

GOOD GOVERNANCE AND QUALITY OF LIFE

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Abstract

This paper explores the relationship between the practices of good governance and the quality of life at the municipal level in Spain. Information about the different dimensions of quality of life is combined into a composite indicator for a sample of 393 municipalities in 2011. A benefit of the doubt approach is used to construct the composite indicator using Data Envelopment Analysis. Then three dimensions of good governance are considered: transparency, participation and accountability. The results show a significant positive relationship between quality of life and participation and accountability. However, transparency seems to be unrelated to quality of life.

1. INTRODUCTION

With the turn of the century, several external emerging challenges promoted important reforms at the public local level. Municipalities had to cope with increasing fiscal pressures, exacerbated after the financial crisis, and also with increasing demands from the media and the citizens. This situation fostered the need for extending collaboration among multiple policy making agents, taking sustainability and the needs of future generations to the center of the debate (Bovaird and Löffler, 2002). As a result, conventional local management models extended to include good public governance principles. Good governance has become a central topic in the discussion of economic and political development (see World Bank, 1992; Weiss, 2000; Bovaird and Löffler, 2002; Kim et al., 2005; Grindle, 2012).

The initial efforts of international institutions, such as the International Monetary Fund and the World Bank in the 1990s, aimed to relate good governance to the “manner in which power is exercised in the management of a country's economic and social resources for development” (World Bank, 1992). However, the concept today is more complex and includes the role of multiple stakeholder structures and processes which influence the outcomes of public policies. According to Bovaird and Löffler (2003: 316), good governance can be defined as “the negotiation by all the stakeholders in an issue (or area) of improved public policy outcomes and agreed governance principles, which are both implemented and regularly evaluated by all stakeholders”.

Good governance is about the interaction between governments and other social organizations, the relationship with citizens, decision making, and accountability. Governments have a key role in this network, since good governance implies managing public affairs in a transparent, accountable, participatory and equitable manner (Santiso, 2001). Determining the quality of governance requires measuring two achievements: 1) improvements in public policy outcomes, and 2) improvements in the respect of principles of governance. Of course, both aspects are strongly related, being sides of the same coin. As noted by Bovaird and Löffler (2007), the quality of good governance can be inferred from the achievement of key quality of life domains and by how far each of the key governance principles has been honored.

However, it is unclear how these aspects relate to each other in practice. Does transparency improve governance? Does quality of life relate to government efficiency or accountability? Are those regions with more civic engagement the ones in which good governance has promoted more welfare? The aim of this article is to analyze the relationship between quality of life conditions in municipalities and three key governance principles: transparency, participation, and financial accountability.

2. GOOD GOVERNANCE AND THE QUALITY OF LIFE (QoL)

According to Bovaird and Löffler (2002: 16), local governance is “the set of formal and informal rules, structures, and processes which determine the ways in which individuals and organizations can exert power over the decisions (made by other stakeholders) which affect their welfare at the local level”. Consequently, good local governance should be accompanied by the achievement of high levels of social, economic and environmental welfare, through the cooperation and interaction of multiple stakeholders (local authorities, business, voluntary sector, media, etc.).

Verifying the existence of good local governance requires assessing the impacts or outcomes of public policies, that is, the effect of public policies on the quality of life of the citizens (something that goes beyond the mere outputs or services provided). For instance, better governance should improve physical safety, for which it is necessary to reduce crime (outcome), but this cannot be assured by increasing the number of police hours (output). Citizens and other stakeholders are interested in measuring the success of public interventions in terms of the changes they bring in the quality of life, rather than by the quality of the activities themselves. But, as Rotberg (2014) indicates, governance is tangible, and measuring performance can best be done by using publicly available objective data.

In turn, measuring the quality of life of the citizens is far from being an easy task. Using aggregated macroeconomic variables would oversimplify the problem. The flaws of conventional measures, such as the Gross Domestic Product (GDP), are well known to economists and social scientists (Stiglitz et al., 2010). The reason is that human, and not economic, development should be the ultimate goal of society. Furthermore, human development has a positive impact on economic growth, while the opposite is not necessarily true (Ranis and Stewart, 2000). Multidimensional measures of quality of life, which go beyond the simplistic macroeconomic figures, may offer better guidance to policy making. The reason is these measures will be able to summarize information about the many different dimensions of life that contribute to human development, welfare and, at the same time, sustainable growth.

During the last decade, the European Commission and the OECD have promoted interesting initiatives to introduce QoL concerns into the political agenda. These efforts started off with the 2007 conference “Beyond GDP” and the 2009 conference “GDP and Beyond”, which challenged authorities and institutions to extend the focus of statistical information and political action beyond macroeconomic figures. The influential report of the French Commission on the Measurement of

Economic Performance and Social Progress (CMEPSP), led by Stiglitz, Sen and Fitoussi in 2009, highlighted the multidimensional nature of QoL and sustainability. Several institutions took the challenge of developing appropriate indicators for measuring QoL, most notably the OECD and the European Statistical System (ESS). Since 2013, the OECD publishes the Better Life Index and How is Life, addressing quality of life at the country level along 11 dimensions (housing, income, jobs, community, education, environment, civic engagement, health, life satisfaction, safety and work-life balance). In turn, following the CMEPSP recommendations, the ESS Sponsorship group on Measuring Progress, Well-being and Sustainable Development, recommended 8+1 dimensions along which QoL should be addressed (material living conditions, productive or main activity, health, education, leisure and social interaction, economic and physical safety, governance and basic rights, natural and living environment, overall experience of life).

