




# Composite Indicator of Social Responsiveness of Local Governments: An Empirical Mapping of the Networked Community Governance Paradigm

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Accepted: 4 January 2019  
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## Abstract

Various local stakeholders with diverse needs seek different treatment and actions by their local governments. From the modern perspective of local governance, this article examines whether local governments are sufficiently responsive in meeting not only the mandatory responsibilities, but also the rapidly expanding range of societal expectations. This study enriches the existing local governance literature with a novel methodology and a set of indicators for measuring the quality of networked community local governance. The primary goal is to enlighten the local governance theory with a newly designed perspective and to offer our own innovative quantitative representation. The conclusions are based on theoretical refinements and our own innovative methodology supported by an empirical investigation. Finally, a composite indicator of social responsiveness of local governments is constructed, elaborated and illustrated through a case study.

**Keywords** Networked community governance · Social responsiveness · Local governance · Transparency

**JEL Classification** H70 · H75 · H76 · I38

## 1 Introduction

Our understanding of the concept of local governance has considerably evolved over the past three decades. The democratization and decentralization processes worldwide significantly increased the societal expectations from the local governments, creating a stronger pressure for changes and innovations in their practices. Simultaneously, a large body of the theoretical literature on local governance has expressed serious doubts about the relevance of the prevailing New Public Management (NPM) paradigm. The key pillars of this

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paradigm include a managerial, as opposed to administrative or professional, approach of local governments to public services delivery (e.g., Hood 1991). The import of business managerialism into public sector central concepts was supposed to lead to improvement of efficiency and customer service by the public sector organizations. The legitimacy of the NPM paradigm has been seriously questioned by several competing approaches, arguing that the “key parts of the NPM reform have been reversed because they lead to policy disasters, and other large parts are stalled” (Dunleavy et al. 2006, p. 468). These competing theories of governance highlight the importance of public value (e.g., Moore 1995), digital governance (e.g., Dunleavy et al. 2006), New Public Governance (e.g., Bingham et al. 2005; Alford and Hughes 2008; Osborne 2006; Osborne et al. 2012), Networked Community Governance (NCG) (e.g., Stoker 2008, 2011), Neo-Weberian State (e.g., Politt and Bouckaert 2011), etc. Yet none of these competing theories has managed to develop into a dominant fully-fledged theory of (local) governance.

Inspired by these ‘candidate’ paradigms, there have been several attempts for empirical characterization of local governance. We argue that these efforts can be considered valid as long as they clearly indicate the underlying theoretical framework or the candidate paradigm of local governance. Having said that, we highlight that our applied work is inspired and guided by the NCG paradigm, which accentuates that “[...] in the complex world of multiple demands and networks the most powerful and effective role for elected local government is that of network coordinator” (Stoker 2011, p. 17). In a nutshell, the focus is on the local governance in which the formal local government is nested within a larger system of formal and informal governance.

There are several motivations for our research. First, we believe that the NCG paradigm is still a viable theoretical framework to understand good local governance. Second, recent empirical studies—e.g., da Cruz and Marques (2016) and Teles et al. (2017)—conclude with the recommendation for future empirical refinements. Third, the existing empirical studies do not have strong links with the contemporary candidate paradigms of local governance. In contrast, our aim is to explore to what extent the local governments are responsive in fulfilling their embedded societal roles, which is the essence of the NCG paradigm. To do so, we design a composite local governance indicator and measure the success of local governments as network governors, or—what we call—the ‘social responsiveness’ of local governments.

Our more specific research goals are: (1) to review the evolution in our theoretical understanding of local governance; (2) to enrich the empirical NCG literature with stronger emphasis on the societal roles of local governments; (3) to develop our own methodology that introduces a novel composite local governance indicator; (4) to assess the degree of social responsiveness of local governments in one consolidating democracy as a case study, and (5) to offer policy-relevant conclusions for socially responsive local governance. Within the scarce empirical literature, the closest to our work is a study by da Cruz and Marques (2016) that makes an attempt to measure the quality of local governance in the case of Portugal by using the M-MACBETH software.

Our contribution to the existing body of empirical literature is twofold. First, we make an empirical mapping of the NCG paradigm. The newly designed composite local governance indicator is most suitable for a group of developing and transition countries, also known as ‘consolidating democracies’. They have similar degree of fiscal decentralization and similar institutional, economic, social and cultural features that make them a rather homogenous group. Second, we apply the methodology to examine the level of social responsiveness of 81 municipalities in Macedonia, a case-study country that implemented numerous reforms in local governance in the recent decade.

The remainder of the paper is organized as follows. In Sect. 2, we critically review the relevant theoretical and empirical literature regarding local governance, by examining both traditional and modern perspectives on local governance. The concept of multiple dimensions of responsiveness is central to our work. We take the broader concept of network governance and break it down into nuanced, measurable dimensions that say something collectively meaningful about how local governments operate. In Sect. 3, we develop a methodology for measuring social responsiveness of local governments and apply it on a case study. The methodology, the components and the indicators for measuring the social responsiveness of local governments are elaborated in the Sect. 4. Our empirical results are discussed in the Sect. 5. The composite indicator has the potential to serve as a tool for monitoring and evaluation of policy responses in the areas of local governance, which in turn, strongly influences local democratic and socio-economic development. In Sect. 6 we conduct uncertainty and sensitivity analysis. The conclusion summarizes both theoretical and practical findings on networked governance, and in particular—the social responsiveness of local governments.

