm a strong relationship. Again, one may be concerned if well-educated parents pass life satisfaction on to their children which would challenge the exogeneity assumption. Children may inherit character traits that facilitate to find a positive attitude towards life. Children from highly educated parents are more likely to receive higher education themselves. As we control for education levels of respondents this channel should not bias our estimates. The most obvious direct life satisfaction impact is through social contacts. Being surrounded by (un)happy family members may considerably influence own life satisfaction. However, social interactions with

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[6] In order to obtain comparable occupation information over all waves, we have recoded the ISCO 88-information into the ISCO 08-scheme according to the correspondence table of the ILO (http://www.ilo.org/public/english/bureau/stat/isco/isco08/index.htm).

[7] For an overview see D'Addio (2007) pp. 39 ff., and Bowles and Gintis (2002) pp. 17 f.

family members are reduced if respondents are getting older. As the mean age of respondents is about 48 years, this direct effect is expected to be rather small. Finally, interaction terms of INCOME and GOVSIZE measures are instrumented by corresponding interactions of excluded instruments and GOVSIZE. In contrast to analyses which rely on country averages instead of individual level data of life satisfaction, endogeneity of macroeconomic policy measures is no cause for major concern.

7 Results from two-stage-least-squares regressions

Before presenting the results, note that using two excluded instruments enables us to perform over-identification tests. Assuming exogeneity of one set of instruments allows to test the exogeneity of the other set of instruments: In our case, Hansen's J-statistics in all specifications are sufficiently low; we cannot reject the null hypothesis of the other instruments being exogenous at any conventional level of confidence. This indicates that the instruments are appropriately uncorrelated with the error term. The results of the second stage estimates are displayed in Table 2.[8]

Coefficient estimates of INCOME are substantially higher in our IV-estimates as compared to simple OLS in Table 2, which is in line with results from previous research. INCOME appears to be a much stronger predictor for individual well-being when appropriately instrumented, and it also holds for the estimated coefficients of interaction terms, that are much larger than in our OLS-estimates. In all regressions the interaction term has the expected negative sign, and as compared to simple OLS regressions gains significance in all specifications.

Looking at the marginal effects of our GOVSIZE measures at different relative income levels, we find neither positive nor negative effects at the 1st income decile. In fact, estimated coefficients are far from being significant at any conventional confidence level. On the other hand, respondents from high income households at the top of the distribution report reduced well-being when spending is increased. The effects are quite strong. For example, a one percentage point increase of education spending over GDP, that is approximately one standard deviation in the sample, reduces reported life satisfaction by 0.33 points, i.e., 0.19 standard deviations in this income group.

To get a better impression of the effects of spending increases we refer to graphical presentations in Figs. 1, 2, 3 and 4. The figures display marginal effects of different measures of GOVSIZE on life satisfaction conditional on the respondent's income decile 0–9. The corresponding 10 %-confidence bands are derived from the IV-estimates of Table 2.

As regards total government expenditure (GOVTE), displayed in Fig. 1, we observe a negative impact of higher spending on life satisfaction across all income deciles. The effect is significant at the 10 %-level for all but the two income deciles

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[8] We do not report the whole set of control variables, as estimates are highly stable. Of course, results are available on request.

Table 2 Two stage least squares regression: Life satisfaction, income position and government size

	(1) GOVTE	(2) HEALTH	(3) EDUCATION	(4) SOCPROTECT
GOVSIZE	−0.002	0.014	0.120	−0.011
	(0.020)	(0.093)	(0.137)	(0.058)
Income deciles	0.360	0.287**	0.457****	0.317**
	(0.221)	(0.129)	(0.117)	(0.146)
Income × GOVSIZE	−0.004	−0.018	−0.051***	−0.008
	(0.005)	(0.019)	(0.020)	(0.008)
At 1st income decile	−0.002	0.014	0.120	−0.011
	(0.020)	(0.093)	(0.137)	(0.058)
At 5th income decile	−0.018****	−0.059	−0.083	−0.045
	(0.007)	(0.041)	(0.078)	(0.036)
At 10th income decile	−0.039*	−0.151	−0.338****	−0.088**
	(0.024)	(0.093)	(0.089)	(0.040)
Adj. R-squared	0.128	0.128	0.126	0.128
No. of cluster	25	25	25	25
No. of cases	151,244	151,244	151,244	151,244
F-test (Kleibergen-Paap)	19.672	19.194	20.362	19.202
p value (Hansen J)	0.742	0.872	0.461	0.652

