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An application of a multicriteria model to assess the quality of local governance

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Abstract:

This Research Note presents a method to assess the quality of local governance practices. The multicriteria decision analysis modelling approach is illustrated through a real application (Portuguese municipalities). To define the criteria, performance descriptors, and reference levels in each dimension of local governance, and to account for the differences in preference of scoring in each criterion, the judgements of legitimate stakeholders were considered through decision conferencing. The constructed 'Municipal Governance Indicator' is calculated for the case of Lisbon to show the outputs of the model and its potential usefulness.

Keywords: good governance; indicators; multicriteria decision analysis.

Measuring the Quality of Local Governance

The purpose of this Research Note is to show how the problem of measurement was addressed to develop a municipal governance indicator (MGI) in Portugal rather than to advance the on-going discussions on 'what is governance'. Despite the lack of agreement on a single definition, governance refers to steering mechanisms in a certain political arena, emphasizing the interactions between the state – at any or all levels of governance – and society – including citizens and their associations, business, and the third sector (Pierre 2014). In brief, governance relates to the way public policy decisions are made and implemented. With regards to its 'quality', 'bad governance' is considered to be hand in hand with practices such as lack of transparency and nepotism and at the root of ineffective service

delivery and poor social and economic outcomes (Bovaird and Löffler 2003). Conversely, practices such as public accountability, respect for the rule of law and public participation in policy-making are often regarded as 'good governance' traits (Hendriks 2014).

Although attempting to assess these complex issues represents quite a challenging task, efforts towards developing useful assessment models are certainly laudable (Williams and Siddique 2008). This Research Note argues that Multicriteria decision analysis (MCDA) provides a suitable framework to structure a model capable of taking into account the many aspects of governance and, more importantly, the opinions of specialists, practitioners and other legitimate decision-makers (Munda 2004). Despite this predisposition, none of the existing governance assessment frameworks uses MCDA modelling.

Due to space constraints, this Research Note does not provide a thorough review of the state-of-the-art of governance measurement (for a detailed review of current approaches, see e.g. da Cruz and Marques, 2017). It is, however, worth mentioning one of the most influential approaches. Developed by the World Bank in the mid-1990s, the World Wide Governance Indicators (WGI) are the most internationally well-known governance measures. The method developed by Kaufmann et al. (2010) consists of the aggregation of several perception-based data sources (compiled by international NGOs) into six dimensions of governance, for each country, using an unobserved components model. The source indicators are rescaled to run from 0.0 to 1.0 and the six WGI vary approximately from -2.5 to 2.5 where higher values should represent better governance.

Governance assessments are only truly useful if the results inform the users (which, depending on the aim, can be the subjects under evaluation, donors, citizens or other

stakeholders) and point out to what could or should be done to improve outcomes (Wilson et al. 2011). This often requires a participatory modelling process so that the users' needs are taken into account (Stewart 2006). In addition, to develop sound governance indicators, some basic theoretical principles of Measurement Theory must be respected. For instance, most composite indicators that arguably measure governance-related aspects, including the WGI, suffer from what Keeney (1992) calls 'the most common critical mistake', that is, using arbitrary weights to generate an 'overall score' (da Cruz et al. 2016). Finally, perception-based data may not be suitable to construct governance indicators since, for example, it is problematic to link citizen trust and/or satisfaction with good governance (see Bouckaert and Walle 2003).

Most governance measurements efforts have been carried out at the national level (to determine the 'governance level' of each country). Nevertheless, the global urbanisation trend, the move towards localism and the decentralised provision of essential public services in many jurisdictions (Wilson et al. 2011), and the fact that "the quality of governance varies enormously within countries" (Fukuyama 2013, 366), increasingly puts the focus at the local level. Still, there are much fewer examples of local governance assessments.

One notable exception is the Urban Governance Index (UGI) developed by UN-Habitat. On the strengths of this approach, it should be highlighted that the UGI was constructed with a bottom-up approach, where the several underlying indicators were selected with the participation of representatives of 24 cities from 14 countries (UN-Habitat 2005). Moreover, the underlying indicators relied on hard data, although several of these indicators were binary scores (from yes/no queries). Regarding the UGI's weaknesses, the procedure adopted to determine the weights of the indicators to calculate the four 'sub-indexes' ('Effectiveness',

‘Equity’, ‘Participation’ and ‘Accountability’) was based on an intuitive notion of ‘importance’ (without any reference to impact scales/ranges) and the overall score was then computed as the simple average of these ‘sub-indexes’. As argued by Keeney (1992), both processes are theoretically incorrect.

Measuring the quality of local governance has two main drivers. First, with such an assessment citizens may gain access to better information (empowering them to enforce accountability mechanisms) and incentives to improve processes/outcomes can be provided to the governance structures (Heinrich et al. 2010). Second, the operationalization of the quality of local governance enables the investigation of its links to economic performance and other social indicators. Along with the empirical work on the socio-economic effects of good/poor governance practices and outcomes, it would also be valuable to investigate the influence of certain constraints or externalities on governance scores. In theory, unravelling the determinants of good local governance could contribute to devising better institutional environments. MCDA modelling can represent a major contribution to this research agenda. However, urbanists, political scientists and public administration scholars have seldom engaged with these methods and there is also a general absence of discussion around governance indicators in the Decision Analysis or the broader Operations Research literature.

The remainder of this Research Note is organised as follows: the following section briefly outlines the context of the case-study, the methodological approach and the initial steps taken to structure the model. The third section describes the decision conferencing process, including how the criteria and descriptors were fine-tuned and the weighting coefficients were calculated in a participatory manner. The fourth section provides an empirical

illustration of the outputs of the MCDA model (for the case of Lisbon) and the fifth section concludes the paper.

Case-study, Methods and Model Structuring

Local governance in Portugal

Local government is democratic in Portugal since 1974 (first elections in 1976). From then on, municipalities became the major players in the country's territorial development and one of the most important pressure groups in Portuguese politics (Tavares and Camões 2010). Currently, there are 308 municipalities responsible for delivering essential infrastructure services (mainly, water, wastewater, urban transport and waste services). Local governments also play an important role in other areas such as culture, tourism and, increasingly, social welfare and basic education. Portugal is a suitable context for testing the development of a MGI through MCDA modelling because all local governments operate under the same rules and have a similar institutional architecture (some features vary as a function of population size but the powers and institutions remain the same across the country).

Despite its contributions to social cohesion and proximity, the recent history of local government in Portugal has also been bounded by institutional failure and wrongful governance practices. The great authority and discretion given to mayors and the fact that local governments are major employers, regulators, and service providers in many municipalities has often led to corruption and clientelism (De Sousa 2008). Furthermore, new modes of delivery of urban services and/or infrastructures (e.g. the creation of municipal companies) and new types of interaction with the private sector (e.g. the development of local public-private partnership–PPP–arrangements) raised important governance issues. In the current context there are little incentives for achieving good municipal governance (De Sousa

et al. 2015). Local governments have been known to deal with these issues and with reporting and accountability procedures quite differently from one municipality to another (da Cruz et al. 2016).

