Quality of government
and subjective poverty in Europe

Massimo Baldini¹, Vito Peragine², Luca Silvestri³

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Abstract

We study the effect of quality of government on subjective poverty across European regions, taking advantage of recently released data on the quality of public institutions at the regional level, and of information on household subjective poverty. In the analysis we try to separate the effects on perceived well-being of quantity and quality of public services, controlling for the size of the local government and for the receipt of in-kind services by each household of the sample. Results suggest that good governance significantly reduces the probability of being subjectively poor, both over the whole population and also among households that are poor in terms of monetary income. We then estimate the greater cost that a family has to bear in order to achieve a given level of welfare, if it lives in a region with inefficient public institutions. Our measure of this inefficiency cost is 6% of disposable income.

Jel Codes: I32, H1, H7

Keywords: Quality of government, subjective poverty, minimum income, European regions, poverty line.

1 Introduction

Empirical research on poverty and inequality is typically based on an income definition that includes all forms of cash incomes plus, often, imputed rents on owner-occupied dwellings. Economies of scale within the household are taken into account with an equivalence scale. Implicit in this traditional approach is the hypothesis that a unit of income has the same effect on well-being irrespectively of the quantity and quality of public services that are available in the area of residence. To address this deficiency, the value of transfers in kind received from the government

¹ University of Modena and Reggio Emilia.
² University of Bari.
³ University of Modena and Reggio Emilia.
for free or at prices lower than their costs is sometimes added to cash income (Aaberge et al., 2013). This is an important correction, since the simple comparison of cash incomes of people living in different regions or countries could be misleading, if there are important differences in the costs that households must pay to obtain health or education services, or in the quantities received of them. Households living in a country where public authorities provide good and abundant health or education services at low cost can reach substantially greater levels of well-being with respect to households that have the same composition and cash income but must buy these services, totally or in part, in the market. Studies providing estimates of the distribution of “extended” income are, however, based on the implicit assumption that the quality of public services and the efficiency of governments are the same in the whole area where surveyed households live. However, households resident in a region with efficient institutions can reach greater levels of well-being than those residing in regions or countries where public services are of inferior quality. An efficient government can convert a given amount of public expenditure into a greater amount of services provided to households. People living in areas with high quality public institutions may feel more secure because they know that they can rely on public services when they need them. We therefore expect that the quality of government can have an impact on poverty: people with low incomes but living in areas with highly efficient government are likely to feel to be less poor than others with the same monetary income, but living in regions or countries characterized by inefficient or corrupt institutions. Households with even significant incomes may feel deprived and insecure in areas with low quality government, for example if they have to buy from the market some goods or services because those produced by the state are deemed to be of too poor quality or are difficult or impossible to reach, being subject to too much bureaucracy or to excessive waiting lists or to distribution criteria based on cronyism. These differences in living standards, which might be substantial, are neglected by the traditional approach based on the comparison of equivalent disposable incomes.

We take advantage of the recent availability of data providing information on the quality of government at the subnational level in Europe to verify these hypotheses. In particular, we study whether subjective monetary poverty is lower in areas with good quality of government. Our study uses microdata on households’ incomes and conditions from the Eu-Silc survey, attaching to each household a measure of quality of government in the area of residence. The analysis covers most of the European Union countries and finds that living in regions with high-quality services actually reduces subjective poverty. The results are robust to the inclusion in the analysis of the quantity of public services present in the area and received by each household, allowing us to separate the effects on subjective poverty caused by the quantity of public services from those which depend on the quality of institutions.

Section 2 of the paper briefly reviews the literature concerned with the relationship between subjective well-being and quality of government; the empirical strategy and the data used for our analysis are described in section 3; section 4 presents the basic results. Section 5 applies a correction for government efficiency to the derivation of subjective poverty lines, and section 6 concludes.
Quality of government, well-being and subjective poverty

A given expenditure on in-kind services, for example education or health care, may hide profound geographical differences in the way these resources are actually managed and allocated. The assumption of equal efficiency of public services may perhaps be justified in relatively homogeneous contexts like some north European countries, but is clearly unfounded for other nations where significant differences in the actual quality of public services across regions are well documented. In Italy, for example, the divide between the Centre-North and the Southern regions is apparent (Afonso e Scaglioni, 2006; Agasisti e Sibiano, 2011) and perhaps widening following the cuts in expenditure after the recent crisis and the austerity policies of the last few years. The provision of public services may therefore have a different impact on living standards of citizens according to their effective quality. One of the implications of this is that a correct measure of equivalent income should encompass also the quality of in-kind transfers received, and also of public institutions in general.

Quality of government can be seen as an important instrument in the process of converting economic resources in factual well-being. In the capabilities approach, for example, the presence of reliable institutions that can be trusted on may be considered a fundamental condition to achieve an ample set of functionings. The ability to get around in a town to reach the places of study or work may be severely hampered by lack of security in the streets or an inefficient public transport system. Similarly, the presence of health care services is not a sufficient condition to guarantee good health levels to the population, if these services are difficult to access for a part of the population, or too costly, or subject to favoritism or corrupt practices. Many studies have indeed shown the presence of a positive correlation between quality of government and good population health (Gupta et al. 2000, Hall and Lamont 2009, Rothstein 2011).

Turning to the relationship between poverty and quality of government, Gupta et al. (2002) find that corruption increases inequality and reduces the growth rate of the poorest income quintile. In this international comparison, the results are robust using both OLS and IV. Holmberg and Rothstein (2010) investigate, instead, the correlation between the level of development of democracy and absolute poverty. They show that it is very important to correctly define the quality of government, and figure out what can be explained by that definition. They also show that not necessarily a society with a higher level of democracy is a society with less poverty.

Closer to the object of the present analysis, some papers have studied the relationship between quality of government and subjective well-being (which can be broadly defined as a measure of how an individual evaluates her quality of life). Chong and Calderón (2000) for example perform a cross-country analysis from 1960 to 1990 and find a strongly negative correlation between institutional quality and poverty. They also conclude that quality of government has a positive impact on income and equality only for richer countries.

Ott (2010) uses a dataset including 130 countries and finds that the impact on subjective well-being of the quality of government is greater than that of measures of democracy and of the size of government, and also of the quantity of public goods produced. Helliwell and Huang (2008) too find a strong effect of quality of government on subjective well-being, particularly in poorest countries, where “delivery quality” seems to matter more than the presence of formal democratic
rules. Also Frey and Stutzer (2000) test if direct democracy and federalism improve happiness of the people. They get the result that federalism improves happiness, but even greater is the effect of direct democracy. In this area of research it is often difficult to distinguish between correlation and causality, not only for problems in the data, but also because the pattern of causality is intrinsically difficult to establish with precision. The existence of a clear positive correlation between subjective well-being and quality of government, in any case, seems well-founded. Our research is the first that, using microdata on households, focuses on a specific aspect of subjective well-being, namely subjective poverty, making use of data about differences in the quality of government across European regions.