TSLS with clustered standard errors. Standard errors in parentheses. Further covariates: See Table 2. Instrumented variables: income deciles and income deciles × GOVSIZE. Excluded instruments in 1st stage regressions are (1) mean income of respondents in the same occupation as the respondent, (2) the reported education level of the respondents father and (3) interaction effects of income decile and the respective GOVSIZE indicator with mean income of respondents and reported education level of the respondents father

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.025$; **** $p < 0.01$
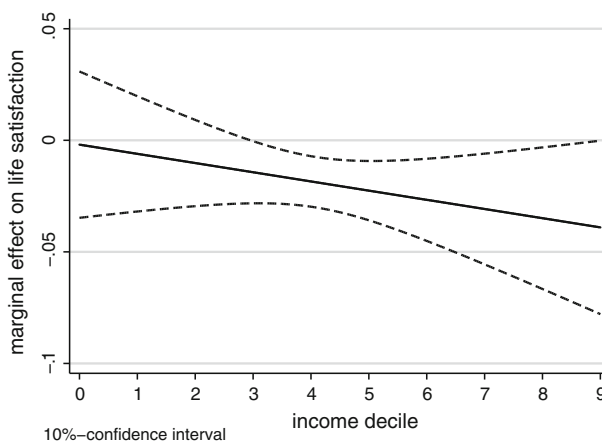
Fig. 1 Marginal effects of total government expenditure (GOVTE) on life satisfaction
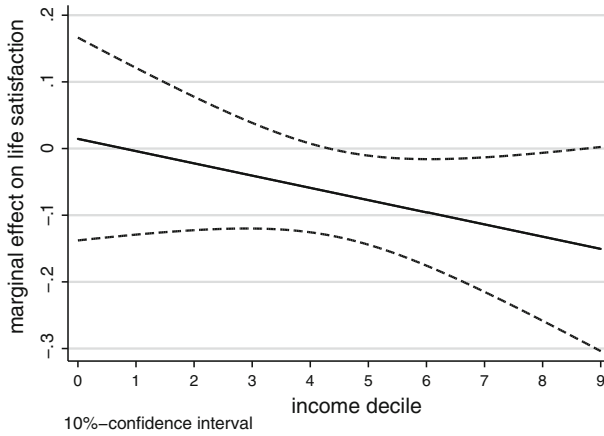
Fig. 2 Marginal effects of government health expenditure (HEALTH) on life satisfaction
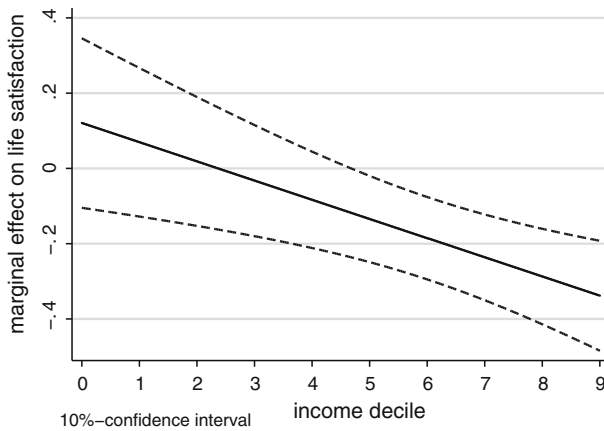
Fig. 3 Marginal effects of government education expenditure (EDUCATION) on life satisfaction

at the bottom of the income distribution. Yet, the effects are economically not very strong.