Unfortunately, the development of statistical information is still scant at the municipal level of analysis. Not surprisingly, most studies have focused on the national or regional levels. Local information about the different dimensions of QoL is hard to find for most cities within Europe. A notable contribution to extend the assessment of QoL to the local level is the Urban Audit Project (UAP), which was started back in 1999. The UAP compiles data on 9 dimensions (demography, social aspects, economic aspects, civic involvement, training and education, environment, transport and travel, culture and leisure, innovation and technology) with more than 300 variables corresponding to 284 European cities. It is a very ambitious project and has compiled a comprehensive collection of data which are very useful to construct rich composite indexes of QoL. Unfortunately, the scope of the project is not large enough as to allow the assessment of QoL at the municipal level within a given European country, since only the biggest cities are included in the database (the type of information collected is only available for such big cities).

Despite data limitations there is a growing body of empirical literature estimating QoL in cities (Ballas, 2013). Some international early examples include estimations of QoL for US metropolitan areas (Becker et al, 1989), Japanese prefectures (Hashimoto and Ishikawa, 1993) or US counties (Marshal and Shortle, 2005). Within Europe, Morais and Camanho (2011) used the Urban Audit data to compute composite QoL indicators for an extensive sample of 206 cities belonging to 25 countries. Within country analyses in Europe are still scant. Bigerna and Polinori (2013) in Italy, Poldaru and Roots (2014) in Estonia and Murgaš and Klobučnik (2016) in the Czech Republic are recent examples. In the case of Spain, the most comprehensive study measured QoL in a big sample of 643 municipalities for year 2001 (Gonzalez et al., 2011). Other authors have estimated QoL indexes for smaller intraregional samples, including Martin and Mendoza (2013) for Canarias, Royuela et al (2003) for the province of Barcelona, Zarzosa (2005) for the province of Valladolid or López and Sánchez (2009) for Galicia¹. Some recent research has estimated QoL indirectly by analyzing migration patterns in a sample of 700 Spanish municipalities (Navarro and Artal, 2015). More

¹ Other authors have focused on the study of QoL in the Spanish regions or provinces, levels of analysis in which statistical information is more developed (Murias et al. 2006; Jurado and Perez-Mayo 2012).

recently, González et al (2016) and Cárcaba et al (2017) have tracked the evolution of municipal QoL in Spain between 2001 and 2011.

Since QoL is a multidimensional construct, estimating a composite indicator implies compiling information about many dimensions which are not usually available at the local level of analysis. While data availability is a major limitation in this type of studies, in this paper we try to overcome this limitation by making a considerable effort in data collection. The definition of the appropriate dimensions that should be measured is a controversial issue. Diener (1995) proposed a QoL index based on the universal structure of values proposed by Schwartz (1992), which includes ethic values which are recognized across cultures (e.g., enjoying life, protecting the environment, family security). Recent proposals, such as the influential Stiglitz et al. (2010) report, the subsequent work of the ESS Sponsorship group and the OECD's "Better life" initiative, are based on the recognition of these globally shared values. Following these sources, we propose an integrative framework that considers 7 dimensions², for which information at the municipal level in Spain can be obtained. Table 1 shows the relationship between our proposal and the three sources mentioned:

Table 1. The dimensions of QoL

	Our proposal	Stiglitz et al (2010)	Sponsorship group	OECD
1	Material living conditions	Economic insecurity	Material living conditions	Income, Housing
2	Health	Health	Health	Health
3	Education	Education	Education	Education
4	Environment	Environmental conditions	Natural & living environment	Environment
5	Economic & physical safety	Personal insecurity	Economic & physical safety	Safety, Jobs
6	Social interaction	Social connections	Leisure & Social interaction	Community
7	Personal activities	Personal activities	Productive & valued activities	Work-Life balance

While there is no precise one-to-one link among the three specifications of QoL considered, they all focus on the same underlying factors. Of the seven dimensions, four are very precise and almost identically specified in the three proposals: health, education, environment, and safety. We take sides with the ESS sponsorship group in combining economic and physical safety within the same dimension. The material living conditions dimension accounts for the income and housing dimensions suggested by the OECD's Better Life Index, since they all refer to material conditions. In turn, personal activities accounts for the activities other than work and is related with the OECD's work-life balance. In the same manner, social interaction accounts for the concern and connection with the community, which has been identified as a critical component of QoL.

From this specification of dimensions, we were able to collect data for all the municipalities over 20000 population in 2011. This makes for a total sample of 393 municipalities. Next we describe

² We have excluded the dimensions that relate to governance, since the objective of this paper is precisely to relate both aspects.

the battery of indicators used to account for each of the seven dimensions of QoL considered in Table 1. We compiled two indicators per dimension of QoL³.

The first dimension of the table represents the material living conditions, a dimension that also relates to poverty and social exclusion. Since we don't have information on per capita income at the municipal level for the entire sample, we used a proxy that is included in the census microdata and is called Average Socioeconomic Condition (ASC). The variable measures (on a scale) the socioeconomic status of every individual registered. A second element related to this dimension and highlighted in the better life index is housing. From the census microdata we computed the Average Net Surface (ANS) and the average Living Conditions of the Dwellings (LCD)⁴. By multiplying both variables we computed a combined indicator of the overall Quality of the Dwellings ($QD=ANS \cdot LCD$).