3 Data and empirical strategy

The data that we use to measure the quality of public services at the sub-national level come from the "Quality of Government Institute" of the University of Gothenburg. In particular, the Quality of government EU Regional Data are the result of a survey carried out at the sub-national level across Europe in 2010 and then repeated in 2013 (Charron et al., 2014). The survey was conducted over the 28 European Union member countries and involved around 34,000 people in 2010 and 85,000 in 2013. It has collected information about quality of government not from national experts, as it is usual for this kind of surveys, but from citizens, and was conducted in 2010 and in 2013. It was implemented by placing each respondent 16 questions in which she was asked to evaluate some parameters of the "Quality of Government." Specifically, the three pillars on the basis of which the questions are formulated are "quality", "impartiality" and "corruption". Since the aim of this survey was to gather opinions about the quality of government at the regional level, at least 400 persons have been interviewed in 2013 for each of the regions surveyed in the 24 European countries. For each of the three pillars, the questions considered three areas of policy where it is legitimate to expect variation in the quality of provision at the local level, being typically administered at the sub-national level: health care, education and law enforcement. The questions tried to elicit citizens’ opinions about three concepts that constitute important dimensions of the general concept of the quality of government: the quality of the services, whether they are delivered with impartiality, and the possible presence of corruption in their area of residence. Finally, the survey asked two specific questions regarding the ability of the media to identify corruption in the public sector and the perceived freedom of elections. Data from this survey were then used to create the "EQI" index (European Quality of Government Index) which connects these results with the famous World Bank's World Governance Indicators (WGI), obtaining an index that can summarize the quality of government at sub-national level while continuing to consider its multidimensionality. The EQI index has been calculated as

\[
EQI_{ac} = WGI_c + (Rqo\_ac - CRqo\_c)
\]

i.e. the EQI index for region \(a\) in country \(c\) is the difference between the regional and national results of the answers to the questions, added to the WGI index value for country \(c\) as a whole. In the remainder of this paper we denote this index also with QoG, i.e. quality of government. In some particular states (especially, but not for all, those in which there is only one NUTS1 level) it
was not possible to differentiate among sub-national level: in these cases the EQI value is simply the score of the WGI. In some countries there is significant variation in the regional QoG indicators, for example in Italy, France, Bulgaria and Spain, while in others the regional variation is much lower (Sweden Denmark, Finland). We use this survey for the final value of the standardized EQI index and also for the results of the individual questions and the combination of some of them. We consider 5 possible sub-indicators of quality of governance: the three pillars already mentioned for the calculation of QoG (quality, impartiality and corruption) and the information specifically related to public education and public health. We believe that maintaining separate education and health provide useful information to understand how each of the two services affects the perceived poverty. The questions we have chosen to represent the sphere of public education (the same for health care) are:

- "How would you rate the quality of public education in your area?"
- "Certain people are given special advantages in the public education system in my area"
- "All citizens are treated equally in the public education system in my area"
- "Corruption is prevalent in my area's local school system"

Each of them had to be answered with a score from 0 to 10. We harmonized raw scores to make them compatible with the data on Eu-Silc (using the relative population as weight). To sum up, we got 5 variables (EQI, Quality, Impartiality, Corruption, Education and Health), at the same territorial level and then directly comparable with the variables present in Eu-Silc.

In addition to quality, we also control for the amount of public services provided at the regional level, to reduce the legitimate doubt of omitted variables. The controls we use are four, all referring to the same territorial division present in EU-Silc: the number of physicians per 100,000 thousand inhabitants, the school participation rate of 4 years children, the number of public employees per capita and the gross value added of the public sector in thousands of Euros per capita. These variables come from the European regional Statistics Database provided by Eurostat and (to compensate the lack of data regarding the number of physicians for some countries) by the World Health Organization. The Appendix provides more details about these variables. With the introduction of these controls, we can differentiate the effect of the quality of services from that of their quantity. In addition to these four measures of public services quality, which are common to all households living in the same region, we add also two measures of in-kind services specifically received by each family, using the information provided in the paper by Aaberge et al. (2013), which estimates the distribution of in-kind services across households for the 28 EU countries.

As already discussed, a household living in an area characterized by institutions of good quality should perceive as easier to “make ends meet” with respect to a similar household with the same cash income, but living in an area with public services of lower quality. This poor quality may force a household to buy in the private market goods or services that are substitutes of the public ones, in sectors such as health care, transport or education. Therefore, this household has actually a
lower standard of living, despite having similar income levels. Further, the presence of corruption or too much bureaucracy may produce a sense of insecurity that hampers the perspectives of improvement in personal economic conditions.

To test this hypothesis, we first check if subjective poverty is negatively correlated with the quality of government. The basic regression to be estimated is

\[
SP_{i,a} = P(\text{subjective poor}) = \alpha + \beta Q_a + \gamma \ln Y_{i,a} + \theta X_{i,a} + \zeta G_{i,a} + \varphi Z_a
\]

The dependent variable, \(SP_{i,a}\), is 1 if household \(i\) lives in area \(a\) and declares to be poor, i.e. it is subjectively poor, and 0 otherwise. This indicator of subjective poverty is taken from the answer to the following question, present in the Eu-Silc survey: “Thinking of your household's total income, is your household able to make ends meet, namely, to pay for its usual necessary expenses?”. The six possible answers are “with great difficulty”, “with difficulty”, “with some difficulty”, “fairly easily”, “easily”, “very easily”. We denote as subjectively poor those households responding “with great difficulty” or “with difficulty”. The variable \(Q_a\) is the indicator of quality of government in area \(a\), already described, \(Y_{i,a}\) is the monetary income of the household, \(X_{i,a}\) a vector of its demographic characteristics which are deemed to influence subjective poverty, \(G_{i,a}\) is the quantity of public goods and services in kind received by the household and \(Z_a\) is a quantitative measure (or a vector of possible indicators) of the size of the public sector in the region. Notice that in this expression two terms for the quantity of public services are present: a measure \((G_{i,a})\) that captures some public goods and services that can be attributed to each specific family on the basis of its demographic structure, for example health care or education, and a term \((Z_a)\) that tries to measure the size of public intervention in each area, whose value therefore is the same for all households living in the same region. Examples of this second term are the per capita value added produced by the public sector, or the number of workers employed in it. The introduction of measures of the quantity of public sector provision is necessary because otherwise we could run the risk of exaggerating the effect of quality of government on subjective poverty, if quantity and quality are, at least for some areas or for some spheres of public activity, positively correlated.

We study the impact of quality of government also considering the interrelationship between monetary and subjective poverty: if the hypothesis that government efficiency matters for living standards is correct, then the probability that a monetary poor household does not feel to be poor should be higher in areas with high-quality government.

The concept of monetary poverty is measured by the standard indicator of relative poverty, whereby a person is poor if the disposable equivalent income (without the imputed value of public services) of the household is lower than 60% of the median disposable equivalent income of the whole nation. Therefore, in the expression

\[
P(\text{Not subjective poor} | \text{relatively poor}) = \alpha + \beta Q_a + \gamma \ln Y_{i,a} + \theta X_{i,a} + \zeta G_{i,a} + \varphi Z_a,
\]

the dependent variable is 1 if the household is relatively poor in terms of monetary income, but does not feel to be poor (i.e., does not think to be able to make basic ends meet “with great difficulty” or “with difficulty”). We expect for the estimated coefficient \(\beta\) a positive sign in this case.
Conversely, one should find for the same reason, among households which are not poor in terms of relative income, a greater share of subjectively poor respondents in areas with low-quality public services. In this case, for the estimated equation

\[ P(\text{Subjective poor} \mid \text{not relatively poor}) = \alpha + \beta Q_a + \gamma \ln Y_{ia} + \theta X_{ia} + \zeta G_{ia} + \varphi Z_a, \]

the sign of \( \beta \) should be negative.