The marginal effects on life satisfaction of government health spending (HEALTH), conditional on income of the respondents, are shown in Fig. 2. Marginal effects are negative across all income levels except for the one at the bottom. Effects are statistically significant for households situated above the 5th income decile.

Strong income-conditional effects of education spending are displayed in Fig. 3. A marginal increase of EDUCATION is associated with a large positive life satisfaction effect for the 1st income decile which is, however, not significant. The

Fig. 4 Marginal effects of government expenditure on social protection (SOCPROTECT) on life satisfaction

marginal effect turns negative for the 4th income decile and reaches large and significant negative values from the 6th up to the 10th deciles.

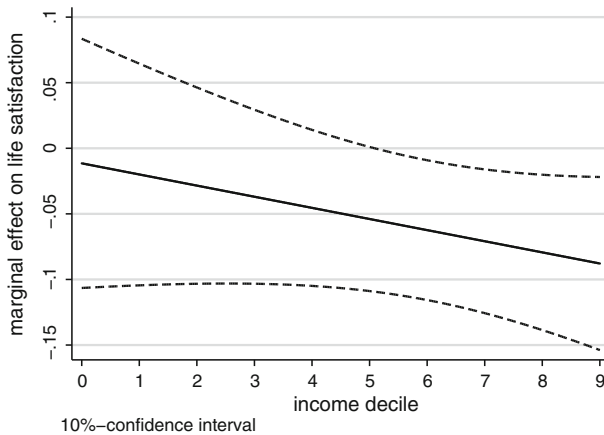Finally, Fig. 4 displays a significant negative relation between social protection spending and individual well-being levels for all income deciles. This seemingly surprising result may be caused on the one hand by the fact that SOCPROTECT is a very heterogeneous spending category, including old age pensions, unemployment benefits, family allowances etc. Expenditures therefore by construction benefit not only the poor but more or less all segments of society. On the other hand, high social protection spending is usually associated with a substantially higher tax burden. In combination with a lack of 'marksmanship', i.e. redistributive targets are not met, this may lead to an overall negative assessment of social protection spending.

Summing up so far, we find that different income groups indeed report different life satisfaction effects of marginal increases in government size. In all cases, it is the higher income earners whose individual well-being is negatively associated with increases of government size. Surprisingly, we do not find any positive well-being effect of increased spending for low income groups.

8 Robustness checks

Our research question requires identification of a causal effect of government size on individual well-being for a given income position of individuals. If redistributive government activities influence the income levels during the period of observation, reported income depends on government spending itself, as well as on the associated higher tax burden. This causes potential concerns for our estimates, as beneficiaries may advance to higher income deciles and therefore report higher life satisfaction. To test robustness and to reduce potential biases of results, we restrict

Table 3 Two stage least squares regression: Life satisfaction, income position and government size (using income quartiles)

	(1) GOVTE	(2) HEALTH	(3) EDUCATION	(4) SOCPROTECT
GOVSIZE	−0.003	0.052	0.114	−0.046
	(0.023)	(0.087)	(0.143)	(0.054)
Income quartiles	1.057*	0.794**	1.227****	0.884***
	(0.617)	(0.356)	(0.312)	(0.368)
Income × GOVSIZE	−0.013	−0.055	−0.139****	−0.025
	(0.013)	(0.052)	(0.053)	(0.020)
At 1st income quartile	−0.003	0.052	0.114	−0.046
	(0.023)	(0.087)	(0.143)	(0.054)
At 2nd income quartile	−0.017	−0.003	−0.025	−0.072*
	(0.011)	(0.051)	(0.107)	(0.042)
At 3rd income quartile	−0.030****	−0.058	−0.164*	−0.097****
	(0.008)	(0.055)	(0.089)	(0.038)
At 4th income quartile	−0.043***	−0.113	−0.303****	−0.123****
	(0.018)	(0.094)	(0.099)	(0.043)
Adj. R-squared	0.123	0.123	0.120	0.123
No. of cluster	25	25	25	25
No. of cases	151,244	151,244	151,244	151,244
F-test (Kleibergen-Paap)	19.321	19.221	20.554	19.086
p value (Hansen J)	0.940	0.798	0.491	0.915