In measuring health, between country comparisons have made extensive use of the expectancy of life and infant mortality rates. In contrast, when we go down to within country comparisons, these metrics may not be appropriate. In the case of Spain, geographical differences in life expectancy are small and differences in infant mortality are negligible. Instead of using those metrics, we worked with mortality microdata to construct two indicators that reflect health differences across municipalities⁵. First, we computed an index of Excess of Mortality (EM) adjusted by age. The index only varies if mortality rates within different age groups varies across municipalities. The age-adjusted mortality rate of the municipality was then divided by the aggregate national mortality rate. This ratio reflects whether age-adjusted mortality in the municipality is higher or lower than the national norm, therefore higher or lower than expected from its ageing structure. Second, we computed an indicator of Avoidable Mortality (AM). We identified deaths which can be classified as avoidable according to a consensus of Spanish health experts (Gispert et al., 2006). It includes deaths that could be avoided by a good functioning of health services and also causes of death which are strongly related to bad habits such as smoking or alcoholism. The AM variable is computed as the ratio of avoidable deaths to total population in the municipality⁶.

Education is related not only with objective QoL but also with subjective well-being (Ross and Van Willigen, 1997) and is a source of positive externalities for the entire community (Grace, 1989). As such, it is not just the own individual education level what influences QoL but the joint education level of the community. From the census microdata, we employed two indicators. The overall level of education (OLE), in a scale from 0 (illiterate) to 10 (PhD) and the percentage of population with a university degree (UD).

³ A more complete description of these indicators can be found in González et al (2016).

⁴ This index ranges from 0 to 100 and takes into account factors of the buildings as the age of construction, tumbledown status, hygienic conditions, running water, indoor toilet, accessibility, heating, etc.

⁵ Mortality microdata include the complete registry of deaths including the cause of death, age and residence. The microdata identifying the municipality of residence are not publicly available. We thank the Instituto Nacional de Estadística (INE) for facilitating these data for our research.

⁶ To be exact, we used the data of population under 75, since most cases of death are only considered to be avoidable for individuals below that cut-off age.

The quality of the environment is also a fundamental driver of the quality of life and is also strongly related to sustainability. From the Spanish Ministry of Agriculture, Food and Environment we were able to collect data on the quality of air, which is obtained from a network of stations for air quality measures. We compiled data on two different pollutants which are subject of big concern for health according to the World Health Organization (WHO, 2006): 1) Particulate matter (PM₁₀, average daily value), which, according to the WHO, affects more people than any other pollutant. It is composed of small particles which can penetrate and lodge deep inside the lungs, contributing to many health problems such as lung cancer, and 2) Ozone (O₃, 26th maximum 8-hour mean), which is one of the main components of photochemical smog and is associated with varied health problems such as heart and lung diseases⁷.

Both economic and physical safety have been stressed as relevant components of the QoL. A usual indicator of economic safety is the Unemployment Rate (UR), a well-recognized source of economic insecurity and social exclusion. Further, unemployment is associated with a deterioration of physical and mental health (Lahelma, 1992; Janlert, 1997) and psychological well-being (McKee-Ryan et al. 2005). People who become unemployed report lower subjective quality of life even after controlling for the loss of income (Fitoussi and Stiglitz, 2011). Physical safety is also important, not only because of its most obvious effect on physical integrity, but also because of the effect of perceived insecurity in emotions (Stiglitz et al., 2010). Upon request, the Spanish Ministry of Home Affairs provided disaggregated crime data for all the municipalities in the sample except those in País Vasco and Cataluña. Unfortunately, for these two regions we only had access to aggregate data⁸. For this reason, we use the total number of crimes divided by total population (CRI).

The existence of places and institutions that facilitate social interaction can be beneficial to QoL since they ease developing social and cultural relations (Lloyd and Auld, 2002). Involvement towards the community is also an important part of social interaction that contributes to QoL. Two indicators are available to be used as proxies for this dimension. The first one, included in the census microdata, is the participation in volunteering activities (VA), which shows the degree of commitment with the most needed in the community. The second variable is the total number of cultural and social centers available in the municipality, divided by the population (CSC)⁹.

Related with the previous dimension is the time devoted to non-working pleasant activities. This is a very difficult dimension to measure with objective data, since it would also require subjective information about the satisfaction with those activities. Our municipal database contains two variables that reasonably relate to this dimension of QoL. The first one is the commercial market share (CMS), a variable included in the Anuario Económico de España 2011 which is elaborated by

⁷ The WHO also stresses the importance of Nitrogen Dioxide (NO₂) and Sulfur dioxide (SO₂). Unfortunately, data for these two elements were not available for the entire sample.

⁸ The data for País Vasco are publicly available online. In the case of Cataluña the data were provided by the Autonomous Government upon request for this research.

⁹ This variable was obtained from the municipal database of CajaEspaña.

La Caixa¹⁰. This variable indicates the proportion of commercial activity that takes place within the municipality boundaries in relation to the total commercial activity of Spain. As many of the pleasant personal activities identified by Stiglitz et al. (2010) imply consumption of some type, they will also contribute to the commercial market share of the municipality (e.g., shopping, traveling, eating, exercising). The second proxy is commuting time (CT), which negatively affects QoL since it withdraws time from pleasant personal activities¹¹. Commuting has been consistently associated with reduced subjective well-being even after compensating for the increased income or better housing that can be obtained from the extra income associated with larger commuting times (Stutzer and Frey, 2008).