Methodology and Ownership of the Problem

MCDA literature and scholarship studies theoretically-sound and meaningful ways of transforming 'impacts' into 'scores' (i.e. associate a number in a scale to a real-world performance) and transforming 'partial' scores (i.e. scores in a particular criterion) into 'overall' scores (i.e. aggregating the scores of the various criteria to come about with a single overall score). Using an additive model (sum of weighted scores) to aggregate the scores of each criterion and calculate the overall governance level has several advantages (Mateus et al. 2008). More than just being able to rank municipalities – for example, according to their overall score – MCDA modelling allows for evaluating outcomes against each criterion individually (according to their partial scores) or for each dimension of governance (sum of weighted scores of the criteria contained in each particular dimension of governance) (da Cruz and Marques 2013). Nevertheless, "in a multi-criteria framework, what really matters is *the process* since the problem structuring will determine the result" (Munda 2004, 673). This is why it is essential to design a participatory process to structure the model and take into account the values and opinions of the problem owner or legitimate decision-maker(s). Contrary to most multiple criteria problems, the purpose or process of assessing the quality of local governance does not have a single, easily identifiable, and legitimate decision-maker. The MGI for Portugal was modelled with the input of practitioners and stakeholders with responsibilities over (or affected by) local governance.

After resolving the decision-maker issue it is necessary to collect his/her/their input to (in brief): 1) validate the assessment framework and the criteria of (good) local governance, 2) select suitable quantitative or qualitative descriptors to measure performance in each criterions, and 3) define the reference levels of the criteria so that the weighting coefficients may be obtained (Bana e Costa et al. 2012). Since 'the process' is the main concern, each MCDA model is tailored to fit a particular problem. And although the structuring process might be troublesome, the additive hierarchical model that aggregates the scores of the various criteria is quite simple. A hierarchical model is a composition of simple additive models, adapted to a hierarchical criteria structure (Mateus et al. 2008) – for example, 'good governance' at the top of the hierarchy, followed by several 'dimensions of governance', followed by individual underlying criteria. An additive model can be represented through expression (1):

$$G(m_i) = \sum_{j=1}^{n} c_j \times G_j(m_i) \text{ with } \begin{cases} G_j(good_j) = 100 \\ G_j(neutral_j) = 0 \end{cases} \quad (1)$$

where $G(m_i)$ is the overall governance level of municipality m_i, $G_j(m_i)$ is the score of the municipality in the criterion j; $good_j$ and $neutral_j$ are the reference levels of performance on criterion j '; and c_j is the weighting coefficient of criterion j, such that $\sum_{j=1}^{n} c_j = 1$ and $c_j > 0$.

As can be seen in Equation (1), the scores of 0 and 100 were arbitrarily assigned to the 'Neutral' and the 'Good' reference levels in each criterion. Whereas establishing these anchors is not a requirement (e.g. the minimum and maximum values could have been selected to construct the interval scale), experience shows that selecting the 'Neutral' (below which performance would be considered to be negative – governance worst practices) and the 'Good' (above which performance would be considered to be extremely positive –

governance best practices) performance levels has some cognitive advantages (Bana e Costa and Oliveira 2012). Structured in this manner, the scores will have intrinsic meaning to the user (and also to the decision-maker while eliciting qualitative judgments to compute the weights in the decision conferences – see the 'Decision Conferencing' section).

Consultation with Key Stakeholders

In the scoping phase of this study, virtually all the major entities whose missions concerned (even if only marginally) local governance in Portugal were contacted. The purpose was to present the objectives of the MGI, gather feedback on what should be measured and why, and learn what data they possess (to feed the MCDA model). The name and scope of these entities are the following:

- Agency for Administrative Modernisation (AMA). This agency endeavours to modernize and simplify public services and administrations (e.g. through e-government initiatives).
- Central Department for Investigation and Penal Action (DCIAP) of the Prosecutor General's Office. It investigates crimes of corruption or fraud in obtaining and diverting subsidies, subventions or credit, and economic/financial infringements.
- Court of Auditors (TC). This supreme audit institution examines the legality of public expenditure and accounting.
- Directorate-General for Justice Policy (DGPJ). Responsible for the statistical data in the Ministry of Justice.
- Directorate-General for Local Administration (DGAL). Responsible for the design and implementation of measures to support local government (e.g. regarding financial management) and for the cooperation between central and local administrations.

- General Inspector of Finance (IGF). Controls the legality and audits the financial management and the performance of public sector entities (including local governments).
- Institute of Construction and Real Estate (InCI). Sector-specific regulator of construction activities and real estate; among other competences, InCI has to produce statistical information regarding public works (procurement procedures, etc.).
- National Agency for Public Procurement (ANCP). It manages the national system for public procurement.
- National Association of Portuguese Municipalities (ANMP). ANMP represents the municipalities in order to promote and defend their interests.
- Ombudsman. It represents the interests of the public by investigating and addressing complaints of maladministration or disregard for the rule of law by governmental institutions.
- Transparência e Integridade, Associação Cívica (TIAC). It is the official national contact of Transparency International. This civic association works to fight corruption in Portugal, raise public awareness regarding this issue, and monitor progress in this area.

From this list, six entities immediately showed interest in the research and scheduled meetings with the authors (AMA, IGF, InCI, DGPJ, DCIAP and TIAC). In these meetings, the MGI framework (definition of governance and the several dimensions), the possible criteria and the data available were the main topics discussed.

Populating the Value Tree

To operationalize the concept of municipal governance, an adaptation of the definition proposed in the WGI project was assumed (Kaufmann et al. 2010). Governance was defined as the 'traditions and institutions by which authority in a country, region or municipality is exercised'. This includes (a) the process by which governments are selected, monitored and replaced ('Voice and accountability' and 'Political stability'); (b) the capacity of the government to effectively formulate and implement sound policies ('Government effectiveness' and 'Regulatory quality'); (c) the respect of citizens and the state for the institutions that govern economic and social interactions among them ('Rule of law' and 'Control of corruption').

Although Kaufmann et al. defined six dimensions of governance, considering the Portuguese local administration, the 'Rule of law' and the 'Control of corruption' can be treated as one dimension (municipalities abide by the same rules and the judicial system operates at the national level). Thus, the assessment framework was structured as follows:

A. Voice and accountability – criteria capturing the extent to which citizens are able to participate in selecting their local government and have access to important information for monitoring performance.
B. Political stability – criteria capturing the political strength of local governments and the steadiness of the policies.
C. Government effectiveness – criteria capturing the quality of public services, the absence of political patronage, the quality and credibility of the policies formulated and implemented.
D. Market access and regulation (changed from 'Regulatory quality' during the decision conferences) – criteria capturing the capacity of the local government to formulate and

implement sound policies and regulations that permit and promote private sector development.