TSLS with clustered standard errors. Standard errors in parentheses. Further covariates: See Table 2. Instrumented variables: income quartiles and income quartiles × GOVSIZE. Excluded instruments in 1st stage regressions are (1) mean income of respondents in the same occupation as the respondent, (2) the reported education level of the respondents father and (3) interaction effects of income quartile and the respective GOVSIZE with mean income of respondents and reported education level of the respondents father

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.025$; **** $p < 0.01$

the number of income classes to quartiles in Table 3, as this makes it less likely that a person moves to different income classes as a consequence of government spending or taxation.[9]

The revised specifications confirm our main results. The lowest income quartile does not observe statistically significant effects of government size on subjective well-being. Again, the effect of increased government size depends on the relative income levels of respondents. Compared to lower income quartiles, respondents in higher income quartiles are substantially worse off if government size is increased. This income-conditional effect of government activities seems to be most pronounced with regard to education expenditures. The interaction terms of other government size measures also indicate a substantial decline of the life satisfaction-effect for higher income quartiles. Marginal effects of the expenditure measures for

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[9] We owe this idea to Justina A. V. Fischer.

Table 4 TSLS-results for non-transition countries

	(1) GOVTE	(2) HEALTH	(3) EDUCATION	(4) SOCPROTECT
GOVSIZE	−0.020	−0.054	0.062	−0.055
	(0.014)	(0.064)	(0.123)	(0.061)
Income deciles	0.039	0.124*	0.350****	0.066
	(0.136)	(0.064)	(0.080)	(0.112)
Income × GOVSIZE	0.002	0.002	−0.038****	0.004
	(0.003)	(0.011)	(0.014)	(0.007)
At 1st income decile	−0.020	−0.054	0.062	−0.055
	(0.014)	(0.064)	(0.123)	(0.061)
At 5th income decile	−0.012**	−0.047	−0.090	−0.041
	(0.006)	(0.042)	(0.088)	(0.042)
At 10th income decile	−0.002	−0.039	−0.279****	−0.023
	(0.015)	(0.065)	(0.084)	(0.037)
Adj. R-squared	0.129	0.129	0.129	0.129
No. of cluster	19	19	19	19
No. of cases	123,301	123,301	123,301	123,301
F-test (Kleibergen-Paap)	15.327	15.124	15.594	15.420
p value (Hansen J)	0.053	0.104	0.100	0.070

TSLS with clustered standard errors. Standard errors in parentheses. Further covariates: See Table 2. Instrumented variables: income deciles and income deciles × GOVSIZE. Excluded instruments in 1st stage regressions are (1) mean income of respondents in the same occupation as the respondent, (2) the reported education level of the respondents father and (3) interaction effects of income decile and the respective GOVSIZE indicator with mean income of respondents and reported education level of the respondents father

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.025$; **** $p < 0.01$

the top income quartile are significant (except for HEALTH) and negative, ranging between −0.044 (GOVTE) and −0.31 (EDUCATION).

In a further robustness check, we exclude transition countries from our sample. Given the differences in socialization and experiences of citizens with socialist governments, one might expect average effects of government size on life satisfaction to vary systematically between transition countries and developed countries. However, we observe still a similar pattern in the reduced data set. Hence, results are not driven by the post-socialist economies in our sample (Table 4).

The use of all ESS-waves for our purpose required recoding of household income for all observations in the first two waves. Transformation from absolute income intervals into deciles (and quartiles) makes our income variable less precise in these periods compared to the information in rounds 3–6. Tables 5 and 6 account for this potential shortcoming and drop observations with no information on relative income. Waves 3–6 comprise still more than 80,000 observations in 23 countries. The general pattern remains unchanged. In specifications 1, 2 and 4 the coefficient for government size is not significantly different from zero. The effects of government size, income and the interaction term are more pronounced in the