Table 2. Partial indicators of the QoL dimensions

QoL dimension	Indicators
Material Living Conditions	Average Socio-economic Condition (ASC) Quality of Dwellings (QD)
Health	Excess Mortality (EM) Avoidable Mortality (AM)
Education	Overall Level of Education (OLE) Population with a University Degree (UD)
Environment	Particulate Matter (PM10) Ozone (O3)
Economic & Physical Safety	Unemployment Rate (UR) Crime rate (CRI)
Social interaction	Population participating in Volunteering Activities (VA) Cultural and Social Centers (CSC)
Personal Activities	Commercial Market Share (CMS) Commuting Time (CT)

Table 2 shows the complete list of 14 indicators used to approximate the 7 dimensions of QoL considered¹². It must be noted that some of these indicators contain information that overlaps across QoL dimensions. For instance, the variable CMS is included as a proxy for Personal Activities, but it can also be associated with Material Living Conditions, since the two dimensions overlap. Fortunately, our empirical model (which is based on Data Envelopment Analysis) does not require matching each indicator with one or other dimension of QoL. In contrast, all the 14 indicators will

¹⁰ To compute this index, La Caixa takes into account the population, number of phones, automobiles, trucks and vans, banking offices and retail activities. In order to make this index comparable across municipalities we divided it by the population.

¹¹ The raw data distinguishes between two destinations (job or school). Our variable is the arithmetic average of both. We also must indicate that INE does not compute an index associated with these variables. Instead the report includes the percentage of people on seven intervals that go from "less than 10 min" to "more than 90 min". We took mark classes in the mean of the intervals (90 for the last interval) and weighted each class mark by the percentage of population within the interval. The weighted sum can be interpreted as the average time employed to get to the school or job and is the variable used in this paper.

¹² Many of these variables (or similar indicators) are proposed by the EU Sponsorship Group on measuring social progress and by the OECD Better Life Index. For instance, the unemployment rate, excess mortality, quality of dwellings, overall level of education, air quality (PM₁₀, O₃), voluntary work, crime rates and polls numbers can be found in very similar or identical form. There are also indicators which are similar to the average socioeconomic condition and commercial market share. Even though our selection of indicators is constrained by data availability, we believe it offers a close description of the QoL dimensions in a similar way as they are specified in those initiatives.

enter independently in the estimation of the composite indicator, regardless of which dimension(s) they are supposed to relate with.

In sum, we have tried to overcome the traditional restrictions in data availability at the municipal level by compiling information from varied sources. Some treatment of the raw data was required in order to construct 14 indicators which, collectively, provide a fairly reasonable approximation to objective QoL conditions in the largest Spanish municipalities.

3. GOOD GOVERNANCE PRINCIPLES AND QUALITY OF LIFE

As we have just seen, quality of life is a complex and multidimensional concept. The same applies to the notion of good governance. The United Nations Development Program (UNDP, 1997) identified nine principles of good governance, which have influenced subsequent academic literature (Graham et al., 2003; Bovaird and Löffler, 2003; Kim et al., 2005):

- Participation: all men and women should have a voice in decision-making, either directly or through legitimate intermediate institutions representing their interests.
- Rule of law: legal frameworks should be fair and enforced impartially.
- Transparency: this is built on the free flow of information. Processes, institutions and information must be directly accessible to concerned users, and enough information should be provided allowing for effective understanding and monitoring.
- Responsiveness: institutions and processes must aim at serving all the stakeholders.
- Consensus orientation: good governance must be able to mediate conflicting interests in order to reach a broad consensus on what is in the best interests of the group.
- Equity: all men and women must have opportunities to improve or maintain their quality of life.
- Effectiveness and efficiency: processes and institutions should produce results that satisfy needs, making the best possible use of resources.
- Accountability: decision-makers in government, the private sector and civil society organizations must be held accountable to the public, as well as to institutional stakeholders.
- Strategic vision: leaders and the public must have a broad and long-term perspective on good governance and human development, along with a sense of what is needed for such development.

These principles interact with each other in complex ways, reinforcing each other and cannot be developed in isolation. For instance, better access to information fosters transparency, but also civic engagement and effective decision-making. Civic engagement feeds the flow of information and increases legitimacy in decision making. Legitimacy, in turn, encourages participation. And in order to be equitable, institutions must be transparent and follow the rule of law.

Measuring these characteristics of good governance is far from easy. In this paper we focus on the assessment of the relationship between the quality of life in Spanish municipalities and three

of these dimensions, namely transparency, participation, and financial accountability, which can be measured with available municipal data.

Transparency

Many different definitions of transparency have been formulated within the literature on good governance. All of them highlight the same fundamental attributes. Transparency implies that information is available and accessible to those affected by government decisions (stakeholders), and this information is reliable and comes in an understandable format. Thus, availability, accessibility, reliability and understandability are the necessary constituents of transparency.

According to Vishwanath and Kaufmann (1999), transparency implies an appropriate flow of timely and reliable economic, social, and political information, which must be accessible to all relevant stakeholders. In the public sector, transparency implies an openness of the governance system through clear processes and procedures and easy access to public information for citizens (Kim et al., 2005). Pietrowski and Van Ryzin (2007) define governmental transparency as the ability to find out what is going on inside a public sector organization through avenues such as open meetings, access to records or the proactive posting of information on websites.