## 2 Literature Review

There has not been much empirical meat on the theoretical bones of local governance, partly due to theoretical ambiguities. The unclear boundaries among different paradigms and the very elastic concept of local governance are only one indication of the ambiguous theoretical guidance. On the other hand, the democratization and decentralization processes across the globe have fueled high demand for local governance indicators (Andrews et al. 2010; Bandura 2005, 2008, 2011; Davis et al. 2012; Rothstein and Teorell 2012; Hallerberg and Kayser 2013; Gisselquist 2014; da Cruz and Marques 2016). These studies have made attempts to clarify and distill the main dimensions of the local governance concept. At the national level, the influential work by Kaufmann et al. (1999a, 2004) produced the renowned World Bank Governance Indicators, covering over 200 countries and territories, and measuring six dimensions from 1996 onwards. At the local level, the empirical work in the local governance area is still scarce. Even so, none of the studies have explicitly conducted an empirical mapping of the NCG paradigm, a gap we intend to fill in the existing body of relevant literature.

### 2.1 The Traditional Theory of Local Governance

Local governments have primarily been aiming to bring public services closer to the citizens. Yet the expectations from the local governing arrangements have been evolving along “the transformation of the structure of government beyond Westminster and Whitehall from a system of local government into a system of local governance” (Rhodes 1999, p. xiv).

During the 1960s and 1970s, the traditional public administration literature perceived the importance of sub-central governments in terms of managing inputs and delivering services. The New Public Management wave in the 1980s shifted the focus towards efficiency and responsiveness considerations, by importing managerial and consumer-oriented concepts. The subnational governments—as part of the public sector—were expected to focus much more on “customers”, strategic planning and management, separation of provision and production, performance measurement, contracting out, freedom to manage,

incentivization of the personnel, separation of politics and administration, improved financial management, etc.

Simultaneously, ‘governance’ has been treated as a synonym for government (Stoker 1998). This was a problematic equalization, because society and societal networks have been in the midst of a paradigm shift from what is known as a “government” paradigm to what is being referred to as a “governance” paradigm. The “governance” paradigm can be viewed as an attempt at a synthesis of the dueling paradigms of government and the market, with elements of the network theory (Frahm and Martin 2009). The shift towards governance reflected citizens’ aspirations for their engagement in the local government decision-making processes and a stakeholder approach in delivering the local public services. This trend has inspired the broader concept of governance, particularly in the past two decades that encompasses a variety of modalities including networks.

Local governance has now been seen as resting on three pillars: accountability, responsibility and responsiveness (e.g., Shah and Shah 2006). The experts of the international organizations have expanded the core definition by including local government effectiveness, transparency and rule of law, civic engagement and equity (UNDP 2009). The central objective of these extensions is to improve the understanding of the relations between local authorities and citizens. As Shah and Shah (2006, p. 2) point out: “good local governance is not just about providing a range of local services but also about preserving the life and liberty of residents, creating space for democratic participation and civic dialogue, supporting market-led and environmentally sustainable local development, and facilitating outcomes that enrich the quality of life of residents”.

Local government accountability is associated with the process of being called to account to some authority (in our case, the citizens) for one’s actions (Mulgan 2000). Accountability encompasses the capacity of local governments to carry out all local duties prescribed by the legal acts and simultaneously to hold local public officials responsible for those actions. Local government responsibility assumes formal governance, implying that local governments have to ensure that their programs meet their stated objectives (Schaeffer 2005). Furthermore, it can be understood as referring to the ability of local governments to exercise discretion within the different functions that are allotted to them (Norton 1991). Good local governance is therefore always dependent on a considerable level of local government responsibility. Hence, the good local governance could be loosely summarized as responsibility and responsiveness to local needs and conditions, which would then be tempered by capacity (which can be conceptualized in various ways, but mainly as a capacity to act) and discretionary authority.

Local government responsiveness can be conceptualized as a way of acting of the local authorities, where they respond to the needs of the citizens in various contexts. Theoretical and empirical studies on local government responsiveness can be roughly divided into two broad camps. The first camp argues that local governments increase citizen participation and even inspire the central state to be more responsive by their local actions (e.g., Oates 1972, 2008; Wallis and Oates 1988; Östrom et al. 1993; Putnam 1993; World Bank 1994). The second camp is much more pessimistic regarding the benefits of local government responsiveness. These scholars argue that local governments lack technical, human, and financial resources to provide a heterogeneous range of public services (e.g., Smith 1985; Samoff 1990; Prud’homme 1995; Tanzi 1995). It is important to highlight that these two “camps” are not mutually exclusive. Effective citizen participation can both reflect and inspire higher levels of governmental responsiveness. At the same time, local governments without much in the way of resources could lack the capacity to be as responsive as they might otherwise like to be.

In conclusion, the traditional local governance literature has mainly focused on the differences between local government systems across the world, and on explaining those differences (e.g., Humes and Martin 1969; Hesse and Sharpe 1991). The main shortcoming of traditional governance literature was the excessive reliance on comparative descriptions rather than analytical comparisons. The insufficient depth and the lack of systematic way in studying the complexity of local governance arrangements (e.g., Stoker 2008) have sowed the seeds of the modern theory of local governance.