Table 5 OLS-results for waves 3-6

	(1) GOVTE	(2) HEALTH	(3) EDUCATION	(4) SOCPROTECT
GOVSIZE	−0.011	−0.005	0.207*	−0.026
	(0.006)	(0.149)	(0.109)	(0.048)
Income deciles	0.189***	0.187****	0.244****	0.174****
	(0.076)	(0.057)	(0.044)	(0.046)
Income × GOVSIZE	−0.001	−0.009	−0.021***	−0.003
	(0.002)	(0.008)	(0.008)	(0.003)
At 1st income decile	−0.011	−0.005	0.207*	−0.026
	(0.006)	(0.149)	(0.109)	(0.048)
At 5th income decile	−0.016****	−0.041	0.125	−0.037
	(0.004)	(0.146)	(0.106)	(0.047)
At 10th income decile	−0.022**	−0.085	0.023	−0.050
	(0.010)	(0.151)	(0.115)	(0.049)
Adj. R-squared	0.292	0.292	0.293	0.292
No. of clusters	23	23	23	23
No. of cases	80,702	80,702	80,702	80,702

OLS with clustered standard errors, standard errors in parentheses. Further covariates: See Table 2

restricted sample. The only notable change of our results occurs in specification 3. Now, government spending on education has a large positive effect on the poorest income decile and a negative (but insignificant) effect on the top decile earners whereas we found a positive insignificant effect for the poor and a large negative effect in the entire sample including recoded income.

Table 11 in the "Appendix" shows the range of coefficients of the IV-specifications from a jackknife exercise that repeatedly runs our IV-regression with one country omitted in each repetition. Due to the small number of countries there is some variation in the size of our IV-estimates. However, the qualitative pattern remains the same as in the baseline specifications: The interactions term shows a negative sign in all specifications. High income earners are always negatively affected from bigger governments, and bigger government has a clear positive impact on well-being of the poor only for government expenditures on education.

9 Conclusions

What effect does government size have on life satisfaction levels, and how do effects differ between income groups of society? The paper addresses effects of government size, as measured by a set of spending variables, on subjective well-being of individuals belonging to different income groups. The analysis is based on

Table 6 IV-results of waves 3–6

	(1) GOVTE	(2) HEALTH	(3) EDUCATION	(4) SOCPROTECT
GOVSIZE	0.004	0.034	0.337****	0.037
	(0.015)	(0.186)	(0.122)	(0.068)
Income deciles	0.449*	0.351**	0.511****	0.408****
	(0.229)	(0.159)	(0.125)	(0.153)
Income × GOVSIZE	−0.006	−0.025	−0.058****	−0.013
	(0.005)	(0.022)	(0.022)	(0.008)
At 1st income decile	0.004	0.034	0.337****	0.037
	(0.015)	(0.186)	(0.122)	(0.068)
At 5th income decile	−0.019****	−0.067	0.105	−0.014
	(0.006)	(0.162)	(0.105)	(0.054)
At 10th income decile	−0.047*	−0.194	−0.185	−0.079
	(0.028)	(0.194)	(0.166)	(0.061)
Adj. R-squared	0.132	0.132	0.131	0.131
No. of cluster	23	23	23	23
No. of cases	80,702	80,702	80,702	80,702
F-test (Kleibergen-Paap)	18.816	17.645	18.634	18.259
p value (Hansen J)	0.671	0.894	0.745	0.533

TSLS with clustered standard errors, standard errors in parentheses. Further covariates: See Table 2. Instrumented variables: income deciles and income deciles X GOVSIZE. Excluded instruments in 1st stage regressions are (1) mean income of respondents in the same occupation as the respondent, (2) the reported education level of the respondents father and (3) interaction effects of income decile and the respective GOVSIZE with mean income of respondents and reported education level of the respondents father

individual data from more than 150,000 respondents in 25 European countries participating in the European Social Survey. In contrast to many previous studies we take account of the endogeneity between relative income position and reported life satisfaction with an instrumental variables approach.