In general, the estimated relationship between subjective poverty and the quality of government of the region of residence can be distorted for different reasons. First, the causal relationship could go in both directions: in a rich area there are few poor persons and also only a few families that think to be poor, but this average high income level can also produce efficient institutions, also through high fiscal revenues. To take account of this possibility, in the regressions we control for the average income level of the area of residence, computed on the Eu-Silc data. Second, people can choose to move if they want to live in areas with high QoG; for these households, the QoG level is not exogenous, but a choice made by them. We propose a simple correction for this case below. Further, there could be a problem of omitted variables, if both subjective poverty and QoG partly depend on some variable that we do not consider. For example, the level of social capital of the region is likely to be correlated with both subjective poverty and QoG. Further, the opinion about personal resources may be influenced not only by characteristics of the environment (among which QoG is surely important) and of the household, but also by personal traits like a more or less optimistic attitude towards life in general. Fortunately, the Eu-Silc survey for 2013 contains a special section on wellbeing, with a lot of questions regarding also these personal appraisals, that can be introduced in the estimation. In the next section we present the results obtained with ordinary least squares regressions and some robustness analyses.

4 Subjective poverty and the quality of government: regression results

4.1 Results from regressions on pooled data

We start using the pooling of the two Eu-Silc surveys for the years 2010 and 2013, which correspond to the two years when the surveys concerning the opinion of European citizens on the quality of government have been conducted. The first regression that we run concerns the effect of the quality of government on the probability of feeling subjectively poor. All regressions are at the household level. We exclude households with yearly equivalent disposable income lower than 500 and greater than 300,000 euro, with head aged less than 18 years and with more than 13 members. Equivalent income is computed using the Oecd modified scale. Tab. 1 shows the marginal effects on the probability of subjective poverty, estimated after probit regressions. Each of these marginal effects is computed as the average of the marginal effects associated to each observation of the sample. The coefficient of quality of government is always negative: people living in regions where public institutions are considered of good quality evaluate themselves to be less poor than those with similar characteristics but living in areas with bad quality government. The increase in the quality measure by one standard deviation reduces the probability of
subjective poverty by 4%-5%. The first column provides the results of the basic specification, which controls only for personal characteristics of the household and of the head. As with the other columns, all the demographic and income variables have the expected signs. Subjective poverty increases with age but with a decreasing rate; the presence of a chronic illness for the head increases its probability, as well as being separated. Education provides a shelter against the risk of subjective poverty, and men tend to feel more secure of their incomes than women. Equivalent income of the household is negatively correlated with the probability of feeling poor, as expected, and also the average income of the area of residence has a negative impact on the dependent variable. The year 2013 marks a worsening of the feeling of economic wellbeing due to the persistence of the crisis.

The second column adds to the set of explanatory variables those regarding the quantity of public services, some of them concerning the macro dimension (equal in value for all households living in the same area) and two others that are specific for each household (the value of in-kind health and education transfers received). These latter variables have the expected sign, even if only the coefficient of health is significant: a family receiving a substantial amount of transfers from health or education services feels to be less poor than one with lower in-kind services of this type. The effects of these two variables are however lower than that of the quality of government. The macro variables have a more differentiated impact on the probability of feeling poor. The number of public employees per inhabitant in the region of residence does not seem to have any effect, while the per capita regional value added of the public sector has an unexpected positive impact on feeling poor. It seems therefore that the quantity of public sector activity has a negative effect on the sensation of being poor only when it takes the form of specific transfers to households, while the presence of a big public sector may even increase the diffusion of subjective poverty. The quality of government, therefore, seems overall more important for subjective poverty than the total dimension of the government.

One of the main concerns of this type of estimation is the presence of omitted variables that are specific to each household and can be correlated with the dependent variable and the regressor of interest. A person may for example feel in bad economic conditions even in the presence of good income if he/she is pessimistic about life in general. Omitting this attitude can distort the coefficient of interest, if the distribution of personality traits is correlated with the different levels of perceived local quality of government. The Eu-Silc survey for 2013 contains a special module on wellbeing with a lot of questions capturing personality traits, for example how much time in the past four weeks one has been very nervous, or calm and peaceful, or downhearted or depressed. These variables in the 2013 sample turn out to be slightly negatively correlated with our measure of regional QoG: ceteris paribus, people living in areas with high QoG are, controlling for the usual covariates including household and average regional income, less depressed or nervous than similar persons who reside in areas with lower QoG. To control for this interaction, we have introduced some of these “emotional” variables in column 3. All of them have the expected sign on subjective poverty: those who are nervous, depressed or not happy about their life are significantly more likely to be in subjective poverty than persons that are more optimistic. Even with these variables, the impact of the quality of government on subjective poverty remains the
same as before. Another possible form of endogeneity can arise from the omission of a variable that may reasonably explain at least part of the relationship between QoG and subjective poverty. A variable that is surely correlated with the quality of institutions is the level of social capital in the area (Camussi and Mancini, 2016). The relationship between social capital and QoG is complex and with great probability causality goes in both directions, but some recent papers (Rothstein 2011) suggest that it is the quality of institutions that can produce changes in the level of trust that people have towards institutions or people in general: if a person has had recent negative experiences in her relationship with public services, or has heard of similar negative events occurred to friends or relatives, then she may be less willing to be trustful towards not only public institutions, but also in everyday interactions with the others. We include in the regression of the fourth column two measures of social capital computed on the same Eu-Silc dataset for 2013: the regional means of the indexes for trust in the police and trust in others. In the sample, both are strongly correlated with QoG (correlation coefficient between QoG and trust in the police 0.63, between QoG and trust in others 0.37) and, although less, with subjective poverty (correlation coefficient between subjective poverty and trust in the police −0.24, between subjective poverty and trust in others -0.11). When inserted in the regression, however, the two measures of average regional social capital lose their significance in explaining subjective poverty. It seems therefore that social capital has not an autonomous impact on subjective poverty, but operates only through the effect of QoG. Indeed, this latter variable keeps its significant negative effect on the dependent variable. Trying to introduce in the regression all the available variables that may possibly produce endogeneity does not therefore change the basic result. Finally, another possible form of endogeneity arises if people select where to live also on the basis of considerations about the quality of government. The last column of the table removes from the estimation sample the households of immigrants and of foreigners, but the effect of quality of government does not change, becoming even more significant. The dataset contains information only about the year of immigration in the country, not in the region.