E. Rule of law & prevention (instead of 'control') of corruption – criteria capturing the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement and with the extent to which public power is exercised for private gain.

Note that any other conceptual framework could have been implemented. These definitions and dimensions of governance were adopted because they are widely recognized and used by practitioners and scholars. In any case, the purpose was simply to provide a starting point for the discussions carried out with the decision-making group (DMG, see the 'Decision Conferencing' section). After the consultation phase with key stakeholders, the research team was able to suggest the value tree represented in Figure 1 (to be completely accurate, the criteria A3 and B3 were added during the decision conferences). Still, it is fair to wonder whether the value tree would be very different if the WGI framework was not suggested to expedite the process and it was left open for the stakeholders to complete (e.g. through an additional decision conference just to conceptualise the problem). This may be a limitation. However, the extra time commitment could also have jeopardised the feasibility of the modelling process.

[Insert Figure 1]

To transform the many aspects of the problem into evaluation criteria, all the aspects considered to be relevant (by the decision-maker) should be considered. Nevertheless, some constraints have to be respected, for instance: criteria must be non-redundant and

preferentially independent (Siskos et al. 2014) and the data should be up-to-date and retrievable for all municipalities (da Cruz and Marques 2013). Criteria must also have theoretical grounding (Andrews et al. 2010). If good municipal governance is interpreted as the way the local government-general society interactions *should* occur, then governance assessments rely on a set of criteria that are unavoidably normative (Bouckaert and Van de Walle 2003). Table 1 presents the normative principles behind the MGI's criteria.

[Insert Table 1]

Decision Conferencing

Introduction

The validation and fine-tuning of the set of criteria and respective descriptors as well as the determination of weights of the additive model was carried out in two decision conferences (Phillips 2007). Several entities were consulted and invited to establish a wide-ranging group of decision-makers (the DMG), representing the citizens, the local administration, the central government and the audit/monitoring institutions. All entities representing the local administration refused to participate (namely, the ANMP, the National Association of Civil Parishes, and the National Association of Local Civil Servants).

In the end, the DMG was composed of the Director-General of the TC and Secretary-General of the Council for the Prevention of Corruption (CPC), the President of TIAC, a representative from the Department of Innovation and Knowledge Management of AMA, and the Inspector of Finance (Director) from IGF responsible for local administration issues. The decision conferences took place in Lisbon on 1 and 12 March 2013, and the two authors of this paper acted as facilitators. The MGI is a model of good local governance which is

aligned with the values of the participants in the decision conferences who fine-tuned and validated the criteria set. A different DMG would likely render a different MGI (i.e. the values and/or priorities of the participants could be different and that would reflect on the criteria, descriptors and relative weighting coefficients of the model).

Fine-Tuning the Criteria and Performance Descriptors

During the decision conferences, several adjustments were made to the MGI (the DMG was allowed to change everything about the model). Some of the modifications were conceptual. For instance, to be more in line with the Portuguese local administration reality, the DMG decided to change the name of dimension 'D' to 'Market access and regulation' and of dimension 'E' to 'Rule of law and prevention of corruption'. The criteria 'A3 – Political accountability' and 'B3 – Pluralism in decision-making' and respective descriptors (see the Appendix) were added during the first decision conference. The extensive expertise of the elements of the DMG on local administration matters was crucial in this process.

The criteria are operationalized by quantitative or qualitative descriptors (ordered sets of plausible impact levels). The natural, proxy or constructed descriptors must preserve the independence in terms of preference of the criteria (Mateus et al. 2008). The final performance descriptors adopted for the Portuguese MGI during the decision conferences are presented in the Appendix. By operationalizing broad and complex concepts, these innovative descriptors may be a helpful resource for local governance assessment frameworks in other international jurisdictions.

Data availability (up-to-date and systematically obtainable for all Portuguese municipalities) was a major constraint to the selection of performance descriptors. For instance, as pointed

out by the DMG, for criterion D1 ‘Market access’ the average number of bidders in public tenders could be a preferable performance descriptor (a higher number would indicate lower levels of favouritism and collusion) but this information is not available for all municipalities. Instead, we had to consider the average number of contracts obtained by each supplier for contracts over 150.000€ (threshold above which a public tender is mandatory by law) in the last four years (local governments have a four-year term) as a proxy descriptor. Several data sources feed the performance descriptors presented in the Appendix, for example: the National Elections Commission the TC, the Ombudsman, DGAL, local governments’ websites, InCI’s public procurement online database, minutes of the meetings of municipal parliaments and local executives, annual reports of local governments and municipal companies (including financial statements), the National Statistics Institute, the annual reports of the Water and Waste Services Regulation Authority, and the Portuguese Environmental Agency.

Finally, it is important to note that the criteria and descriptors underlying this model to measure the quality of local governance include both institutional aspects (e.g. the use of participatory budgeting) and output/outcome aspects (e.g. the quality of services). Methodologically, this does not represent a problem; the only rules the criteria/descriptors need to follow concern their comprehensiveness, non-redundancy and preferential independence (Keeney 1992). Conceptually, however, this could be problematic if one sees (the quality of) governance strictly as a product of institutional features and processes. This is obviously not the case of the model presented in this Research Note (see the definition in section ‘Populating the Value Tree’).

Including the dimension ‘Government effectiveness’ can be subject to criticism. Still, the key tenet of the approach proposed here is that the resulting model should ultimately measure what the DMG wants it to measure. Therefore, if this group decides to look at the institutional features and outcomes of governance (and has recognised legitimacy to do so) then the developed MGI model should comply with this conceptual preference, taking into account the local context. Obviously, any individual that is not a member of this DMG can disagree with the definitions, contents and preferences embedded in this model.

Despite the fact that all entities representing the Portuguese local administration refused to participate in the decision conferences – which represents a problem to this approach – the DMG included leading representatives from three crucial interest or stakeholder groups vis-à-vis the quality of local governance in Portugal (independent auditing institutions, central government agencies, and citizens). Therefore, although it does not include the preferences of the entities being assessed (which is not so rare in evaluation frameworks...), the composition of this DMG should grant a considerable amount of legitimacy to the model developed here.

Scoring Functions

Several numerical (e.g. direct rating, of bisection method, von Winterfeldt and Edwards 1986) and non-numerical (e.g. the Measuring Attractiveness by a Categorical Based Evaluation Technique – MACBETH, Bana e Costa and Oliveira 2012) methodologies have been used in the literature to construct scoring functions (that convert performance impacts into scores in an interval scale). However, given the absence of a univocal problem owner, the very time-consuming process of modelling non-linear scoring functions could originate ‘decision fatigue’ among the representatives that volunteered to be part of the DMG. Therefore, to develop a model that is feasible and able to estimate the governance level

satisfactorily, linear scoring functions (or preference scales with equal distances between consecutive levels for qualitative descriptors) were assumed and validated by the DMG for all criteria.