## 2.2 The Modern Theory of Local Governance

Even with the more recent formulations of governance, as the pressures for decentralization have grown, there has been a constant re-assessment in the theoretical and empirical literature. Local citizens and local organizations have been more demanding in terms of quality and diversity of public services at local level. The modern theory of local governance has shifted the focus from the service providers (local governments) and service customers to a broad group of stakeholders (also perceived as co-producers). This contemporary perspective on good local governance has come to require more rigorous clarification and increasingly complex categorization.

While the prevailing NPM paradigm may still not be dead, it certainly confronts serious existential problems. As we noted in the introductory section, there have been several competing theoretical approaches—or candidate paradigms—that express their ambitions for supremacy in the theory of (local) governance. For illustration only, the Public Value (PV) model of governance has “required” from the public officials to consider the benefits and costs of public services not only in monetary terms of dollars, but also in terms of their impact on important civic and democratic principles such as equity, liberty, responsiveness, transparency, participation, and citizenship (Moore 1995). The Digital Era Governance (DEG) model has highlighted the future pressing need for digitalization of the administrative processes. In a similar fashion, Osborne et al. (2012) and Thomas (2012) claim that the legitimacy of the NPM paradigm has now been overtaken by the New Public Governance (NPG) paradigm. Since the main focus is on the management of public services, they also use the term New Theory of Public Service Management (NTPSM). This new concept accentuates the inter-organizational and interactive nature of contemporary public services provision, as opposed to the focus of local governments on the administrative processes or upon intra-organizational management.

A persuasive explanation of the shift from the transactional service delivery or public services model to a more interactive and inter-organizational model of local governance has also been provided by Stoker (2011). He accentuates that the focus of local governments has shifted from managing inputs and outputs to fulfilling their broader, societal roles. This so-called Networked Community Governance (NCG) paradigm proposes a new definition of local governance in which the formal local government is nested within a larger system of formal and informal governance. Studies on local governance have made a conceptual leap forward to understand local government systems as network governors within the NCG paradigm. As argued by the proponents of the NCG paradigm, this most recent era of local governing focuses on at least four societal roles of local governments: to support the expression of identity, to stimulate economic development, to facilitate social welfare provision and redistribution, and to act as a lifestyle co-ordinator through the practice of local governance. This holistic approach announced a paradigmatic shift that goes well beyond the search for efficiency or a customer orientation. It takes on the challenge of

embracing a diverse range of relationships with various stakeholders as well as working across boundaries (Sullivan and Skelcher 2002).

Our empirical work is best suited within the NCG paradigm, as we shed light on the ‘social responsiveness’ of local governments. We believe this is not only a linguistic refinement of the NCG paradigm, but also a new perspective and a new implicit expectation from local governments. Social responsiveness refers to the extent and promptness to which governments meet the needs of various groups of local citizens and local associations. The social responsiveness—as opposed to ‘responsiveness’ in general—places much more role on the societal roles of local governments. From the network governance perspective, local governments are expected to be responsive and reactive to various social needs in the municipality. We illustrate several manifestations of social responsiveness of local governments in different areas by highlighting some anecdotal evidence. The first example refers to a citizen that has a need from the local government officials for a quick action regarding fire damage of her house. She will strongly appreciate the promptness of the action in a particular moment. This is more important to her than the publication of the municipal budget in a user-friendly format on the local government website. While one should never question the legal responsibility and political accountability of local governments in the budget context, we highlight the importance of social responsiveness and interventions in times of need. The second example refers to municipalities with substantial discrepancies in their economic development and administrative capacities. Here, the expectations from the local government to be equally responsive to various needs create much stronger pressure for the underdeveloped municipalities, due to their limited fiscal resources. For example, one rural municipality with very limited budget sources would have more difficulties in addressing the social needs of the students, because the unemployment and poverty might be more pressing issues. As a result, the problem of migration would occur more severely, which in turn, would exacerbate the efforts in addressing other local challenges. For this reason, we also believe that demographic responsiveness should also be considered as a societal role of the local governments.

Are transparent and open local government units more likely to provide quick response to vulnerable groups? Social responsiveness of local governments should be a feature of the qualities of governance (e.g., transparency and openness) regardless of their material resources. And are the wealthier local government units more likely to be socially responsive in practice? These questions can be properly tackled only by applied work and assessment of a diverse set of indicators for social responsiveness.

### 2.3 Applied Research on Local Governance

Several applied studies have been aiming to quantify the quality of local governance. Bloom et al. (2007) produce the Local Governance Barometer for five African countries. UN-HABITAT (2005) has come up with the Urban Governance Index (UGI) for 24 cities as part of the support of the Global Urban Observatory to policy formulation. Later on, a UNDP-sponsored research focused on Good Governance for Local Government (UNDP 2009). A quantitative representation of the State of Local Democracy in 60 municipalities has also been produced by IDEA (2013). The different studies select their own set of indicators and focus on particular dimensions of the quality of local governance. Obviously, a single indicator cannot capture the myriad dimensions and indicators of the complex concept of local governance.