| Tab. 1 Probability of feeling poor – marginal effects from probit estimation |
|--------------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| QoG                                  | -0.0515***      | -0.0398***      | -0.0503***      | -0.0417***      | -0.0471***      |
|                                      | (0.0097)        | (0.0097)        | (0.0106)        | (0.0120)        | (0.0120)        |
| age                                  | 0.0067***       | 0.0064***       | 0.0058***       | 0.0058***       | 0.0057***       |
|                                      | (0.0008)        | (0.0007)        | (0.0007)        | (0.0007)        | (0.0008)        |
| Age squared                          | -0.0001***      | -0.0001***      | -0.0001***      | -0.0001***      | -0.0001***      |
|                                      | (0.0000)        | (0.0000)        | (0.0000)        | (0.0000)        | (0.0000)        |
| Chronic illness                      | 0.0772***       | 0.0774***       | 0.0586***       | 0.0586***       | 0.0566***       |
|                                      | (0.0026)        | (0.0025)        | (0.0027)        | (0.0027)        | (0.0027)        |
| married                              | -0.0536***      | -0.0463***      | -0.0363***      | -0.0363***      | -0.0375***      |
|                                      | (0.0045)        | (0.0041)        | (0.0045)        | (0.0045)        | (0.0048)        |
| separated                            | 0.0552***       | 0.0570***       | 0.0520***       | 0.0520***       | 0.0503***       |
|                                      | (0.0040)        | (0.0043)        | (0.0050)        | (0.0050)        | (0.0053)        |
| widow                                | 0.0030          | 0.0028          | 0.0029          | 0.0029          | -0.0007         |
|                                      | (0.0043)        | (0.0046)        | (0.0057)        | (0.0057)        | (0.0057)        |
| Variable                                      | Coefficient | Std. Error | Coefficient | Std. Error | Coefficient | Std. Error | Coefficient | Std. Error | Coefficient | Std. Error |
|----------------------------------------------|-------------|------------|-------------|------------|-------------|------------|-------------|------------|-------------|------------|
| Foreign citizen                             | 0.0766***   | 0.0104     | 0.0742***   | 0.0103     | 0.0660***   | 0.0092     | 0.0660***   | 0.0092     | 0.0193***   | 0.0031     |
| male                                         | -0.0242***  | 0.0027     | -0.0246***  | 0.0028     | -0.0172***  | 0.0029     | -0.0172***  | 0.0029     | -0.0193***  | 0.0031     |
| Secondary ed.                                | -0.0514***  | 0.0041     | -0.0529***  | 0.0044     | -0.0475***  | 0.0043     | -0.0476***  | 0.0043     | -0.0471***  | 0.0043     |
| degree                                       | -0.1187***  | 0.0054     | -0.1223***  | 0.0058     | -0.1114***  | 0.0061     | -0.1115***  | 0.0061     | -0.1133***  | 0.0057     |
| # family members                             | 0.0167***   | 0.0019     | 0.0230***   | 0.0022     | 0.0249***   | 0.0023     | 0.0248***   | 0.0023     | 0.0235***   | 0.0021     |
| Ln household disp. income                    | -0.2004***  | 0.0054     | -0.1997***  | 0.0055     | -0.1922***  | 0.0054     | -0.1922***  | 0.0054     | -0.1917***  | 0.0056     |
| Ln average regional disp. inc.              | -0.0385     | 0.0289     | -0.0844**   | 0.0334     | -0.0728*    | 0.0443     | -0.0782*    | 0.0464     | -0.0830*    | 0.0477     |
| nervous                                      | 0.0517***   | 0.0038     | 0.0517***   | 0.0038     | 0.0517***   | 0.0038     | 0.0517***   | 0.0038     | 0.0516***   | 0.0041     |
| feel in the dumps                            | 0.0612***   | 0.0049     | 0.0612***   | 0.0049     | 0.0612***   | 0.0049     | 0.0612***   | 0.0049     | 0.0576***   | 0.0048     |
| Not calm and peaceful                        | 0.0301***   | 0.0033     | 0.0301***   | 0.0033     | 0.0301***   | 0.0033     | 0.0301***   | 0.0033     | 0.0295***   | 0.0033     |
| depressed                                    | 0.0326***   | 0.0065     | 0.0326***   | 0.0065     | 0.0326***   | 0.0065     | 0.0326***   | 0.0065     | 0.0330***   | 0.0070     |
| Not happy                                    | 0.0716***   | 0.0051     | 0.0715***   | 0.0051     | 0.0715***   | 0.0051     | 0.0715***   | 0.0051     | 0.0692***   | 0.0053     |
| doctors                                      | 0.0001      | 0.0001     | 0.0000      | 0.0000     | 0.0000      | 0.0000     | 0.0000      | 0.0000     | 0.0000      | 0.0000     |
| Pre-school                                   | 0.0033      | 0.0085     | 0.0550*     | 0.0315     | 0.0603**    | 0.0280     | 0.0603**    | 0.0280     | 0.0442      | 0.0283     |
| Public employees                             | -0.2221     | 0.3430     | -0.0786     | 0.3364     | -0.0772     | 0.3366     | -0.0772     | 0.3366     | 0.1228      | 0.3675     |
| Public value added                           | 0.0110***   | 0.0030     | 0.0111***   | 0.0030     | 0.0120***   | 0.0031     | 0.0120***   | 0.0031     | 0.0090***   | 0.0044     |
| Ln education transfer                        | -0.0077***  | 0.0020     | -0.0071***  | 0.0024     | -0.0071***  | 0.0024     | -0.0071***  | 0.0024     | -0.0061***  | 0.0025     |
| Ln health transfer                           | -0.0307***  | 0.0046     | -0.0330***  | 0.0045     | -0.0329***  | 0.0045     | -0.0329***  | 0.0045     | -0.0319***  | 0.0049     |
| Average reg. trust in the police             | -0.0175     | 0.0120     | -0.0191     | 0.0128     | -0.0191     | 0.0128     | -0.0191     | 0.0128     | -0.0191     | 0.0128     |
| Average reg. trust in the others             | 0.0013      | 0.0191     | 0.0079      | 0.0191     | 0.0079      | 0.0191     | 0.0079      | 0.0191     | 0.0079      | 0.0191     |
| Year 2013                                    | 0.0222***   | 0.0041     | 0.0187***   | 0.0043     | 0.0187***   | 0.0043     | 0.0187***   | 0.0043     | 0.0187***   | 0.0043     |
| Observations                                 | 435,051     | 420,883    | 214,322     | 214,322    | 194,449     |

Note: the marginal effects are the averages of the marginal effects computed for each observation. Each regression contains country dummy variables. All individual characteristics refer to the head of the household. Reference variables: single, female, elementary education, year 2010. Standard errors are clustered at the regional level.

The second set of estimates is restricted to the sub-sample of households which are relatively poor on the basis of cash income, i.e. with equivalent income lower than 60% of the median value for their country. We want to test whether living in an area with good quality of government produces a reduction in the probability of feeling poor. In other words, the poor may think to be not so poor if they can rely on the presence of an efficient public administration. From Tab. 2,
good government quality produces an increase in the probability that a household may not feel poor, even if it is actually poor on the basis of disposable income. This result does not depend on the possible receipt of a greater quantity of in-kind services, because the regressions control for their presence. As expected, psychological traits associated with negative feelings tend to have a depressing impact on the dependent variable, but also controlling for these factors the quality of government keeps its significance.