Transparency in the public sector has been object of analysis in numerous papers which examine its drivers (see, for instance, Smith, 2004; Lasward et al., 2005; Cárcaba and García, 2010; Guillamón et al., 2011; Albalade del Sol, 2013; García-Sánchez et al., 2013). Some research has focused on the relationship between transparency and governance, studying the role of information disclosure in shaping a better government, improving the design of public policy (help identifying goals), or reducing corruption (Kaufmann et al., 2002; Kaufmann and Kraay, 2002; Islam, 2006; Bastida and Benito (2007); Lindstedt and Naurin, 2010).

In general, research highlights the critical importance of accessibility of government information as a necessary condition for good governance. However, there may also be some drawbacks with transparency. For instance, Bac (2001) notes that high transparency increases the probability of detecting corruption or wrongdoing, but it may also increase the visibility of key decision makers, thereby placing stronger incentives to establish “connections” for corruption. Gavazza and Lizzeri (2009) show that the transparency of the political system does not unambiguously improve efficiency: transparency of revenues can be counterproductive because it endogenously leads to increased wasteful spending. Bauhr and Grimes (2014) confirm that an increase in transparency in highly corrupt countries tends to breed citizen resignation rather than indignation. However, we believe that transparency is a requirement for social capital and human development. Therefore, we formulate the following hypothesis:

Hypothesis 1. Higher transparency implies better governance and should result in higher quality of life in the municipality.

To measure the degree of Transparency we employ the index constructed by the NGO Transparency International for the biggest Spanish municipalities. Unfortunately, only 110

municipalities are listed in the report. For this reason, this first hypothesis can only be tested in a reduced subsample of our entire sample.

Participation

According to Arnstein (1969), citizen participation is a reflection of citizen power. Extensive participation grants access to decision-making, involving people in the economic, political, cultural, and social processes that affect them. The way to approach participation has gradually turned from a citizenship obligation to a citizenship primary right, which commits not only citizens, but also civil society, state agencies and institutions (Hickey and Mohan, 2005). The institutionalization of participation has occurred through regular election processes, council hearings, and, more recently, participatory budgeting. Nowadays, participatory governance means a convergence of social and political participation and the scaling up of participatory methods, state-civil partnerships, decentralization and devolution, participatory assessment, and other factors (Hickey and Mohan, 2004).

The types of participation are varied, ranging from being mere spectators who receive information about some policy or project, to the effective involvement in the negotiation of public policies; from voting for elected representatives at regular intervals, to engaging in legal or even illegal protest. Participation is not only having the mechanisms to participate, but using them effectively. According to (Fung, 2006) the modes of participation vary along three dimensions — scope of participation, mode of communication and decision, and extent of authority—, addressing three important problems of democratic governance: legitimacy, justice, and effective governance.

Citizens' participation in community decision-making implies better governance. Citizen involvement in policy making makes people feel more responsible for public matters and increases public engagement, encourages people to listen to a diversity of opinions and thus promotes mutual understanding, and contributes to greater legitimacy of decisions (Michels and De Graaf, 2010). The link between participation and policy outcomes is a core tenet of much of the scholarly literature. Political participation affects the type of policies that the government implements, leads to different policy outcomes, and leads to superior social outcomes because of participation's role in aggregating information and preferences (e.g., Pateman, 1970; Knack, 2002; Martin, 2009). As such, its effect on the quality of life of the citizens must be positive.

Hypothesis 2: Higher citizen's participation implies better governance and therefore higher quality of life

We will measure civic participation by the voter turnover in the municipal elections of 2011.

Financial accountability

According with UNDP (1997), good governance implies the existence of an accountable government. Decision-makers in government are accountable to the public, and different stakeholders may hold government and its representatives accountable for different issues (safe

keeping of inputs, efficiency of operations, or compliance with laws). Not surprisingly, accountability in public administration also has different views. In a narrow sense, it can be defined as 'the obligation to explain and justify conduct' (Bovens, 2007). But accountability is normally used as a broader concept which involves honesty, legality, efficiency or good administration (Johnson, 1974; Stewart, 1984; Glynn, 1987). In this paper we focus on the financial side of accountability.

In Concepts Statement n° 1, the Governmental Accounting Standards Board (GASB) states that governmental financial reporting should provide information to assist users in assessing accountability. While it is only one of multiple sources of information, financial reporting plays a major role in fulfilling the government's duty to be publicly accountable in a democratic society. That document also points that financial information can be used to assess a state or local governments' financial condition, that is, its financial position and its ability to continue to provide services and meet its obligations as they come due (GASB, 1987; par. 34).

As such, the mere existence of financial information is an exercise of accountability. However, it is also required that this information evidences appropriate use of financial resources, budgetary execution, liquidity and solvency, indebtedness, cost of the services and goals achieved. In this sense, the accumulation of public debt or the lack of liquidity implies a non-responsible use of public resources. This leads to our third hypothesis.

Hypothesis 3. Financial accountability, as represented by measures of financial condition, should be positively associated with the quality of life

Financial accountability will be measured by the cash surplus of the municipality in 2011.

4. COMPUTING QUALITY OF LIFE SCORES IN MUNICIPALITIES

The first step to estimate the composite indicator of QoL was obtaining the 14 partial indicators listed in Table 2 for each of the 393 municipalities that constitute the sample. Then, these 14 indicators need to be aggregated into a single composite indicator that reflects the overall QoL situation of the municipality. The OECD's Handbook on Constructing Composite Indicators (Nardo et al., 2005) describes the different methodologies that can be applied to combine these partial indicators into a meaningful QoL index and warns of the difficulties associated with each part of the process. Basically, the different methods use different approaches to weight all the partial indicators into the aggregate QoL index. Ideally, weights should reflect the different importance of each of the underlying dimensions of QoL. However, relative importance may vary from one individual to the next and determining empirically the appropriate set of weights is a controversial issue.