Certainly, being a simplification, using linear scoring functions has its limitations. For instance, regarding the criterion B2 'Political strength of decisions', the scoring function might be a concave down increasing curve ('too many' seats for the winning list in a given municipality may even be a sign of democratic deficit); however, since in Portugal winning lists rarely are above the 60% share (seats are attributed using the D'Hondt method), using a linear relationship is not so problematic. Moreover, the DMG was aware of this and allowed to change it during decision conferencing (and e.g. to establish minimum and maximum scores, below 0.0 and above 100.0). It was concluded that in the few criteria where the non-linearity could be more important (e.g. voter turnout), the actual performances were clustered in a small range between the established reference levels (in these few cases, the linearity was regarded as perfectly reasonable by the DMG).

Computing the Weights

After the validation of the MGI value-tree (with 23 criteria), the DMG was asked to set the 'Neutral' and the 'Good' performance levels in each criterion (the selected levels for all criteria are presented in Table 2). As for modelling scoring functions, the literature provides many numerical techniques to compute weighting coefficients (e.g. swing weighting or the trade-off procedure, see Greco et al. 2010). Nevertheless, it would be counterproductive to ask the members of a non-technical, heterogeneous DMG to express their preference judgements numerically (Bana e Costa et al. 2012). We adopted the MACBETH approach to avoid this cognitive uneasiness (Bana e Costa and Oliveira 2012). With this technique it is

possible to determine the weights by asking the DMG to make pairwise comparisons through qualitative judgments of the differences in preference of certain reference profiles.

The procedure to compute the MGI weights was as follows. For each dimension (with *n* criteria), the DMG was asked to consider a set of *n+1* hypothetical municipalities, where *n* municipalities have a 'Good' performance in one criterion and a 'Neutral' performance in the remainder (each municipality has 'Good' performance in a different criterion) and one municipality is 'Neutral' all over (Figure 2 was shown to the DMG to explain this).

[Insert Figure 2]

The DMG was then asked to place the *n* municipalities in order of preference (evidently, the 'Neutral' all over is the least preferred). After this assortment, the participants had to compare these municipalities in terms of preference by providing qualitative judgements using seven possible categories: 'no', 'very weak', 'weak', 'moderate', 'strong', 'very strong' or 'extreme' difference. To assist us in this process, we used the M-MACBETH software which allows the DMG to fill in a matrix of categorical judgments on-the-spot and then derives a compatible scale (if the judgments are consistent). Bana e Costa et al. (2012) details the linear programing algorithm that determines the weights according to the qualitative judgements. To be able to compute all the weights in the two sessions, the DMG only had to elicit judgements between two consecutive reference profiles (corresponding to the first diagonal of the MACBETH matrix, as shown in Figure 3 for the 'Rule of law and prevention of corruption' dimension).

[Insert Figure 3]

The steps described above had to be repeated for each of the five dimensions of the MGI (i.e. one matrix such as the one shown in Figure 3 for each dimension). This allowed to compute the (intra) weights of the criteria in each dimension of municipal governance. In order to obtain the overall governance score, the (inter or global) weights of the MGI also had to be calculated. To achieve this, the DMG compared one criterion from each dimension in a new matrix of judgments (see Figure 4, the criteria with higher weights in each dimension were arbitrarily chosen to carry out this comparison). With this final set of judgments it is possible to normalize all weights through linear transformations. This hierarchical approach presented a clear advantage: trying to compute the global weights at once (instead of one dimension at a time), would result in a 24x24 matrix and ordering the hypothetical municipalities (i.e. the reference profiles) would have been very difficult for the DMG.

[Insert Figure 4]

The main results of the two decision conferences, i.e. the global weights of the MGI model, are presented in Figure 5. As can easily be seen, a swing from 'Neutral' to 'Good' (or *vice-versa*) in criterion 'C1 – Debt management' has the greatest impact in the overall score, followed by the criteria measuring the quality of essential services. Since the weight of each dimension of municipal governance is equal to the sum of the global weights of the criteria contained in it, the 'Government effectiveness' dimension is the one with the highest weight (next to 'Voice and accountability', 'Rule of law and prevention of corruption', 'Political stability' and, finally, 'Market access and regulation'). With these weighting coefficients, the reference values presented in Table 2, and the detailed explanation of the descriptors

presented in the Appendix, one can assess the quality of governance of virtually any Portuguese municipality (all feeding data is publicly accessible).

[Insert Figure 5]

Illustration: The Municipality of Lisbon

The MGI structured through a participatory process with key stakeholders was applied to the municipality of Lisbon (the Portuguese capital) to illustrate the outputs of the model. Table 2 presents the 'Neutral' and 'Good' reference levels for all criteria as well as the performances and scores for Lisbon. A quick reading of the scores obtained immediately shows that the DMG may have been overambitious in selecting the reference levels (given the current state of affairs regarding governance practices). Only in one criterion ('C4 – Quality of wastewater services') did the performance of this municipality surpass the 'Good' reference level. In contrast, performances were considerably below the 'Neutral' reference level for several criteria. However, this does not mean that the model was badly structured or that it is unbalanced. Being based on normative principles that stipulate what local governments should be doing to achieve municipal governance best practices, and being this the first time that such practices are being assessed, it should be expected that municipalities depict low scores (the same was observed for the measurement of local government transparency, see da Cruz et al. 2016). In fact, the main idea is to encourage incremental improvements, which would not be the case if the *status quo* was positively assessed.

[Insert Table 2]

Figure 6 shows the local governance profile of Lisbon. This municipality obtained an overall governance score of -34.24 which means that the governance practices are generally below the acceptable level (from the point of view of the DMG). By detailing the scores in each dimension, this profile also allows us to identify what are the areas that deserve special attention. The figures in bold next to the bars represent the intra dimension scores (i.e. the scores in each criterion weighted by the 'intra' weights), while the figures in brackets are the weighted scores that contribute to the overall MGI value.

[Insert Figure 6]

Conclusion

The MGI developed for Portuguese municipalities with the input from key stakeholders enabled the operationalization the concept of governance through MCDA modelling. This Research Note shows how complex issues can be translated into objective descriptors and how the performances according to these descriptors can be aggregated in a sensible manner to assess the problem globally. The usefulness of the results can range from public advocacy efforts to purely academic explorations where the MGI may be used as a dependent variable.