The closest empirical precursor to our applied research is a study by da Cruz and Marques (2016) that rests on multi-criteria decision analysis. It provides a theoretically sound and effective toolkit to aggregate the various dimensions and aspects of local governance. The main caveat is the high degree of overlapping of the composite local governance indicators with the six dimensions of the World Bank governance indicators, namely: voice and accountability; political stability; government effectiveness; regulatory quality; rule of law; and control of corruption (Kaufmann et al. 2010). Their indicators are more general, made upon rounds of negotiations among foreign experts and very broad in order to enable a one-size-fits-all characterization. Most of the aforementioned studies call for further field investigations and admit that there is a need to highlight new dimensions for upgrading the composite local governance indicator. For this reason, we design a tailor-made composite local-governance indicator that captures the social responsiveness dimension within the network governance model. Respecting the guidelines to avoid one-size-fits-all solutions and overly excessive coverage of local governments, we propose a novel methodology that is preferably designed for the consolidating democracies. In the next section, we make an empirical mapping of the NCG paradigm, or more precisely, our version of social responsiveness of local governments. The goal is to quantify the present degree of social responsiveness and monitor it over time.

The struggle for improving local governance is particularly relevant for municipalities that have been affected by the waves of political and economic decentralization in South-eastern Europe. These processes have strongly been supported under the auspices of the World Bank and other international organizations, such as the United States Agency for International Development (USAID) and the Organization for Security and Co-operation in Europe (OSCE). Our intention is also to explore the impact of the “big experiment” in decentralization on local communities, through the local governance mechanisms. These communities offer the best cases to study the factors associated with social responsiveness, because the local governments were assigned many new competences and fiscal resources.

### 3 Methodology for Measuring the Social Responsiveness of Local Governments

So far, we have analyzed local governance theory with a particular emphasis on the networked-community-governance paradigm. Now, we explore the validity of the NCG paradigm for the countries with significant fiscal devolution over the past 20 years. Our testing fields are the consolidating democracies from Southeastern Europe that have ethnically diverse municipalities with significant income disparities. At this stage, we conduct an empirical mapping by identifying relevant and comparable indicators. The methodology aims to address the central question whether the local governments are sufficiently responsive and open to diverse societal needs.

We construct a composite indicator that contains six components (dimensions, or domains) represented by 27 indicators altogether. The composition of the newly designed composite indicator of social responsiveness is more appropriate for countries that embarked on fiscal devolution in the last three decades. For example, our methodology would be most applicable to the transition countries of Southeastern Europe. These consolidating post-socialist democracies share similar degree of fiscal decentralization and even more similar experiences in building local government capacities, mainly under guidance by the World Bank decentralization experts (e.g., Maksimovska and Stojkov 2013). As an

illustration, certain indicators that are important in building local governance in consolidating democracies—such as local transparency and openness—are easily implemented in the developed local government systems (e.g., United States, New Zealand and advanced EU member states). Thus, the methodology has a special emphasis on the former group of developing and transition regions and countries, assembled under the umbrella of the term ‘consolidating democracies’.

The methodology links the NCG theory of local governance with a set of indicators that reflect inputs (or process) variables, policy actions and policy implications of social responsiveness. Admittedly, we also borrow some insights from the earlier paradigms. The concepts of efficiency and effectiveness have never faded away and never will. They also determine the potential of local governments to act as local network coordinators and address the needs of various local stakeholders.

### 3.1 Links with the Theoretical Framework

A small set of indicators concentrates on managing inputs and is largely inspired by the traditional public administration model (e.g., capital expenditure per capita). Without sufficient resources, after all, the local governments cannot act as network coordinators. A second set of indicators reflects the local governments’ focus on managerialism and consumerism as dominant ideologies of the new public management model (e.g., few indicators related to the processes and the quality of public services). A third—and the central or dominant—set of indicators is in the spirit of the NCG paradigm and focuses on the societal role of local governments. It encompasses outcome variables such as promptness of local actions, equitable representation, local economic development, and other forms of responsiveness. For convenience, we categorize the indicators into six areas (or components, dimensions, domains).<sup>1</sup>

### 3.2 Selection of the Indicators

The indicators were considered provided they met the following criteria: comparability between local government units and over time, accessibility and publication on a regular basis, comprehensiveness and (relatively) easy interpretation, and relevance to the local governance. These indicators have been designed and discussed with 20 decentralization experts, before the methodology was tested during the field research. Ten experts come from the academic community, four are long-serving OSCE decentralization officers, two are certified local budget auditors, and the remaining four are experienced external evaluators. The methodology had been presented and discussed on OSCE local governance conference that provided valuable remarks and suggestions that were, later on, built into the final version of the methodology. The sign, or the direction of interpretation of the indicators, was designed to be homogenous, so that higher values would indicate being closer to the ‘desirable situation’ or to the best-performing municipality.

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<sup>1</sup> Some empirical studies have conducted a partial analysis of the determination of local governance. For instance, there are studies that incorporate the role of: demographic factors (e.g., Bolívar et al. 2014); political factors, with a strong emphasis on electoral competition (e.g., Jametti et al. 2011; Arvate 2013; Martínez-Palacios 2017); economic factors (e.g., Martínez-Vasquez and Timofeev 2009); ethnic heterogeneity (e.g., Stewart 2018); quality of public services (e.g., Howard and Mike 2000), and transparency and openness (e.g., Armstrong 2011).