The recognition of these difficulties for appropriate weighting calls for methods that are data-driven. A very conservative approach, known as the Benefit of the Doubt (BoD), was first proposed by Melyn and Moesen (1991). The basic idea is to find weights that maximize the composite indicator for the municipality under analysis. This amounts to assume that, since any possible set of weights may be equally reasonable, a conservative researcher should select the one that gives the best possible evaluation of each municipality. Data Envelopment Analysis (DEA), a well-known non-

parametric technique developed by Charnes et al. (1978) for measuring efficiency in production, produces exactly this type of favourable (conservative) weighting. Its application for the measurement of QoL was first proposed by Hashimoto and Ishikawa (1993) and has been profusely used since (see Mariano et al., 2015 for a review).

Unfortunately, the extreme weight flexibility (benevolence) of DEA makes this technique extremely sensitive to the presence of outliers, this is, municipalities with abnormally large values in some of the partial indicators of QoL. These municipalities may be placed on the DEA frontier even if the values of the rest of the indicators are very low (Sharpe and Andrews, 2012). By setting the most favourable weights DEA will employ zero weights for the most negative dimensions. In other words, “The optimization process can lead to many zero weights if no restrictions on the weights are imposed, so setting restrictions on weights is necessary for this method to be of practical use” (Vidoli and Mazziotta, 2011: 265). Therefore, introducing weight restrictions can balance the need for weight flexibility (data-driven benevolence) with a reasonable degree of consistency. However, weight restrictions imply some sort of value judgement. In this paper we aim at using weight constraints but at the same time imposing minimum external value judgement.

In order to compute the DEA QoL scores, the first step is to construct a frontier containing the municipalities that must be considered as the best referents, assuming total flexibility on the weights of the different indicators of QoL. Let us follow the ratio form specification of Charnes et al. (1978) with an output orientation, which requires solving the next mathematical programme for each municipality i in the sample:

$$\begin{aligned}
 & \min \frac{\sum_{m=1}^M v_m x_{im}}{\sum_{s=1}^S u_s y_{is}} \\
 & \text{s.a :} \\
 & \frac{\sum_{m=1}^M v_m x_{jm}}{\sum_{s=1}^S u_s y_{js}} \geq 1 \quad , \quad \forall j \\
 & u_s, v_m \geq 0 \quad , \quad \forall s, m
 \end{aligned} \tag{1}$$

where x_{im} represents the amount of input m in municipality i , y_{is} represents the amount of output s in municipality i , v_m is the weight of input m , u_s is the weight of output s and j represents any municipality in the sample.

This approach is problematic, since it forces the researcher to establish which variables are inputs and which are outputs. And the DEA results may not be neutral to the selection of one indicator as an input or output. While this is not a problem in the economics of production (the natural application field of DEA), the definition of social indicators as inputs or outputs (bads or goods) is

completely arbitrary. To avoid this problem, in this paper we preferred to transform all the variables into outputs (i.e., more is better), regardless how they were originally defined, by applying a ratio-scale neutral transformation. Conventional DEA models are units invariant and, therefore, a ratio-scale normalization of the data is acceptable (since it has no effect on the final results). We followed the “distance to the group leader” normalization method proposed by Cherchye et al. (2004). In the case of goods, we divided the value of the variable by its maximum (ASC, QD, OLE, UD, VA, CSC and CMS). In the case of bads, we divided the minimum of the variable by its value (EM, AM, PM₁₀, O₃, UR, CRI and CT). All the transformed variables vary from 0 to 1 and higher values are indicative of higher QoL. After these transformations are done, we can compute a DEA composite indicator in which all the indicators are outputs (more is better), including an additional fictitious input variable which takes the value 1 for all municipalities. The resulting DEA model is equivalent to the estimation of the following composite indicator (Cherchye et al., 2007):

$$\begin{aligned} & \max \sum_{s=1}^S u_s y_{is} \\ & s.t. : \\ & \sum_{s=1}^S u_s y_{js} \leq 1 \quad , \quad \forall j \\ & u_s \geq 0 \quad , \quad \forall s \end{aligned}$$

This programme finds the weights u_s that maximize the composite indicator for municipality i . The constraint imposes a frontier over the sample by forcing the value of the composite indicator of all the municipalities to be less than some fixed value (typically 1) which establishes the frontier. If municipality i is on the QoL frontier, then the objective function will reach the value 1, and no other municipality will be able to obtain a higher weighted sum with the most favourable set of weights for municipality i . In contrast, underperformers can only attain values lower than 1 for the objective function. In this case, even with their best possible set of weights, there would exist at least another municipality which obtains a higher weighted sum. The highest score will be forced to be 1, and then the QoL of the underperforming municipality will be less than 1, with the value difference reflecting the difference in terms of QoL. Therefore, the QoL score will be bounded within the (0,1] interval, with values lower than 1 reflecting the distance to the QoL frontier.