Cities currently compete for practical and tangible issues such as financial resources and new investments (Morais and Camanho 2011). Aspects such as transparency, control of corruption and public participation are often not a priority for local governments, although the literature recognizes them as being crucial for overall wellbeing (Herian et al. 2012). In theory, the MGI could help to (re)align the objectives of local politicians with these normative principles. In practice, even if the construction of rankings or ratings is deemed to be

counterproductive, the disclosure of results such as local governance profiles could help stakeholders to make sense of and use information that is otherwise dispersed or inaccessible.

The additive aggregation model proposed here is 'compensatory', which could potentially be a limitation. However, the fact that poor outcomes in certain criteria might be compensated by excellent scores in other criteria (and *vice-versa*) was not considered to be problematic by the DMG, given the 'Good' and 'Neutral' levels established. The extra complexity of non-compensatory modelling could have a black-box effect and discourage practical application and general use by the citizens. The possibility of considering maximum and minimum scores in each criterion was debated but disregarded for the time being (only to be revisited in pilot studies with more municipalities).

Local governance indicators developed through the approach presented in this Research Note are deeply reliant on the composition of the DMG. The representativeness and legitimacy of the model depends on the representativeness and legitimacy of the group of people that jointly negotiate and express their preferences during the structuring and modelling processes. Rather than a weakness, this can be seen as a key advantage of MCDA modelling – otherwise it would be a purely technocratic (and perhaps undemocratic) exercise. Furthermore, since contexts and preferences change over time, this type of initiative should be constantly audited and revised by the relevant stakeholders allowing for incremental improvements in the quality of local governance and the suitability of the indicators – especially if the intention is to apply the model systematically (e.g. yearly). In the case of the MGI developed for the Portuguese context and used as an illustration in this study, the results should preferably be discussed with representatives from the local authorities. Depending on

the purpose and scope of the application, the model could then be revised to take into account the feedback from this key group of stakeholders (via decision conferencing, Phillips 2007).

Finally, it should be noted that the MCDA framework allows for robustness and sensitivity analysis. For instance, it is possible to impose small variations to the weights (while still respecting the matrixes of judgement of the DMG) in order to observe how the overall results would change (e.g. the M-MACBETH software provides this feature). This can be used to compute 'margins of error' for the scores obtained for the municipalities (which many authors consider to be valuable, Kaufmann et al. 2010).

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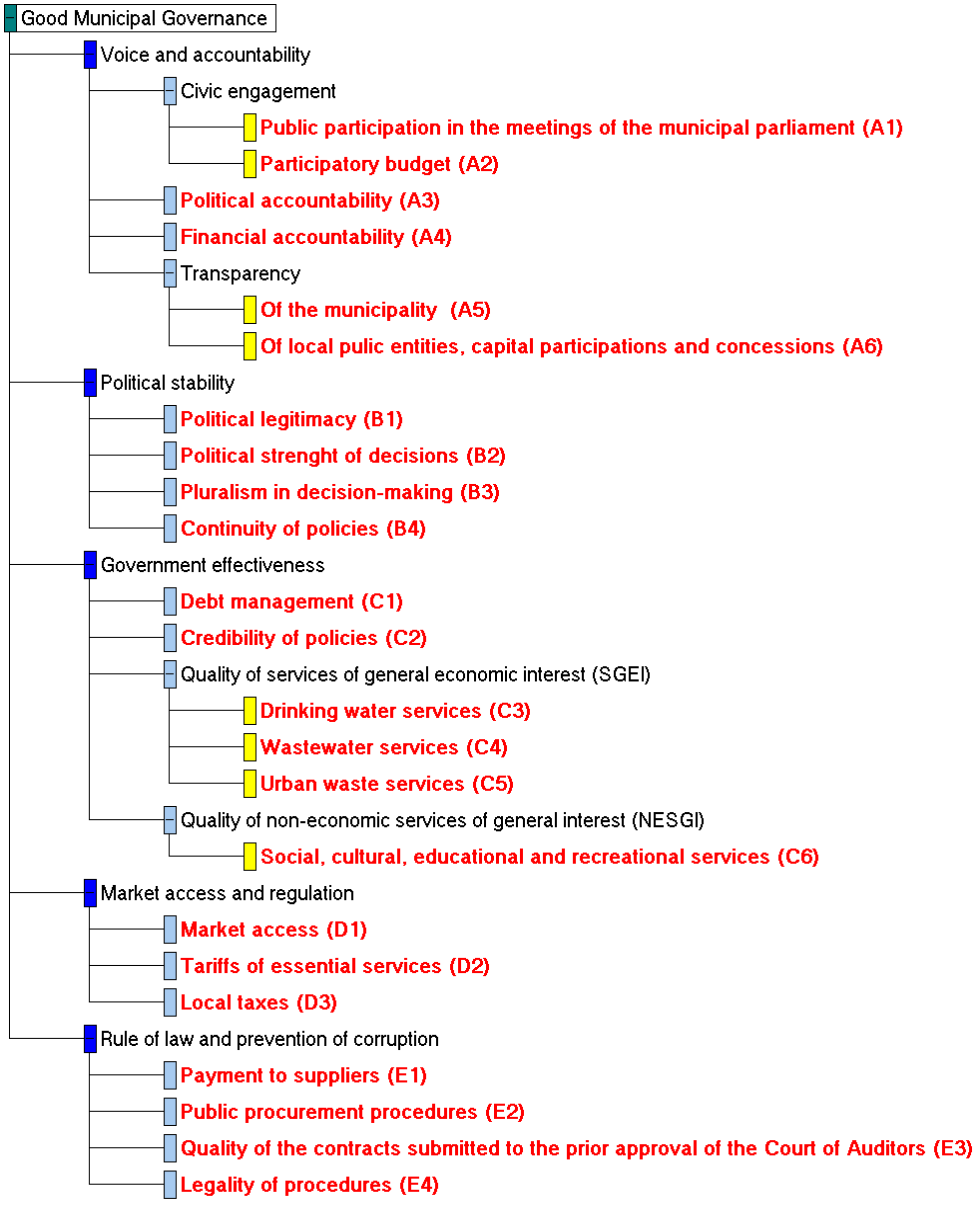

Figure 1. Dimensions and Criteria of the Portuguese MGI (using M-MACBETH software).

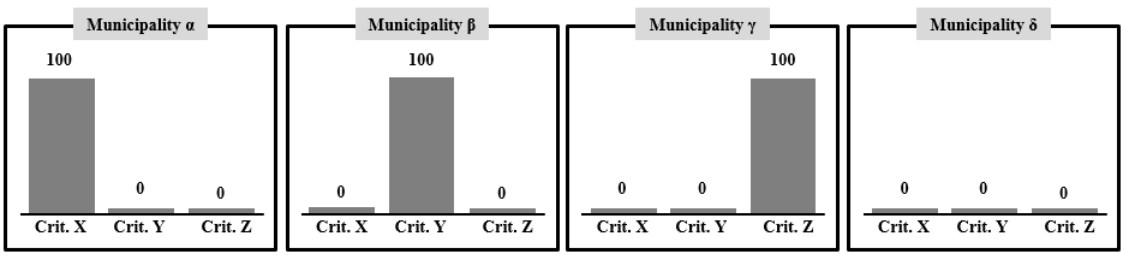

Figure 2. Example Presented to the Decision-making Group to Explain the Weighting Protocol (Macbeth Judgments between Reference Profiles).