First, our results indicate that the expected positive impact of relative income position on subjective well-being is substantially stronger when the individual income variable is instrumented appropriately. There is clear evidence of an endogeneity of relative income and life satisfaction, as theory would suggest. Second, our investigations support the view that increased public spending has differential effects on well-being, depending on income position and spending category.

Estimates of marginal effects of different spending categories at different income levels show that increases in spending regularly have a strong negative effect on higher income groups. Surprisingly, low income groups do not appear to benefit from further spending increases. While social protection, health and education spending at least do not reduce the reported subjective well-being of income groups at the bottom of the income distribution, marginal happiness effects of spending

increases are clearly negative for the highest income groups in case of these spending categories. Higher expenditures for social protection show a negative marginal well-being impact across all income groups, although effects are not statistically significant at the bottom of the distribution.

Note, that this does not mean that people do not benefit from government spending at all, and we are reluctant to conclude that government expansion is irrelevant for people's well-being. Most importantly, all effects are conditional on income, meaning that we should interpret the effect of, say, education spending or social protection, as the residual effect on life satisfaction beyond the income channel. One element of this residual effect is the individual's perception how government spending will affect future income perspectives. High education is seen—especially for the poor—as key for the social uplift of themselves or their children. The expectation of higher (relative) income in the future and the anticipation of an improved social status makes people more satisfied with their lives. Social protection is quite different. Although a high amount is spent by modern welfare states on social protection, this does only impact on the recipients' life satisfaction by relaxing their budget constraint in the present. The 'residual effect', however, is rather small. People cannot expect to benefit much from higher social support in terms of future income. To the contrary, relying on social assistance is considered as accompanied by a „stigmatization" of recipients which might lead to a negative impact of a generous social security system if society considers welfare recipients as free riders. In addition, the recipient may become aware of being locked in a relative poor income position if high assistance is granted.

Our estimates yet support the notion that in the sample of developed European countries government spending has reached a high level that makes further increases of spending detrimental to overall life satisfaction of citizens. As in most of our estimates we do not find a positive effect of spending increases on life satisfaction, even for respondents at the bottom of the income distribution, the results strengthen the view that a high tax burden associated with expansion of social security systems, harms not only the top income earners but eventually all income segments of society, thus confirming rather a public choice than a 'benevolent and omnipotent' view of government.

Appendix

See Tables 7, 8, 9, 10 and 11.

Table 7 Number of observations for each country and each ESS wave

Country	2002	2004	2006	2008	2010	2012
Austria	1238	1049	1271			
Belgium	1131	1126	1284	1314	1207	1443
Bulgaria			928		1838	1763
Switzerland			1353	1226	1106	1122
Cyprus			673		632	741
Czech Republic	825	1521		1260	1440	1174
Germany	2011	1870	1880	1965	2068	2089
Denmark	1177	1197	1223	1251	1287	1320
Estonia				1167	1190	1588
Spain	732	755	956	1321	1180	1226
Finland	1666	1725	1641	1917	1611	1903
France		1219	1405	1495	1328	1479
Great Britain	1433	1222	1580	1652	1391	1249
Greece	1406	1313		1028	1445	
Hungary		1093		976	1073	1170
Ireland		1481	1036	1382	1424	1627
Italy	484	765				469
Luxembourg	659	785				
Netherlands	1793	1403	1464	1388	1294	1341
Norway	1660	1607	1577	1411	1375	1458
Poland	1421	1154	1126	1094	1137	1218
Portugal	875	941	965	801		826
Sweden	1826	1758	1536	1522	1212	1474
Slovenia	1020	738	973	789	858	782
Slovakia		728	864		1093	1092

Table 8 Mean of government size indicators (spending as percent of GDP) by country

Country	GOVTE	HEALTH	EDUCATION	SOCPROTECT
Austria	51.04	7.42	5.33	20.75
Belgium	50.68	7.16	5.95	18.42
Bulgaria	35.85	4.44	3.72	12.41
Switzerland	33.26	1.97	5.89	12.99
Cyprus	45.01	3.27	7.00	11.34
Czech Republic	43.67	7.35	4.78	13.26
Germany	46.19	6.83	4.14	20.41
Denmark	54.79	7.66	7.51	23.72
Estonia	40.29	5.21	6.67	13.09
Spain	41.81	5.89	4.55	14.46
Finland	51.38	7.07	6.21	21.83
France	54.51	7.89	5.87	22.69