### 3.3 Multivariate Analysis and Normalization

In the next step, we conduct exploratory analysis to assess the suitability of the data set. Research data for complex phenomena often has different measurement units, which require some normalization method to remove the scale effect. We use cluster analysis for most cardinal data (organizations or amounts spent per capita, growth rates) in order to group the municipalities into relatively homogenous groups.

1. *Number of clusters* The so-called ‘average silhouette width’ (ASW)—as outlined by Kaufmann and Rousseeuw (1990)—nearly routinely suggested five groups of municipal data with acceptable inter-clusters distance (the ASW coefficient was above 0.50). Only in two instances, the number of suggested clusters was four (local media per thousand inhabitants) and three (female participation in municipal council). Our attempts to reorganize or partition municipal data into relatively homogeneous groups continued with the method of k-means clustering as a non-hierarchical technique, in which the number of clusters is decided *ex ante*.
2. *Method of normalization* We also normalize the data by applying the minimum–maximum approach to render the data comparable in the identical range [0, 1]. Our choice is driven by the absence of extreme values that otherwise would distort the transformed indicator. The other data which is Likert-type scale is also normalized in the identical range [0, 1]. In the robustness analysis, we also repeat all calculations with an alternative normalization method.

### 3.4 Weighting

One of the most challenging tasks is the weighting of the different indicators. Given the ambiguous theoretical guidance, we employ three methods for assigning weights to individual indicators: (1) equal weights; (2) weights derived from expert opinion, using the so-called budget allocation process (BAP) and (3) weights retrieved from an unobserved components model (UCM). There is no general consensus to what an appropriate weighting measure should be (OECD 2008). Therefore, we contrast and compare the results from different methods in order to investigate the consistency of the results.

1. While the equal weighting method is rather simple to use, it punishes the more ‘influential’ indicators (on theoretical or intuitive grounds). A further complication is that if indicators are grouped into dimensions (domains) and those are further aggregated into the composite indicator, then “applying equal weighting to the variables may imply an unequal weighting of the dimension” (OECD 2008, p. 31). For this reason, equal weights are not our preferred method and the results have only an indicative value.
2. The second method derives experts’ weights from the BAP. This statistical technique rests on assigning weights based on different experts’ opinion. Given the high probability of inducing cognitive stress to a decision maker for such a number of indicators (OECD 2008), we conducted the BAP in two stages. The first stage involved experts’ assessments of the weights of the six components, and the second stage involved experts’ assessment of weights of the indicators within each component. In other words, if it was only one stage involving 27 indicators, then we would say that it is, perhaps, a lot to take into consideration. The final weights were average expert assessments calculated during

the two-stage BAP. This is our preferred method as its application is well understood by the decentralization practitioners. Due to the space limitations, we will only discuss the results from the BAP method.<sup>2</sup>

3. The third method (the Unobserved Components Model, UCM) retrieves weights endogenously from the data. The central idea is that the indicators depend on an unobserved variable plus an error (or disturbance) term. For example, “transparency and openness of municipality  $j$ ” may depend upon the (unknown) civil society pressure plus an error term, for example, errors in counting the informal meetings with local officials. The weight obtained is set to minimize the error and depends on the variance of an indicator, say  $q$  and the sum of the variances of all other indicators including  $q$ . This method does not depend on ad hoc restrictions. Yet, it assumes that the error term is normally distributed, with zero mean and a variance that is the same across municipalities, but differs across indicators. These strong assumptions may not always be attainable.

### 3.5 Aggregation

The individual indicators can be amalgamated into a composite indicator through various aggregation methods: linear, geometric, or multi-criteria. After carefully reviewing the more recent composite indicators’ literature on aggregation (e.g., Greco et al. 2018), we found more compelling arguments in favour of multi-criteria and geometric aggregation. For example, linear aggregation assumes constant trade-offs (compensability) between indicators and dimensions, whereas geometric aggregation offers inferior compensability for indices with lower values (diminishing returns) (van Puyenbroeck and Rogge 2017).<sup>3</sup> However, due to the data properties (the presence of some binary variables (1/0) in our dataset), we use the weighted arithmetic aggregation of our indicators.

The target group consisted of all 81 Macedonian municipalities that are characterized by ethnic diversity, social imbalances and diverse administrative capacities. Macedonia is a typical Southeastern European transition country with newly established local governments.

## 4 Components and Indicators for Measuring Social Responsiveness of Local Governments

In the design phase, the following components (dimensions or domains) of social responsiveness have been identified: (1) demographic responsiveness; (2) economic responsiveness; (3) political responsiveness; (4) responsiveness to diverse ethnic groups; (5) responsiveness in public service delivery, and (6) transparency and openness. Each component contains a set of specific indicators, or in total 27 indicators (Table 1). As already explained in the introductory section, we have assessed the relative importance of each

<sup>2</sup> It is even more related to the use of Analytic Hierarchy Process (of course, it involves BAP as well), but in AHP this problem is amplified, as one would have to compare each indicator with all the other  $n - 1$  indicators. One can immediately tell then, that the number of such pairwise comparisons increases quadratically (and that’s why the cognitive stress is increased significantly).