Tab. 2 Probability of not feeling poor among the relatively poor households – marginal effects from probit estimation

|           | 1          | 2          | 3          | 4          | 5          |
|-----------|------------|------------|------------|------------|------------|
| QoG       | 0.0617***  | 0.0462***  | 0.0579***  | 0.0622***  | 0.0623***  |
|           | (0.0136)   | (0.0129)   | (0.0160)   | (0.0172)   | (0.0189)   |
| Age       | -0.0139*** | -0.0137*** | -0.0113*** | -0.0113*** | -0.0108*** |
|           | (0.0014)   | (0.0015)   | (0.0013)   | (0.0013)   | (0.0013)   |
| Age squared| 0.0002***  | 0.0001***  | 0.0001***  | 0.0001***  | 0.0001***  |
|           | (0.0000)   | (0.0000)   | (0.0000)   | (0.0000)   | (0.0000)   |
| Chronic illness | -0.1079*** | -0.1087*** | -0.0801*** | -0.0802*** | -0.0781*** |
|           | (0.0039)   | (0.0040)   | (0.0053)   | (0.0053)   | (0.0057)   |
| Married   | 0.0824***  | 0.0735***  | 0.0479***  | 0.0479***  | 0.0500***  |
|           | (0.0073)   | (0.0081)   | (0.0108)   | (0.0108)   | (0.0103)   |
| Separated | -0.0555*** | -0.0586*** | -0.0556*** | -0.0556*** | -0.0577*** |
|           | (0.0072)   | (0.0073)   | (0.0096)   | (0.0096)   | (0.0095)   |
| Widow     | 0.0176**   | 0.0184**   | 0.0225**   | 0.0225**   | 0.0295***  |
|           | (0.0077)   | (0.0080)   | (0.0101)   | (0.0101)   | (0.0100)   |
| Foreign citizen | -0.0774*** | -0.0745*** | -0.0667*** | -0.0667*** | -0.0667*** |
|           | (0.0110)   | (0.0111)   | (0.0126)   | (0.0125)   | (0.0125)   |
| Male      | 0.0221***  | 0.0224***  | 0.0118*    | 0.0119*    | 0.0174**   |
|           | (0.0064)   | (0.0065)   | (0.0067)   | (0.0067)   | (0.0074)   |
| Secondary ed. | 0.0755***  | 0.0759***  | 0.0688***  | 0.0687***  | 0.0709***  |
|           | (0.0054)   | (0.0056)   | (0.0067)   | (0.0067)   | (0.0075)   |
| Degree    | 0.1416***  | 0.1445***  | 0.1269***  | 0.1268***  | 0.1424***  |
|           | (0.0108)   | (0.0115)   | (0.0111)   | (0.0111)   | (0.0128)   |
| # family members | -0.0189*** | -0.0266*** | -0.0320*** | -0.0321*** | -0.0288*** |
|           | (0.0028)   | (0.0033)   | (0.0039)   | (0.0039)   | (0.0038)   |
| Ln household disp. income | 0.0258***  | 0.0256***  | 0.0182**   | 0.0182**   | 0.0197*    |
|           | (0.0085)   | (0.0090)   | (0.0087)   | (0.0087)   | (0.0102)   |
| Ln average regional disp. inc. | 0.1020***  | 0.1599***  | 0.1516**   | 0.1512**   | 0.1867***  |
|           | (0.0394)   | (0.0448)   | (0.0762)   | (0.0750)   | (0.0796)   |
| Nervous   | -0.0702*** | -0.0702*** | -0.0710*** | -0.0710*** | -0.0710*** |
|           | (0.0088)   | (0.0088)   | (0.0090)   | (0.0090)   | (0.0090)   |
| Feel in the dumps | -0.0698*** | -0.0698*** | -0.0632*** | -0.0632*** | -0.0632*** |
|           | (0.0104)   | (0.0104)   | (0.0119)   | (0.0119)   | (0.0119)   |
| Not calm and peaceful | -0.0406*** | -0.0406*** | -0.0397*** | -0.0397*** | -0.0397*** |
|           | (0.0072)   | (0.0072)   | (0.0082)   | (0.0082)   | (0.0082)   |
| depressed | -0.0209    | -0.0209    | -0.0308**  | -0.0308**  | -0.0308**  |
|           | (0.0143)   | (0.0143)   | (0.0157)   | (0.0157)   | (0.0157)   |
| Not happy | -0.1017*** | -0.1017*** | -0.0978*** | -0.0978*** | -0.0978*** |
|           | (0.0070)   | (0.0071)   | (0.0083)   | (0.0083)   | (0.0083)   |
| doctors   | -0.0001    | -0.0001    | -0.0001    | -0.0001    | -0.0001    |
|           | (0.0001)   | (0.0001)   | (0.0001)   | (0.0001)   | (0.0001)   |
| Pre-school | -0.0155    | -0.0816**  | -0.0802**  | -0.0802**  | -0.0587    |
In parallel with the findings so far, living in a region with bad institutions should reduce the perception of personal well-being. We expect therefore in this case an increase in the probability of subjective poverty among the non-poor. In other words, households which are not poor may feel with greater probability to be poor if they have to deal with local governments of bad quality. From tab. 3, the probability of being subjectively poor actually decreases with the quality of government, while negative personality traits or a low level of education act in the opposite direction.