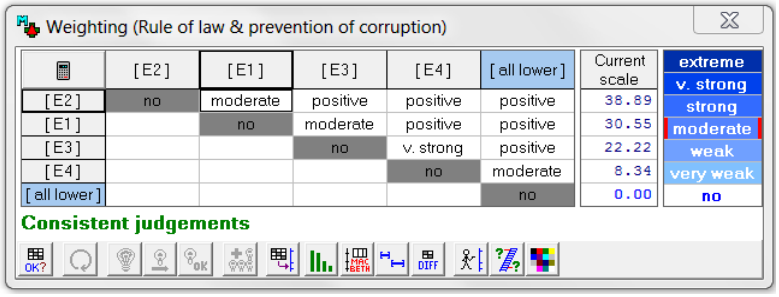

Figure 3. Matrix of Judgments for the Dimension 'Rule of Law & Prevention of Corruption' (using M-MACBETH software).

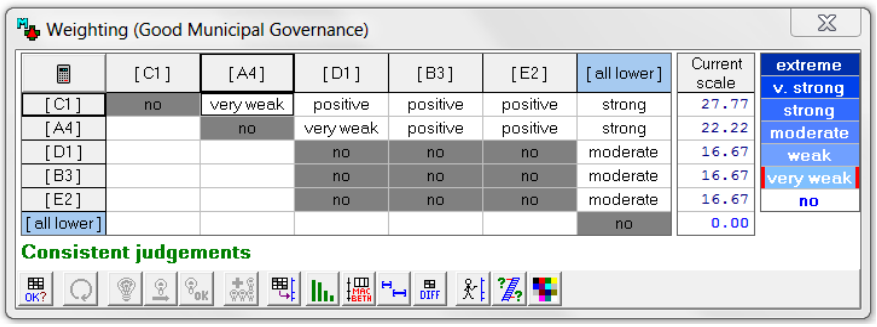

Figure 4. Matrix of Judgements for the Hierarchical Model (using M-MACBETH software).

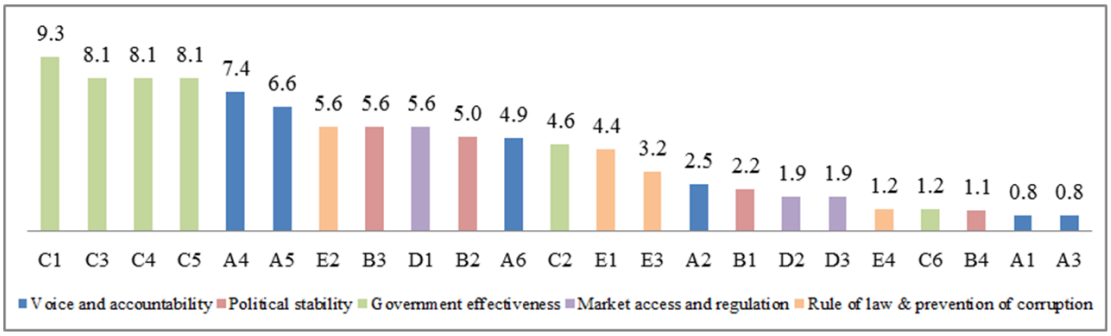

Figure 5. Weights of the MGI.

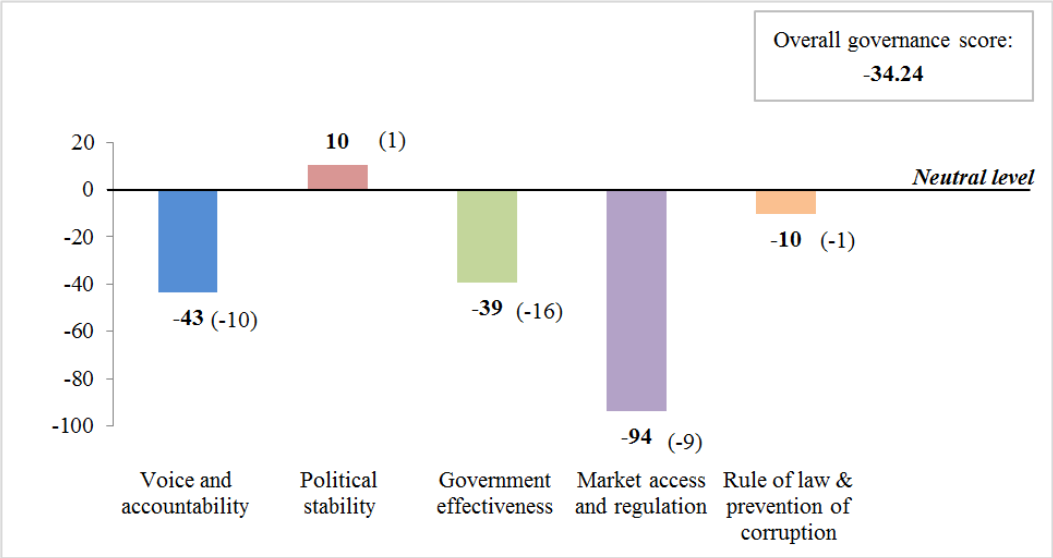

Figure 6. Municipal Governance Profile for Lisbon.

Table 1. Normative Assumptions behind the Governance Criteria.