<sup>3</sup> For instance, as a response to the harsh criticism (Desai 1991; Sagar and Najam 1998; Chowdhury and Squire 2006; Ray 2008; Davies 2009), the computation of the Human Development Index from 2010 onwards switched from additive to geometric aggregation.

**Table 1** Proposed methodological framework. *Source:* Designed and constructed based on unweighted averages of experts' assessments

Composite indicator of social responsiveness	Weighting scheme (%)	Data source
1. Demographic responsiveness	<b>3.0</b>	
1.1. Net migration growth from the municipality relative to the national average ( <i>N1</i> )	2.5	SSO
1.2. Cash grants for newborn ( <i>N2</i> )	0.5	MA
2. Economic responsiveness	<b>28.0</b>	
2.1. Capital expenditure per capita ( <i>N3</i> )	4.8	MoF
2.2. Growth of capital expenditure of the municipality ( <i>N4</i> )	4.9	MoF
2.3. Growth of private sector ( <i>N5</i> )	4.9	SSO
2.4. Participatory budgeting meetings ( <i>N6</i> )	6.0	MA
2.5. Grants to NGOs per capita ( <i>N7</i> )	4.2	MoF
2.6. Right of the Mayor for quick financial interventions ( <i>N8</i> )	3.2	MA
3. Political responsiveness	<b>25.0</b>	
3.1. Effective number of candidates on the last local elections ( <i>N9</i> )	3.5	SSO
3.2. Margin of victory (difference) ( <i>N10</i> )	3.5	SSO
3.3. Local media (per 000 inhabitants) ( <i>N11</i> )	3.5	SSO
3.4. Addressed needs of vulnerable and marginalized groups in the municipality ( <i>N12</i> )	6.0	MA
3.5. Elected women members in the municipal council ( <i>N13</i> )	2.0	MA
3.6. Neighborhood self-government units (urban communities and village councils) ( <i>N14</i> )	5.0	MA
3.7. Organized citizen participation events ( <i>N15</i> )	1.5	MA
4. Responsiveness to ethnic issues	<b>6.0</b>	
4.1. Functionality of committee for inter-ethnic relations ( <i>N16</i> )	3.5	MA
4.2. Equitable ethnic representation in the municipal administration ( <i>N17</i> )	2.5	SSO
5. Responsiveness in public service delivery	<b>18.0</b>	
5.1. Adopted ISO 9001 standard for delivery of services ( <i>N18</i> )	4.5	MA
5.2. Promptness in responding to citizens' requests ( <i>N19</i> )	4.0	MA
5.3. Protocol for procedure in case of emergency ( <i>N20</i> )	3.5	MA
5.4. Frequency of citizen satisfaction surveys ( <i>N21</i> )	6.0	MA
6. Transparency and openness	<b>20.0</b>	
6.1. Web transparency ( <i>N22</i> )	3.7	CCM
6.2. Published minutes of sessions ( <i>N23</i> )	3.7	MA
6.3. Local government provision of information by e-mail ( <i>N24</i> )	4.0	MA
6.4. Appointed person for free access to public information ( <i>N25</i> )	3.7	MA
6.5. Code of ethics for local officials and municipal administration ( <i>N26</i> )	2.3	MA
6.6. Percentage of adopted citizen participation initiatives ( <i>N27</i> )	2.6	MA
Overall social responsiveness index	<b>100.0</b>	

Bold values indicate components or sums

SSO state statistical office, MA responses by the municipal administration during the on-site visits, MoF ministry of finance, CCM center for change management, Macedonia

indicator for having a socially responsive municipality in place and assigned an individual weight through the Budget Allocation Process. In order to mitigate the risk of arbitrariness, we have aggregated and averaged out the assessments made by 20 decentralization experts with different background. We strongly believe this is a sounder methodology than attaching equal individual weight for each indicator.

The assessments for each indicator are synthesized in a composite indicator that reflects the progress in creating socially responsive municipalities or network governors. In line with theoretical guidance, relevant empirical literature and subjective judgments of the decentralization experts, the following weights have been attached: 3% to demographic responsiveness; 28% to the economic responsiveness; 25% to political responsiveness; 6% to ethnic issues' responsiveness; 18% to responsiveness in public service delivery, and 20% to transparency and openness. In the subsequent discussion, we briefly explain the rationale for each indicator.

#### 4.1 Data Issues

The dataset refers to the entire population of 81 municipalities in Macedonia for the year 2016. Somewhat surprising fact is that data availability is not an issue. The main data sources—the State Statistical Office (SSO), the Ministry of Finance, and the Ministry of Internal Affairs—do provide regular annual data on a set of socio-economic and demographic indicators (Table 1). Although this empirical attempt is of a cross-sectional nature, in near future the Social Responsiveness Index will be monitored across time, as well. Given that the last Census of Population, Households and Dwellings was held in 2002, our second-best solution for demographic data was to rely on estimates by the Ministry of Internal Affairs and occasional surveys by the SSO. During the data collection we did not encounter the common problem of missing observations, as the surveys of the SSO are comprehensive.