As mentioned earlier, a distinctive feature of DEA is the absolute flexibility in the way the linear programme can select any possible set of weights for each municipality within the sample. Recall that the programme is solved independently for each municipality and, therefore, optimal weights may be completely different from one municipality to another. The main argument favouring this extreme weight flexibility is that, given our ignorance on the appropriate weight structure, this procedure will make an evaluation of the municipality under its most favourable scenario (BoD). The idea is that the observation that an indicator has a larger value in a municipality may reflect the

greater importance of that dimension for the population of that municipality. The DEA index is conservative enough to allow for this possibility.

On the other hand, complete weight flexibility does not seem reasonable. In practice, we end up with completely different data-driven sets of weights across municipalities. And these sets often include many weights which are equal to zero (in order to neutralize indicators in which the municipality has a low value). Is it reasonable to assume that the citizens of municipality A do not care at all about crime (just because they suffer from high crime rates and they score low in that indicator), while the citizens of municipality B have the highest concern about crime (simply because they have comparatively low crime rates)? If we accepted that, we would need to revise our definition of QoL itself and conclude that QoL is something completely different for municipalities A and B. It simply does not seem realistic. Unconstrained DEA may (and will) produce such absurd results in empirical applications. It is common to have a large number of indicators receiving zero weights, simply because the values of those variables are not large enough to deserve a positive weight. To maximize the QoL index, the DEA programme assigns positive weights only in the most favourable indicators. This is a well-known flaw within the DEA literature and many different solutions have been suggested, which imply restricting the range of acceptable values for the weights (Thompson et al., 1986; Dyson and Thanassoulis, 1988; Allen et al., 1997; Roll et al., 1991; Wong and Beasley, 1990; Pedraja et al., 1997; Sarrico and Dyson, 2004). In the words of Vidoli and Mazziotta (2011: p.265) “setting restrictions on weights is necessary for this method to be of practical use”.

A controversial issue in weight restrictions literature is the establishment of the acceptable range of weights. In terms of value judgement, some methods are more demanding than others. In this paper we propose a classic weight restrictions scheme, which combines a degree of flexibility with an equivalent degree of weight consistency without imposing much structure. The basic idea comes from comparing the two extreme solutions of unconstrained DEA and equal weighting with an intermediate compromise solution in which 50% common weight is imposed, while 50% flexibility is allowed. Therefore, we propose a balanced trade off by imposing the constraint that each of the 14 partial indicators must have at least one half of the weight share it would have under an equal weighting scheme and no more than one half more. In other words, at least half of the weighting must be common for all the municipalities in the sample ($14 \cdot 3.571\% = 50\%$) while the other half will be discretionary for each municipality, with 50% discretionality within each indicator. We follow Wong and Beasley (1990) in order to restrict the shares of each of the 14 indicators in the following manner:

$$0.03571 \leq \frac{u_k y_k}{\sum_{s=1}^{14} u_s y_s} \leq 0.10714 \quad , \quad k = 1 \dots 14$$

A good property of this approach to weight restrictions is that the resulting composite indicator still remains invariant to the units of measurement (Cherchye et al., 2007: 132). The process is able to combine a degree of weight flexibility with the same degree of consistency in weighting. With 14 indicators, the 50% common weighting, translates into a 3.571% minimum weight for each indicator

and a maximum of 10.714%. Under equal weighting, all the indicators would receive an equal weight of 6.143%. A variation of 50% either up or down is allowed in our proposal. Indicators with a low value may receive the lowest weight of 3.571% (50% lower than the corresponding equal weight). Conversely, indicators in which the municipality performs well may receive weights as large as 10.714% (50% larger than the corresponding equal weight). In any case, the particular weighting vector of each municipality will be data-driven (within these limits), being the most favourable to each municipality. The resulting weights will therefore be halfway between equal weighting and unrestricted BoD weighting.

5. RESULTS

A complete description of the QoL scores and its geographical distribution across the territory can be found in González et al (2016). Central-North municipalities show the highest QoL scores, while Southern municipalities (including the Canary Islands) achieve the lowest scores. In this paper, the focus is on how this distribution of QoL relates to the distribution of good governance over the sample. Table 3 shows descriptive statistics of the variables that will be used in our empirical analysis. To the QoL, transparency, participation and accountability variables, we added some demographic control variables that may also relate to QoL: population density, population average age, and population growth. Average QoL is 0.77, which means that the average municipality is 23% down with respect to the municipalities with the best quality of life. The worst municipality in terms of QoL only reaches a 38.5% of the maximum attainable. The transparency index ranges from 15 to 100, being the average at 70.91. Participation and accountability were normalized too to vary between 0 and 1. We appreciate more dispersion in accountability than in participation. In turn, the demographic control variables show important variation within the sample.

Table 3. Descriptive statistics

	Average	Min	Max	SD
QoL	0.773	0.385	1.0	0.08
Transparency	70.91	15	100	24.5
Participation	0.803	0.576	1.0	0.09
Accountability	0.585	0.032	1.0	0.11
Pop. Density	1790.2	25.88	21757.5	2930.2
Pop. Age	39.5	33.2	47.7	2.61
Pop. Growth	0.237	-0.111	1.16	0.22

Table 4 shows the results of the regression analysis. We estimated three different models. The first two include the variable Transparency and therefore are run on the reduced sample (of 110 observations) for which this variable is available. The first model includes regional dummies, while the second one does not. The reason to control for regional dummies is that some competencies which are important to improve QoL conditions (such as health or education) are responsibility of the regional governments. Finally, the third model is run on the entire sample (of 393 observations), without the variable Transparency. As we can observe, Transparency does not seem to relate significantly to the quality of life, while Participation and Accountability present a positive relationship.