Tab. 3 Probability of feeling poor among the not relatively poor households – marginal effects from probit estimation
| Variable                      | Coefficient (SE)       | Coefficient (SE)       | Coefficient (SE)       | Coefficient (SE)       | Coefficient (SE)       |
|-------------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
| Foreign citizen              | 0.0728*** (0.0043)     | 0.0710*** (0.0047)     | 0.0625*** (0.0058)     | 0.0626*** (0.0058)     | 0.0626*** (0.0058)     |
| Gender                       | Male                   | Male                   | Male                   | Male                   | Male                   |
|                               | -0.0216*** (0.0024)    | -0.0221*** (0.0025)    | -0.0148*** (0.0028)    | -0.0148*** (0.0028)    | -0.0162*** (0.0030)    |
| Secondary education           | -0.0389*** (0.0037)    | -0.0406*** (0.0038)    | -0.0359*** (0.0041)    | -0.0360*** (0.0041)    | -0.0359*** (0.0041)    |
| Degree                        | -0.0916*** (0.0048)    | -0.0953*** (0.0051)    | -0.0861*** (0.0056)    | -0.0862*** (0.0057)    | -0.0883*** (0.0054)    |
| # family members              | 0.0143*** (0.0017)     | 0.0201*** (0.0020)     | 0.0214*** (0.0021)     | 0.0213*** (0.0021)     | 0.0207*** (0.0019)     |
| Ln household disp. income     | -0.2486*** (0.0063)    | -0.2473*** (0.0063)    | -0.2446*** (0.0064)    | -0.2447*** (0.0063)    | -0.2406*** (0.0065)    |
| Ln average regional disp. inc.| -0.0090 (0.0298)       | -0.0530 (0.0344)       | -0.0361 (0.0425)       | -0.0452 (0.0438)       | -0.0485 (0.0449)       |
| Nervous                       | 0.0472*** (0.0036)     | 0.0472*** (0.0036)     | 0.0471*** (0.0036)     | 0.0471*** (0.0036)     | 0.0404*** (0.0036)     |
| Feel in the dumps             | 0.0580*** (0.0052)     | 0.0580*** (0.0052)     | 0.0558*** (0.0052)     | 0.0558*** (0.0052)     | 0.0558*** (0.0052)     |
| Not calm and peaceful         | 0.0278*** (0.0037)     | 0.0278*** (0.0037)     | 0.0275*** (0.0037)     | 0.0275*** (0.0037)     | 0.0275*** (0.0037)     |
| depressed                     | 0.0361*** (0.0074)     | 0.0361*** (0.0074)     | 0.0344*** (0.0074)     | 0.0344*** (0.0074)     | 0.0344*** (0.0074)     |
| Not happy                     | 0.0623*** (0.0051)     | 0.0623*** (0.0051)     | 0.0609*** (0.0051)     | 0.0609*** (0.0051)     | 0.0609*** (0.0051)     |
| doctors                       | 0.0001                  | 0.0000                  | 0.0000                  | 0.0000                  | 0.0000                  |
| Pre-school                    | -0.0012 (0.001)        | 0.0494 (0.001)         | 0.0564* (0.001)        | 0.0407 (0.001)         | 0.0407 (0.001)         |
| Public employees              | -0.3218 (0.3452)       | -0.0331 (0.3311)       | -0.0129 (0.3298)       | 0.1188 (0.3494)        | 0.1188 (0.3494)        |
| Public value added            | 0.0098*** (0.0033)     | 0.0104*** (0.0034)     | 0.0116*** (0.0034)     | 0.0096*** (0.0042)     | 0.0096*** (0.0042)     |
| Ln education transfer         | -0.0040** (0.0019)     | -0.0041** (0.0019)     | -0.0041** (0.0019)     | -0.0034* (0.0020)      | -0.0034* (0.0020)      |
| Ln health transfer            | -0.0285*** (0.0043)    | -0.0296*** (0.0045)    | -0.0295*** (0.0045)    | -0.0286*** (0.0049)    | -0.0286*** (0.0049)    |
| Average reg. trust in the police| -0.0224* (0.0116)     | -0.0236* (0.0122)      | -0.0224* (0.0116)      | -0.0224* (0.0116)      | -0.0224* (0.0116)      |
| Average reg. trust in the others| 0.0052 (0.0180)       | 0.0117 (0.0176)        | 0.0052 (0.0180)        | 0.0117 (0.0176)        | 0.0117 (0.0176)        |
| Year 2013                     | 0.0205*** (0.0043)     | 0.0177*** (0.0045)     | 0.0177*** (0.0045)     | 0.0177*** (0.0045)     | 0.0177*** (0.0045)     |
| Observations                  | 367,207                | 355,683                | 181,172                | 181,172                | 165,881                |

Note: the marginal effects are the averages of the marginal effects computed for each observation. Each regression contains country dummy variables. All individual characteristics refer to the head of the household. Reference variables: single, female, elementary education, year 2010. Standard errors are clustered at the regional level.
4.2 Results from pseudo-panel regression

A pooling of cross-sections runs the risk of hiding part of the relationship between subjective poverty and QoG since it neglects the time dimension, not allowing to check whether changes over time in QoG are correlated with changes in the dependent variable. Since we have two years of data, we try to use also this time dimension with a first-difference regression. The results should become less precise, not only because of the availability of only two annual datasets, but especially because measures of the quality of government change very slowly over time, and the two available surveys are only three years apart.

From the original dataset, we have extracted a pseudo-panel on the basis of the region of residence, the year of the survey and four cohorts defined using the year of birth of the head (before 1940, from 1941 to 1955, from 1956 to 1970, after 1970). The result is a dataset of 880 observations (2 years x 110 regions with QoG measure available in both surveys x 4 cohorts). Tab. 4 reports the results of ols first difference regressions. The first couple of columns shows the results of a very simple regression of the change in the share of households feeling subjectively poor on the change in the measure of QoG. The coefficient is strongly significant, and remains significant at 10% level after adding to the regression the changes in the main demographic variables. Notice in particular the expected strong significance of the changes in both household income and average regional household income. Turning to the results for the two other cases discussed above, the coefficient of the change in QoG is significant only for the last relationship, concerning the relationship between changes in QoG and in the share of not poor people that feel to be poor, but notice that in all cases the coefficients have the expected sign. We interpret these results as a confirmation, with only two points in time, of the basic relationship between QoG and subjective poverty also over time, which would require a much more extended time span for a more precise measure.

Tab. 4 First-difference regressions on the pseudo-panel

| Dep. Var.: | % Subjectively poor | % Relatively poor but not subjectively poor | % Not relatively poor but subj. poor |
|------------|---------------------|--------------------------------------------|-------------------------------------|
| Change in: |                     |                                            |                                     |
| QoG        | -0.037*** (0.011)   | 0.026 (0.023)                               | 0.016 (0.023)                       |
| Ln household disp. income | -0.075*** (0.028) | 0.024 (0.017)                               | -0.014 (0.010)                      |
| Ln average reg. disp. inc. | -0.229*** (0.034) | 0.184*** (0.059)                            | -0.274*** (0.055)                   |
| age        | 0.006 (0.006)       | -0.024** (0.010)                            | 0.003 (0.007)                       |
| Age sq.    | -0.000* (0.000)     | 0.000*** (0.000)                            | -0.000 (0.000)                      |
| Chronic illness | 0.033 (0.046) | -0.064 (0.047)                             | -0.073 (0.047)                      |
| married    | -0.162** (0.078)    | 0.205** (0.080)                             | -0.084 (0.076)                      |
| separated  | 0.184* (0.040)      | 0.040 (0.040)                               | 0.189* (0.040)                     |
$\text{widow} \quad -0.187^{*} \quad 0.410^{***} \quad -0.049$

$\text{foreigner} \quad -0.012 \quad 0.186^{*} \quad -0.271^{*}$

$\text{male} \quad 0.059 \quad 0.058 \quad 0.077$

$\text{Secondary ed.} \quad -0.013 \quad 0.086 \quad -0.070$

$\text{degree} \quad -0.168^{**} \quad 0.212^{***} \quad -0.065$

$\text{# members} \quad 0.029 \quad 0.003 \quad 0.045^{**}$

| Constant | 0.030*** | 0.037*** | -0.036*** | -0.046*** | 0.030*** | 0.028*** |
|----------|----------|----------|-----------|-----------|----------|----------|
|          | (0.003)  | (0.009)  | (0.007)   | (0.013)   | (0.003)  | (0.010)  |
| Observations | 440     | 440     | 439     | 439     | 440     | 440     |
| $R^2$    | 0.026    | 0.384    | 0.003    | 0.136    | 0.023    | 0.368    |

Standard errors in parentheses
* $p<.10$, ** $p<.05$, *** $p<.01$

5 The cost of living with a low-quality government

If households that reside in an area with good governance feel to be better off than their income would suggest, the next question is to try to evaluate the “premium” of efficient government, i.e. what is the difference in cash income needed to reach a given level of well-being for people residing in areas with different degrees of government efficiency. To this end, we can use another question present in the Eu-Silc survey, namely the minimum income question:

“In your opinion, what is the very lowest net monthly income that your household would have to have in order to make ends meet, that is to pay its usual necessary expenses?”.