Based on the statistical properties of the data, we employ two types of indicators. Subjective data are gathered by decentralization experts and practitioners during the on-field visit of municipalities. The objective data is published by official sources, such as SSO, the Ministry of Finance, and the Ministry of Internal Affairs. Due to the same methodology of their collection, this data is comparable and reliable.

We conduct descriptive statistical analysis to assess the correlation among the 27 indicators (Table 10 of the “Appendix” section). Except for the n8–n20 pair of binary indicators where the correlation coefficient is 0.57, the other pair-wise correlation coefficients are not high. In order to measure the internal consistency in our set of individual indicators, we computed inter-item correlations (covariances) and calculated the ‘tau-equivalent reliability’, also known as Cronbach’s alpha. The coefficient varied between 0.77 and 0.80, implying that when excluding one indicator, the average interim correlation would not change significantly. According to Cortina (1993) and Nunnally and Bernstein (1994), modest reliability of 0.70 or higher would suffice.

#### 4.2 Demographic Responsiveness

Demographic responsiveness reflects the attractiveness of a particular municipality in terms of the quality of life it offers. Poorly managed municipalities are more likely to experience net emigration, whereas socially responsive municipalities tend to retain the existing and attract new inhabitants (e.g., Maksimovska 2010, 2011).

The first indicator of demographic responsiveness is net emigration from the municipality relative to the national average. The municipality can experience net outflow of citizens due to net emigration to other municipalities (for instance, municipal tax competition), and net emigration abroad. Since the net emigration from the municipality can also be due to other exogenous factors beyond the control of the municipality, we analyze the net emigration from the municipality relative to the national average. If the municipality experiences lower net emigration growth compared to the national average—or even net immigration, it would receive higher score, and vice versa.

The second indicator of demographic responsiveness is the presence of cash grants for newborn. Around one-third of Macedonian municipalities offer cash grants for newborn in slightly varying amounts, but not more than 500 Euros per child. We treat this variable as binary, so that municipalities offering cash grant receive the value of one, and zero otherwise.

Table 2 outlines the allocation of scores for the indicators of demographic responsiveness.

### 4.3 Economic Responsiveness

Economic responsiveness encompasses the capacities of a municipality to invest in infrastructure, create environment conducive to private sector development, and support the local non-governmental organizations (NGOs). It also includes the right of the mayor or local government officials to use budget sources for quick interventions, as illustrated before. The local economic development as an embedded societal role of local governments carries the highest weight.

The level of investment activity of the municipality is defined as capital expenditure per capita. We not only consider the level, but also the growth in local investment activity. This indicator measures the annual growth of total capital expenditure by the municipality. The growth of capital expenditure is capturing the efforts to address the infrastructural needs of the municipality. The growth of private sector measures the growth of the number of private businesses registered locally. It is an indicator of the dynamism of the local private sector. Since the size of the business matters, we introduce distinction among micro, small, medium and large businesses. Participatory budgeting is one of the most important chains in the communication between the mayor and the local citizens regarding the future budget expenditures and citizens' expectations (e.g., Shah 2007). Socially responsive municipalities are expected to support various projects to local NGOs, besides the budget. For example, grants can be given to NGOs for protection of the unemployed and single mothers, victims of family violence, sport clubs, etc. Unexpected costs should always be expected. Therefore, the mayor has a right to provide a certain amount of budget funds—approved by the law—to some vulnerable citizens or groups of citizens for quick interventions, like fire damage, homeless, disease problems, etc.

Table 3 outlines the allocation of scores for the indicators of economic responsiveness, based on cluster analysis of the real data for year 2016.

### 4.4 Political Responsiveness

Political responsiveness of local governments strongly depends on the electoral competition. The swing voter model states that political parties will primarily listen to voters who are not attached to political parties (e.g., Müller and Strøm 1999). In contrast,

**Table 2** Indicators of demographic responsiveness. *Source:* Authors' calculations and cluster analysis using data from the National Statistics Office

Code	Indicator	Type of indicator	Assignment of scores
<i>N1</i>	Net migration from the municipality (municipal net emigration relative to the national average for net emigration) ( <i>nmom</i> )	Ordinal scale	Score 1 (Least attractive) Score 2 Score 3 Score 4 Score 5 (Most attractive)
<i>N2</i>	Cash grant for new born	Ordinal scale	1 if cash grants are offered, and 0 otherwise Dummy variable

The national average is a negative number

**Table 3** Indicators of economic responsiveness. *Source:* Authors' calculations and cluster analysis using data from the National Statistics Office