Governance dimensions	Governance criteria	Normative belief
Voice and accountability	A1	An active participation of local civic groups and individual citizens in the meetings of municipal parliaments makes local governments more accountable.
	A2	Allowing citizens to decide on how to allocate a significant part of the municipal budget (i.e. formulating and selecting local investments) is an effective way of giving voice to citizens' concerns.
	A3	Citizens should be able to know the career path of the elected officials and to ascertain whether or not they are prone be influenced by certain lobbies or have motivations other than protecting the public interest at all times; the opposition should have the means to effectively carry out this monitoring even more closely.
	A4	Despite the strict national accounting rules for all local governments, the quality of this reporting differs substantially from one municipality to another (especially regarding off-budget spending and off balance sheet debt).
	A5 and A6	High levels of transparency allow citizens to know what the processes, structures and products of government are; publicly disclosing some crucial items increases public trust and provides incentives to accountable public management.
Political stability	B1	High electoral participation is a symptom of a healthy democracy; efforts to involve citizens and raise awareness by local parties and/or candidates along with public trust on local institutions should result in higher voter turnouts.
	B2	Holding the majority of the seats is crucial for empowering local governments; certain local reforms might only be feasible if the winning list has political strength.
	B3	The ability to generate consensus by taking into account the views and opinions of others (namely the non-elected councilmen) is beneficial for society and promotes political stability.
	B4	The public interest should be safeguarded against political manoeuvring and a change in the executive should not prevent good policies from being pursued; continuous, credible and long-term planning effectively involving local stakeholders contributes to achieving this.
Government effectiveness	C1	Very high debt levels may hinder the economic sustainability of municipalities; effective local governments should be able to meet their responsibilities in terms of public service delivery without jeopardizing future borrowing capacity.
	C2	The credibility of local policies and planning is strongly associated with the credibility of the budget.
	C3, C4 and C5	The availability and quality of local infrastructure services (considered to be services of general economic interest) is essential for the wellbeing of citizens.
	C6	Though often financially unsustainable (non-economic services of general interest), social, cultural, education and recreational services are crucial to promote development and social cohesion.
Market access and regulation	D1	Favouritism (local governments) and/or collusion (suppliers) make prices detach from costs; with effective competition for the market, few suppliers should not be able to win several public contracts.
	D2	The use of price signals (e.g. inclining blocks or seasonal rates) and ensuring the financial sustainability of utility services are good regulatory practices.
	D3	Higher local taxes hinder consumption and private sector development.
Rule of law & prevention of corruption	E1	Suppliers and contractors often have to cope with late payments from local governments and some municipalities build a (bad) reputation due to the time taken to settle invoices.
	E2	Public procurement is a key area for risks of corruption at the local level and the major problems arise in direct awards.
	E3	Good public contracts (well drafted, legal) protect the public interest.
	E4	Individuals or businesses are more prone to submit a complaint to the ombudsman when they feel that the local government or its entities (e.g. municipal companies) fail to respect for the rule of law.

Table 2. 'Neutral' and 'Good' Reference Levels and the Performances and Scores Attained by Lisbon.

Criteria	Reference levels		Performances for	Scores for
	Good	Neutral	Lisbon	Lisbon
A1	Level II	Level IV	Level II	100.00
A2	5.0%	1.0%	3.5%	62.50
A3	Level II	Level III	Level V	-200.00
A4	Level II	Level III	Level IV	-100.00
A5	Level II	Level III	Level IV	-100.00
A6	5.9	4.7	5.5	66.67
B1	75%	50%	53%	12.00
B2	75%	50%	53%	12.00
B3	80%	60%	60%	0.00
B4	Level II	Level IV	Level III	50.00
C1	30%	60%	154%	-313.33
C2	80%	70%	64%	-60.00
C3	Level II	Level IV	Level V	-50.00
C4	Level II	Level IV	Level I	150.00
C5	Level II	Level IV	Level II	100.00
C6	89 € per capita	55 € per capita	58 € per capita	8.82
D1	1.1 contracts/supplier	1.5 contracts/supplier	1.92 contracts/supplier	-105.00
D2	Level II	Level IV	Level II	100.00
D3	164 € per capita	285 € per capita	592 € per capita	-253.72
E1	20 days	90 days	95 days	-7.14
E2	90%	66%	48%	-75.00
E3	99%	95%	99%	100.00
E4	3.0 complaint/10^4 inh.	6.0 complaints/10^4 inh.	6.4 complaints/10^4 inh.	-13.33

Appendix

Table A1. MGI performance descriptors

Criterion	Descriptor	
A1	Level I.	In each of the last 5 meetings of the Municipal Parliament several citizens intervened on their own behalf to discuss a subject of interest to the community. One civic association of citizens was also represented in at least 3 of the last 5 meetings and in each occasion it presented an issue of general/collective interest.
	Level II.	In each of the last 5 meetings of the Municipal Parliament several citizens intervened on their own behalf to discuss a subject of interest to the community.
	Level III.	In at least 3 of the last 5 meetings of the Municipal Parliament several citizens intervened on their own behalf to discuss a subject of interest to the community.
	Level IV.	In the last 5 meetings of the Municipal Parliament, only occasionally the public discussed a subject of interest to the community.
	Level V.	In the last 5 meetings of the Municipal Parliament, there was no public participation or only particular interests were presented.
A2	Amount available for the participatory budget (in % of total annual investment).	
A3	Level I.	The Municipal Parliament established a "Statement of Disclosure of Interests" system mandatory for all members and accessible to any citizen who requests it (without limitations). There is also a Conflict of Interests Statement system applicable to the members of the executive and legislative branches of government. The report of the Statute of the Right of the Opposition contains the opinions of non-elected councilmen, was approved in the Municipal Parliament and is available online. The detailed CVs of the Mayor and councilmen are available in the website of the municipalities, as well as their remunerations.
	Level II.	The Municipal Parliament established a "Statement of Disclosure of Interests" system mandatory for all members and accessible to any citizen who requests it (without limitations). The report of the Statute of the Right of the Opposition contains the opinions of non-elected councilmen, was discussed in the Municipal Parliament and is available online. The detailed CVs of the Mayor and councilmen are available in the website of the municipalities.
	Level III.	The Municipal Parliament established a "Statement of Disclosure of Interests" system mandatory for all members and it may be available to the citizens upon request (subject to approval). The report of the Statute of the Right of the Opposition was discussed in the Municipal Parliament and is available online. The detailed CVs of the Mayor and councilmen are available in the website of the municipalities.
	Level IV.	The detailed CVs of the Mayor and councilmen are available in the website of the municipalities.
	Level V.	None of the above levels is fully respected.
A4	Level I.	The last annual financial statement includes full and detailed information on revenues, expenditures and financial assets and liabilities. This statement consolidates all the participations of the municipality (corporate and non-corporate). Any contingent liabilities for guarantees or warranties with local PPPs are fully disclosed. The revenues and expenditures of utilities are allocated to each type of service and reflect the costs of the social choices.
	Level II.	The last annual financial statement includes full and detailed information on revenues, expenditures and financial assets and liabilities. This statement consolidates all the capital participations of the municipality (public and mixed entities). Any contingent liabilities for guarantees or warranties with local PPPs are fully disclosed. The revenues and expenditures of utilities are allocated to each type of service.
	Level III.	The last annual financial statement includes full and detailed information on revenues, expenditures and financial assets and liabilities. This statement consolidates the majority of the capital participations of the municipality (public and mixed entities). The revenues and expenditures of utilities are allocated to each type of service.
	Level IV.	The last annual financial statement includes full and detailed information on revenues, expenditures and financial assets and liabilities. All public and mixed municipal companies present their own detailed financial reports.
	Level V.	None of the above levels is fully respected.

A5

Level I. All items in Table A2 are available online.
Level II. All the items of "predictive information" and "financial information" are available as well as 6 items of the "additional information" (including "Procurement" and "Transfers and subsidies").
Level III. All the items of "predictive information" and "financial information" are available. The items "Procurement" and "Transfers and subsidies" are also available ("additional information").
Level IV. All the items of "predictive information" and "financial information" are available.
Level V. At least one of the items of "predictive information" or "financial information" is missing.