This question has been used several times to estimate the subjective poverty line for various household types (Ravallion 2016). We can extend the usual framework with this expression

\[
\ln Y_{\text{min}}_{ia} = \alpha + \beta Q_a + \gamma \ln Y_{ia} + \theta X_{ia}
\]

Where $Y_{\text{min}}$ is the answer to the question for household $i$ in region $a$, $Y$ is disposable monetary income, $X$ is a vector of characteristics that are deemed to influence the opinion on the necessary minimum income, among which the number of family members should be the most important variable. The poverty line can be obtained by finding the income level that realizes equality between $Y_{\text{min}}$ and $Y$, thereby

\[
(6) \quad \text{Subjective poverty line} = \exp\left(\frac{\alpha + \beta Q_a + \theta X_{ia}}{1 - \beta}\right).
\]

Since we expect for the estimated $\beta$ coefficient a negative sign, the subjective poverty line should be lower, the higher is government efficiency. The median value of the efficiency indicator in the sample is 0.05. In the regressions of minimum income, we insert as an additional explanatory
variable a dummy, called *Efficiency*, equal to 1 if the household lives in a region where government efficiency is at least 0.05, and 0 otherwise. The first regression shown in Tab. 6 controls only for the number of family members, while the other allows also for other demographic characteristics. The coefficient of government efficiency is substantially unchanged: good governance translates into a 6% reduction in the income necessary to make ends meet, ceteris paribus.

Tab. 6 Minimum income and government efficiency

|                  | (1)         | (2)         |
|------------------|-------------|-------------|
| Efficiency       | -0.0622***  | -0.0610***  |
|                  | (0.0046)    | (0.0046)    |
| Ln disp. Income  | 0.3026***   | 0.2637***   |
|                  | (0.0011)    | (0.0012)    |
| Ln family members| 0.3035***   | 0.2647***   |
|                  | (0.0015)    | (0.0019)    |
| Age              | 0.0089***   |             |
|                  | (0.0003)    |             |
| age²             | -0.0001***  |             |
|                  | (0.0000)    |             |
| Chronic          | -0.0062***  |             |
|                  | (0.0015)    |             |
| Married          | 0.0511***   |             |
|                  | (0.0025)    |             |
| Separated        | 0.0321***   |             |
|                  | (0.0029)    |             |
| Widow            | 0.0049      |             |
|                  | (0.0030)    |             |
| Foreign citizen  | 0.0122***   |             |
|                  | (0.0035)    |             |
| Male             | 0.0067***   |             |
|                  | (0.0016)    |             |
| Secondary ed.    | 0.0737***   |             |
|                  | (0.0018)    |             |
| Degree           | 0.1616***   |             |
|                  | (0.0021)    |             |
| Constant         | 6.6061***   | 6.7794***   |
|                  | (0.0136)    | (0.0148)    |
| Observations     | 439,058     | 439,002     |
| R-squared        | 0.5085      | 0.5237      |

Note: estimates include country dummy variables

From these estimates, it is possible to compute the subjective poverty lines, which are always lower in regions with efficient governments. Table 7 shows the difference, for each family dimension, between the poverty lines of the two groups of areas. These number indicate the cost of government inefficiency, i.e. the greater amount of income necessary to make ends meet in inefficient areas with respect to a similar household which resides in a region with efficient
institutions. Taking the results from the second column, for a household with 5 members, for example, the minimum income is 1414 euro higher in inefficient areas, i.e. 118 euro per month.

Tab. 7 Reduction in subjective poverty lines in areas with efficient government

| # family members | Without demographic controls | With demographic Controls |
|------------------|-----------------------------|---------------------------|
| 1                | 1110                        | 793                       |
| 2                | 1500                        | 1017                      |
| 3                | 1790                        | 1177                      |
| 4                | 2028                        | 1305                      |
| 5                | 2235                        | 1414                      |
| 6                | 2420                        | 1510                      |

Instead of general subjective poverty lines valid for the whole of the countries that are present in the sample, one could compute specific poverty lines for each country, carrying out the regression above only on the national sub-samples. An example of this kind of application is provided here for Italy. In this country there are great differences in the quality of government at the sub-national level, but in the dataset all 5 groups of Italian regions for which the government efficiency score is available (North West, North East, Centre, South, Islands) have QoG measures lower than the European median of 0.05, so equation (4) can be more conveniently estimated, if we use only the Italian observations, with the original values of the efficiency indicator. We therefore run two different regressions for minimum income: the standard one does not include on the right hand side the measure of government efficiency, while the second one adds it.

Tab. 8 Minimum income regressions for Italy

|                      | Without QoG | With QoG |
|----------------------|-------------|----------|
| QoG                  | -0.0473***  | (0.0033) |
| Ln disp. income      | 0.1768***   | 0.1873***|
|                      | (0.0031)    | (0.0032) |
| Ln n. members        | 0.3000***   | 0.2888***|
|                      | (0.0043)    | (0.0044) |
| Constant             | 7.8388***   | 7.7021***|
|                      | (0.0301)    | (0.0315) |
| Observations         | 37,323      | 37,323   |
| R-squared            | 0.2820      | 0.2860   |

From the estimated coefficients we can obtain two sets of subjective poverty lines, with and without the correction for the efficiency of government. When using this correction, the lines will be higher, the lower the efficiency of government in that area. Comparing the disposable income of each household with the corresponding subjective poverty line, we obtain the incidence rates
of subjective poverty for the two cases. Fig. 1 compares for the five Italian macro-regions the incidence rates for both “objective” relative income poverty (disposable equivalent income lower than 60% of the national median) and for subjective poverty, with and without the efficiency correction. The consideration of the different efficiency levels for government produces an increase in the share of individuals that are subjectively poor in the Southern part of the country, and a reduction in the North, particularly in the North-East. The difference in the share of subjectively poor households between North-East and South, for example, rises from 21.2% to 26.5% after the consideration of QoG among the determinants of subjective poverty. The divide between Centre-North and South, already substantial on the basis of cash income, is therefore expanded when we consider the cost of living in areas with low QoG.

Fig. 1 Incidence rates of relative and subjective poverty for individuals in Italy

6 Conclusions

It is well known since at least Aristotle that the measurement of income is not sufficient to evaluate the well-being of a person, because the standard of living is a multidimensional concept that depends on many possible factors, both personal and social. Going from theory to practice, however, it becomes difficult to actually consider all the richness of dimensions that influence well-being. So, the practice of poverty and inequality estimation often concentrates only on income or consumption measurement, and even the attempts to go beyond the simple utilitarian approach, considering various spheres of living, for example health conditions, or the social conditions in which one lives, usually neglect the fact that one of the major determinants of the ability to convert income in well-being is the quality of the public institutions of the area of residence. Further, often there are such great differences in government efficiency within a single country that using a single indicator for a whole country, especially for the greater ones, may be
misleading. In this paper we have tried to check what is the effect of the quality of government on the feeling of households about the adequacy of their incomes. The results confirm that the effect of living in an environment characterized by good governance makes a significant impact on subjective poverty, and that quality of government seems to matter more than its quantity. We have also tried to measure this effect in terms of the diffusion of subjective poverty, once the poverty lines are corrected for government efficiency. Since poor areas within countries have often also local institutions of bad quality, the consideration of governance efficiency produces a widening effect in the differences in poverty and living standards between different parts of the country. Official measures therefore tend to understate the differences in poverty levels across regions and countries.