Citizen participation is positively and significantly correlated with QoL in all the specifications tried at the 0.01 confidence level. In turn, Accountability is positively related to QoL, but the relation is only statistically significant in the reduced sample. The control variable population density correlates negatively with QoL although it is not significant in the full sample. In contrast, population age has a positive and significant effect especially in the full sample. There is no effect of population growth on the quality of life.

Table 4. Regression results (dependent variable QoL)

	Coeff.	T-test	Coeff.	T-test	Coeff.	T-test
Constant	-	-	0.288	2.29**	0.278	3.44***
Transparency	-0.0002	-0.91	0.0002	0.67	-	-
Participation	0.392	3.40***	0.286	3.92***	0.148	3.53***
Accountability	0.136	2.44**	0.180	2.92***	0.051	1.57
Pop. Density	-0.00005	-2.73***	-0.00005	-2.44**	-0.000005	-0.39
Pop. Age	0.003	0.84	0.005	1.66*	0.009	5.11***
Pop. Growth	0.021	0.175	-0.062	1.33	-0.011	0.54
Andalucia	0.28	1.59				
Aragon	0.41	2.15**				
Asturias	0.29	1.44				
Baleares	0.33	1.85*				
Canarias	0.27	1.51				
Cantabria	0.32	1.60				
Castilla y Leon	0.34	1.75*				
Castilla-Mancha	0.30	1.58				
Cataluña	0.36	2.10**				
C. Valenciana	0.23	1.21				
Extremadura	0.31	1.66*				
Galicia	0.34	1.77*				
Madrid	0.30	1.66*				
Murcia	0.29	1.59				
Navarra	0.42	2.13*				
País Vasco	0.37	1.94*				
La Rioja	0.37	1.89*				

Given that the QoL index is bounded within the (0,1] interval, we repeated the estimations using a truncated model, specifying the limits as truncation points. The results are qualitatively very similar. There is no effect of Transparency, a robust positive effect of Participation and a weak effect of Accountability, which has a significant effect within the reduced sample but not in the full sample. Given that the reduced sample includes only the largest municipalities, it seems that accountability is important for the quality of life in those large municipalities, while it is not a determining factor in smaller ones.

Table 5. Truncated regression results (dependent variable QoL)

	Coeff.	T-test	Coeff.	T-test	Coeff.	T-test
Constant	-	-	0.283	2.37**	0.271	3.35***
Transparency	-0.0002	-0.75	0.0002	0.81	-	-
Participation	0.358	3.59***	0.257	3.65***	0.141	3.37***
Accountability	0.120	2.49**	0.163	2.76***	0.046	1.44
Pop. Density	-0.00005	-3.07***	-0.00005	-2.74***	-0.000006	-0.46
Pop. Age	0.003	0.98	0.005	2.04**	0.009	5.32***
Pop. Growth	0.017	0.46	-0.062	1.41	-0.010	0.49
Andalucia	0.31	2.06*				

Aragon	0.46	2.76**			
Asturias	0.32	1.87*			
Baleares	0.37	2.35**			
Canarias	0.30	1.97**			
Cantabria	0.36	2.05**			
Castilla y Leon	0.37	2.23**			
Castilla-Mancha	0.34	2.07**			
Cataluña	0.39	2.63***			
C. Valenciana	0.27	1.62			
Extremadura	0.35	2.18**			
Galicia	0.38	2.27**			
Madrid	0.33	2.08**			
Murcia	0.32	2.06**			
Navarra	0.45	2.67***			
País Vasco	0.40	2.44**			
La Rioja	0.41	2.41**			

In sum, our results provide strong support for Hypothesis 2 (the role of Participation on QoL), weak support for Hypothesis 3 (the role of Accountability on QoL) and no support for Hypothesis 1 (the influence of Transparency on QoL). However, transparency is only measured within the subsample of the largest municipalities. Additionally, regional dummies seem to capture important differences in the QoL of the municipalities, as expected. Regarding the control variables, ageing and population density seem to have a relationship with the QoL (although in opposite directions), while population growth seems to be unrelated. This last result was not the expected one, since we would expect that migration flows would tend to favour the municipalities with a higher QoL.

6. CONCLUDING REMARKS

The ultimate goal of society should be to improve the welfare of the citizens and contribute to human development. The focus of public policy on aggregate macroeconomic measures such as the GDP is therefore misplaced. Other social aspects of well-being should be considered, such as health, crime, leisure, a clean environment, etc. Quality of life indexes aim at complementing macroeconomic figures with socio-economic figures summarizing welfare in society. This paper has combined information on 7 dimensions of quality of life, using 14 variables at the municipal level in Spain. A considerable effort has been made in order to find meaningful indicators that cover those dimensions for a big sample.

The goal of our paper was to examine how QoL related to good governance, understood here as one of its drivers. We used measures of three aspects of good governance in order to check for the existence of such relationships. First, we employed the index of transparency developed by International Transparency for 2011 in order to account for the degree of information disclosure in local public affairs. Second, we used voter turnover as a measure of participation in local politics. Finally, we used a measure of financial condition (cash surplus) as an indicator of accountability. Our results show a significant positive relationship between participation and accountability and the quality of life. However, there is no relationship between quality of life and transparency. Unfortunately, we only have data on transparency for a reduced subsample of 110 municipalities,

which may have conditioned this result. Further work should incorporate additional dimensions of good governance not accounted for in this paper.

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