A6

$$\frac{\sum_{i=1}^{N} v_i}{N_{items}}$$

Note: the items are presented in Table A3 (N=18); v_i =-5 if item i is unavailable; v_i=5 if the item or topic is linked in the main page ***or*** if the item appears in a web search with its terms; v_i=10 if the item or topic is linked in the main page ***and*** if the item appears in a web search with its terms.

B1

Voter turnout in the last election (%).

B2

Seats obtained in the last election (%).

B3

Approval of predictive and financial accountability documents (% councilmen votes).

B4

Level I. The local government follows a long-term strategic plan (at least for the next 10 years). This plan was drafted involving a vast array of stakeholders, including the local community, and is continuously discussed/revised with the opposition parties/councilmen. Partial goals or intermediate targets are frequently assessed by the Municipal Parliament. Any changes to the plan require the approval of this body.
Level II. The local government follows a long-term strategic plan (at least for the next 10 years). Partial goals or intermediate targets are frequently assessed by the Municipal Parliament. Any changes to the plan require the approval of this body.
Level III. The local government follows a medium to long-term strategic plan (at least for the next 5 years). Partial goals or intermediate targets are occasionally reviewed by the legislative body.
Level IV. The local government holds total discretion regarding the setting of objectives. The investment policy is not directly linked to a comprehensive long-term strategic plan.

C1

Debt to total revenue ratio (%).

C2

Budget execution (% - weighting each entry by its initial amount)

C3

Level I. All indicators in table A4 are at (or above) the "Good performance" level.
Level II. Two of the indicators are at (or above) the "Good performance" level. The third indicator is not below the "Satisfactory performance" level.
Level III. One of the indicators is at (or above) the "Good performance" level. The other two indicators are not below the "Satisfactory performance" level.
Level IV. All indicators are at (or above) the "Satisfactory performance" level. None is at the (or above the) "Good performance" level.
Level V. One of the indicators is below the "Satisfactory performance" level.
Level VI. Two of the indicators are below the "Satisfactory performance" level.
Level VII. All indicators are below the "Satisfactory performance" level.

C4

Level I. All indicators in table A5 are at (or above) the "Good performance" level.
Level II. Two of the indicators are at (or above) the "Good performance" level. The third indicator is not below the "Satisfactory performance" level.
Level III. One of the indicators is at (or above) the "Good performance" level. The other two indicators are not below the "Satisfactory performance" level.
Level IV. All indicators are at (or above) the "Satisfactory performance" level. None is at the (or above the) "Good performance" level.
Level V. One of the indicators is below the "Satisfactory performance" level.

	Level VI.	Two of the indicators are below the "Satisfactory performance" level.
	Level VII.	All indicators are below the "Satisfactory performance" level.
C5	Level I.	Less than 1.0 complaint per 1000 customers and more than 4.0 selective collection containers per 1000 inhabitants.
	Level II.	Less than 1.0 complaint per 1000 customers. Between 2.5 and 4.0 selective collection containers per 1000 inhabitants.
	Level III.	Between 1.0 and 5.0 complaints per 1000 customers. More than 4.0 selective collection containers per 1000 inhabitants.
	Level IV.	Between 1.0 and 5.0 complaints per 1000 customers. Between 2.5 and 4.0 selective collection containers per 1000 inhabitants.
	Level V.	Between 1.0 and 5.0 complaints per 1000 customers. Less than 2.5 selective collection containers per 1000 inhabitants.
	Level VI.	More than 5.0 complaints per 1000 customers and at least 2.5 selective collection containers per 1000 inhabitants.
	Level VII.	More than 5.0 complaints per 1000 customers.
C6	Social, cultural, educational and recreational services expenditure (€ per capita).	
D1	Different contractors/suppliers for contracts over 150.000€ in the last 4 years (contracts per supplier)	
D2	Level I.	Water, wastewater and urban waste services' tariff structures use price signals. Cost coverage (total revenues to total expenses ratio) is above 1.00.
	Level II.	Water and wastewater services' tariff structures use price signals. Cost coverage is above 1.00.
	Level III.	Water, wastewater and urban waste services' tariff structures use price signals. Cost coverage is between 0.90 and 1.00.
	Level IV.	Water and wastewater services' tariff structures use price signals. Cost coverage is between 0.90 and 1.00.
	Level V.	Water and wastewater services are charged through linear pricing (fixed monthly fees may also be charged). Cost coverage is above 0.90.
	Level VI.	Water and wastewater services are charged through linear pricing (fixed monthly fees may also be charged). Cost coverage is below 0.90.
D3	General local taxes collected in the year of analysis (€ per capita).	
E1	Average time elapsed between the provision of the service, material or equipment and the actual payment at 31 December (days).	
E2	Public contracts awarded through competitive tendering in the last 12 months (% of public procurement expenditure).	
E3	Prior approvals denied by the Supreme Audit Institution during the last four years (% of all contracts scrutinized).	
E4	Complaints received by the ombudsman concerning the municipality and its entities in the last three years (number per ten thousand inhabitants).	

Table A2. Items to be considered in the scoring of criterion A5 (transparency of municipalities)

Predictive information	Financial information	Additional information
Activities plan	Balance	Associations
Multi-year investment plan	Consolidated account	Foundations
Budget	Income statement	Local companies and participations
	Unpaid commitments	Procurement
	Budgetary control maps	PPPs
	Budget modifications	Sustainability report
	Management report	Self-assessment performance report
		Transfers and subsidies

Table A3. Items to be considered in the scoring of criterion A6 (transparency of other local entities and PPPs)

Institutional information	Predictive information	Financial information	Additional information
Shareholders	Activities plan	Balance	Procurement
Statutes	Budget	Income statement	Participations
Viability studies	Investment plan	Budget modifications	Activities report
Contract signed with the municipality		Management report	Transfers and subsidies
Mission		Semi-annual management report	
		Chartered accountant opinion	

Table A4. Reference levels for the quality of drinking water services (criterion C3)

Indicator	Good performance	Satisfactory performance
Water quality	99% of the water samples respect the EU parametric values	95% of the water samples respect the EU parametric values
Service interruptions	0.1 per 1000 household per year	0.35 per 1000 household per year
Complaints	2 complaint per 1000 consumers per year	8 complaints per 1000 consumers per year

Table A5. Reference levels for the quality of wastewater services (criterion C4)

Indicator	Good performance	Satisfactory performance
Service coverage	99% of the urban population.	90% of the urban population.
Wastewater treatment	100% of discharges respect the EU parameters	95% of discharges respect the EU parameters
Complaints	1 complaint per 1000 customers per year	5 complaints per 1000 customers per year