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Appendix

Tab. A1 Descriptive statistics of the variables used in the analysis

| Variable                                           | Obs   | Mean   | Std. Dev. | Min   | Max   |
|----------------------------------------------------|-------|--------|-----------|-------|-------|
| Relative poverty                                   | 435,104 | 0.175  | 0.380     | 0.000 | 1.000 |
| Subjective poverty                                 | 435,104 | 0.259  | 0.438     | 0.000 | 1.000 |
| Relatively poor but not subj. poor                 | 435,104 | 0.091  | 0.288     | 0.000 | 1.000 |
| Subj. poor but not relatively poor                 | 435,104 | 0.175  | 0.380     | 0.000 | 1.000 |
| QoG                                                | 435,099 | 0.256  | 0.894     | -1.981 | 1.955 |
| Immigrant                                          | 435,104 | 0.081  | 0.273     | 0.000 | 1.000 |
| Age                                                | 435,056 | 53.210 | 16.547    | 18.000 | 80.000 |
| Age2                                               | 435,056 | 3105.069 | 1779.124 | 324.000 | 6400.000 |
| Chronic illness                                    | 435,104 | 0.370  | 0.483     | 0.000 | 1.000 |
| Married                                            | 435,104 | 0.569  | 0.495     | 0.000 | 1.000 |
| Separated                                          | 435,104 | 0.113  | 0.317     | 0.000 | 1.000 |
| Widow                                              | 435,104 | 0.138  | 0.345     | 0.000 | 1.000 |
| Foreign citizen                                    | 435,104 | 0.050  | 0.217     | 0.000 | 1.000 |
| Male                                               | 435,104 | 0.591  | 0.492     | 0.000 | 1.000 |
| Secondary ed.                                      | 435,104 | 0.417  | 0.493     | 0.000 | 1.000 |
| Degree                                             | 435,104 | 0.267  | 0.443     | 0.000 | 1.000 |
| # family members                                   | 435,104 | 2.349  | 1.315     | 1.000 | 12.000 |
| Doctors                                            | 420,931 | 354.468 | 87.323    | 169.300 | 924.400 |
| Pre-school                                         | 428,976 | 0.921  | 0.130     | 0.308 | 1.127 |
| Public employees                                   | 428,976 | 0.108  | 0.026     | 0.048 | 0.166 |
| Public value added                                 | 428,976 | 4.508  | 1.433     | 1.111 | 12.293 |
| Ln education transfers                             | 435,104 | 0.005  | 0.211     | 0.000 | 9.347 |
| Ln health transfers                                | 435,104 | 7.659  | 2.096     | 0.000 | 10.751 |
| Average reg. trust in the police                   | 220,466 | 6.032  | 0.737     | 3.523 | 8.271 |
| Average reg. trust in the others                   | 220,466 | 5.773  | 0.673     | 4.020 | 8.361 |
| Ln household disp. income                          | 435,104 | 9.520  | 0.841     | 5.416 | 12.841 |
| Ln average reg. disp. inc.                         | 435,104 | 9.694  | 0.639     | 7.649 | 10.581 |
| Year 2013                                          | 435,104 | 0.506  | 0.500     | 0.000 | 1.000 |
| Ln minimum income                                   | 439,058 | 9.693  | 0.611     | 7.090 | 19.191 |

Tab. A2 Regions and QoG measure

| Region | AT1  | ES22 | FR43 | PL3  | RS   |
|--------|------|------|------|------|------|
| AT1    | 0.994| 0.335|      |      |      |
| AT2    | 1.075| 0.430| FR51 | 0.624|      |
| AT3    | 1.071| 0.330| FR52 | 1.181|      |
| BE1    | -0.097| 0.193| FR53 | 0.910|      |
| BE2    | 1.148| 0.205| FR61 | 0.960| PT   |
| BE3    | 0.069| 0.090| FR62 | 0.702| RO1  |
| BG3    | -1.528| 0.399| FR63 | 0.792| RO2  |
| BG4    | -1.648|      | FR71 | 0.873| RO3  |
| CY0    | 0.307| 0.033| FR72 | 0.785| RO4  |
| CZ01   | -0.591| 0.144| FR81 | 0.600| RS   |
| Country | QoG 2010 | Country | QoG 2013 | Country | QoG 2013 |
|---------|---------|---------|---------|---------|---------|
| CZ02    | -0.214  | ES61    | -0.063  | FR82    | 0.270   | SE1     | 1.459   |
| CZ03    | -0.026  | ES62    | 0.426   | FR83    | 0.269   | SE2     | 1.483   |
| CZ04    | -0.840  | ES63    | 0.432   | HU1     | -0.835  | SE3     | 1.314   |
| CZ05    | -0.102  | ES64    | 0.426   | HU2     | -0.271  | SI      | -0.006  |
| CZ06    | -0.214  | ES70    | 0.062   | HU3     | -0.436  | SK0     | -0.549  |
| CZ07    | -0.358  | FI18    | 1.727   | IE0     | 0.872   | UKC     | 0.705   |
| CZ08    | -0.377  | FI19    | 1.531   | ITC     | -0.465  | UKD     | 0.853   |
| DE      | 0.871   | FI1A    | 1.545   | ITF     | -1.850  | UKE     | 0.936   |
| DK0     | 1.651   | FR10    | 0.621   | ITG     | -1.521  | UKF     | 0.689   |
| EE0     | 0.112   | FR21    | 0.357   | ITH     | -0.063  | UKG     | 0.655   |
| EL1     | -1.054  | FR22    | 0.520   | ITI     | -0.869  | UKH     | 0.907   |
| EL2     | -0.917  | FR23    | 0.359   | LT0     | -0.690  | UKJ     | 1.003   |
| EL3     | -0.528  | FR24    | 0.856   | LU0     | 1.234   | UKJ     | 1.062   |
| EL4     | -0.667  | FR25    | 0.755   | LV0     | -0.695  | UKK     | 0.522   |
| ES11    | 0.125   | FR26    | 0.533   | MT0     | 0.309   | UKL     | 0.389   |
| ES12    | 0.599   | FR30    | 0.484   | NL      | 1.266   | UKM     | 0.615   |
| ES13    | 0.396   | FR41    | 0.445   | PL1     | -0.664  | UKN     | 0.731   |
| ES21    | 0.601   | FR42    | 0.671   | PL2     | -0.680  |         |         |

Note: the values of QoG are the averages over 2010 and 2013, except for the UK where they are the values for 2013.