Table 8 continued

Country	GOVTE	HEALTH	EDUCATION	SOCPROTECT
Great Britain	45.84	7.20	6.17	16.16
Greece	48.31	6.17	3.74	16.82
Hungary	49.12	5.17	5.46	17.17
Ireland	43.86	7.34	5.05	13.84
Italy	48.43	6.81	4.49	18.67
Luxembourg	42.06	4.89	4.84	17.46
Netherlands	47.61	7.08	5.56	16.14
Norway	43.39	7.29	5.73	16.85
Poland	43.62	4.65	5.78	16.85
Portugal	45.14	6.70	6.52	15.41
Sweden	52.92	6.85	6.97	22.05
Slovenia	46.71	6.52	6.45	17.28
Slovakia	37.90	5.70	4.05	12.17

Source: Eurostat

Table 9 Summary statistics of individual characteristics

Variable	Count	Mean	SD	Min	Max
Life satisfaction	151,244	7.099	2.183	0	10
Income quartiles	151,244	1.546	1.113	0	3
Income deciles	151,244	4.621	2.803	0	9
Male	151,244	0.498	0.500	0	1
Age	151,244	48.267	16.798	15	103
Age (sq.)/100	151,244	26.119	17.034	2	106
Health (subjective)	151,244	2.165	0.892	1	5
Ys of education	151,244	12.656	4.042	0	56
Ys of education (sq.)/100	151,244	1.765	1.098	0	31
Looking for job (d)	151,244	0.038	0.192	0	1
Unemployed (d)	151,244	0.014	0.118	0	1
Retired (d)	151,244	0.220	0.414	0	1
Children (d)	151,244	0.297	0.457	0	1
Father's education: not comparable (d)	151,244	0.024	0.153	0	1
Father's education: no secondary level (d)	151,244	0.329	0.470	0	1
Father's education: lower secondary level (d)	151,244	0.205	0.404	0	1
Father's education: upper secondary level (d)	151,244	0.280	0.449	0	1
Father's education: post secondary level (d)	151,244	0.022	0.146	0	1
Father's education: tertiary level (d)	151,244	0.138	0.345	0	1
Father's education: other (d)	151,244	0.002	0.048	0	1

Table 10 Summary statistics of country variables

Variable	Count	Mean	SD	Min	Max
GDP per capita (log)	119	3.807	1.352	1.839	7.741
GDP growth (%)	119	1.123	2.330	−5.744	7.412
GOVTE (% of GDP)	119	46.268	6.088	32.085	66.073
HEALTH (% of GDP)	119	6.377	1.425	1.841	8.466
EDUCATION (% of GDP)	119	5.622	1.044	2.928	8.003
SOCPROTECT (% of GDP)	119	17.237	3.655	9.912	25.253

Table 11 Jackknife analysis of IV-regression: range of coefficients

	(1) GOVTE Min/Max	(2) HEALTH Min/Max	(3) EDUCATION Min/Max	(4) SOCPROTECT Min/Max
GOVSIZE	−0.015; 0.030	−0.041; 0.092	0.031; 0.198	−0.048; 0.042
Income deciles	0.178; 0.522	0.193; 0.406	0.341; 0.495	0.209; 0.390
Income × GOVSIZE	−0.008; −0.001	−0.036; −0.006	−0.060; −0.033	−0.013; −0.003
At 1st income decile	−0.015; 0.030	−0.041; 0.092	0.031; 0.198	−0.048; 0.042
At 5th income decile	−0.022; −0.001	−0.087; −0.035	−0.119; −0.028	−0.075; −0.008
At 10th income decile	−0.050; −0.020	−0.229; −0.094	−0.377; −0.263	−0.109; −0.062
Countries	25	25	25	25

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