Code	Indicator	Type of indicator	Assignment of scores	
N3	Capital expenditure per capita ( <i>capexpc</i> )	Ordinal scale	Score 1	$capexpc \leq 988$ mkd
			Score 2	$989 \text{ mkd} < capexpc < 1435$ mkd
			Score 3	$1436 \text{ mkd} < capexpc < 2733$ mkd
			Score 4	$2734 \text{ mkd} < capexpc < 4944$ mkd
			Score 5	$capexpc \geq 4944$ mkd
N4	Annual growth of capital expenditure ( <i>capexgr</i> )	Ordinal scale	Score 1	$capexgr \leq -33.5\%$
			Score 2	$-33.4\% < capexgr < 11.4\%$
			Score 3	$11.5\% < capexgr < 85.0\%$
			Score 4	$85.1\% < capexgr < 209.3\%$
			Score 5	$capexgr \geq 209.3\%$
N5	Growth of private sector ( <i>psgr</i> )	Ordinal scale	Score 1	$psgr \leq 0.5\%$
			Score 2	$0.51\% < psgr < 0.71\%$
			Score 3	$0.72\% < psgr < 0.90\%$
			Score 4	$0.91\% < psgr < 1.16\%$
			Score 5	$psgr \geq 1.16\%$
N6	Participatory budgeting ( <i>pb</i> )	Ordinal scale	Score 1	No meetings
			Score 2	1 meeting per annum
			Score 3	2 meetings per annum
			Score 4	3 meetings per annum
			Score 5	4 or more meetings per annum
N7	Grants to NGOs per capita ( <i>grantspc</i> )	Ordinal scale	Score 1	$grantspc \leq 10$ mkd
			Score 2	$11 \text{ mkd} < grantspc < 40$ mkd
			Score 3	$41 \text{ mkd} < grantspc < 113$ mkd
			Score 4	$114 \text{ mkd} < grantspc < 240$ mkd
			Score 5	$grantspc \geq 240$ mkd
N8	Right of the mayor for quick financial interventions ( <i>right</i> )	Ordinal scale	Dummy variable 1/0	

the core voter model states that political majorities will primarily reward voters who have voted for them before (e.g., Taghizadeh 2015). The theoretical literature does not speak with one voice, which calls for empirical resolution. The intensity of the political battle during the local elections could strongly shape the way that the mayor communicates with his or her voters. This is captured by two indicators measuring: (1) the voting shares of the candidates for mayor on the last local elections, and (2) the margin of political victory. Other pressures for higher political responsiveness often come from the existence of local media, which could act as watchdogs, whistleblowers or supporters. Political responsiveness should also address the needs of vulnerable and marginalized groups in the municipality and the gender issues. After all, socially responsive governments should stimulate diversity to combine political/electoral participation by gender, ethnicity and other relevant measures of diversity. This component contains the following indicators: effective number of candidates; margin of political victory; local media per thousand inhabitants; addressed needs of vulnerable and marginalized groups; elected women members in the municipal council; established neighborhood self-government units (urban communities and village councils); and organized citizens' participation events. The allocation of scores for the indicators of political responsiveness is outlined in Table 4, based on our cluster analysis of the real data.

#### 4.5 Responsiveness to Ethnic Issues

The responsiveness to diverse ethnic groups is highly relevant for ethnically fragmented societies. Although it may be perceived as economically irrational, certain local governments have to pay special attention to heterogeneous ethnic preferences, often with higher priority than municipal economic problems. Municipalities with multi-ethnic composition have higher challenges in order to satisfy not only the everyday social needs of the citizens, but also to maintain inter-ethnic stability. This component contains two indicators: functionality of committee for inter-ethnic or inter-municipal relations and equitable ethnic representation in the municipal administration. The scoring function for these indicators is illustrated in Table 5. It is based on a cluster analysis of the real data for year 2016.

#### 4.6 Responsiveness in Public Service Delivery

Responsiveness in public service delivery tracks the determination of the local administration to satisfy diverse needs for local public services. Our focus is not only on the quality of service delivery, but also on the promptness of local government actions and subsequent progress in adopting higher service delivery standards. In order to maintain high degree of social responsiveness, they should keep the citizens satisfied in a wide spectrum of public services at local level. It is very important to examine the nexus between local government social responsiveness and local service performance, at least in the basic local areas: communal services, education, culture, economic development and fiscal assignments (e.g., Maksimovska and Pendovska 2009). This component contains the following indicators: adopted ISO 9001 standard for delivery of services; promptness in responding to citizens' requests by telephone and e-mail; protocol for procedure in case of emergency; and frequency of citizen satisfaction surveys. Table 6 outlines the scoring function for the indicators of responsiveness in public service delivery.



**Table 4** Indicators of political responsiveness. *Source:* Authors' calculations and cluster analysis using data from the National Statistics Office

Code	Indicator	Assignment of scores	
N9	Effective number of candidates ( <i>effective</i> )	$Effective \leq 2.00$	1
		$2.01 < effective < 2.23$	2
		$2.24 < effective < 2.60$	3
		$2.61 < effective < 3.30$	4
		$Effective \geq 3.30$	5
N10	Margin of victory ( <i>margin</i> )	$Margin \geq 39.6$	1
		$25.7 < margin < 39.6$	2
		$19.4 < margin < 25.6$	3
		$8.67 < margin < 19.3$	4
		$Margin \leq 8.67$	5
N11	Local media per thousand inhabitants ( <i>media</i> )	Up to 2 media	1
		3–4 media	2
		5–6 media	3
		7 or media	4
N12	Addressed needs of vulnerable and marginalized groups	Poor	1
		Weak	2
		Moderate	3
		Adequate	4
		Strong	5
N13	Elected women members in the municipal council ( <i>share</i> )	$Share < 30\%$	1
		$30\% \leq share \leq 50\%$	2
		50% or more	3
N14	Neighborhood self-government units ( <i>neighborhood</i> )	1 if there are neighborhood self-government units and 0 otherwise	1/0
N15	Organized citizens' participation events ( <i>events</i> )	No citizens participation events	1
		Up to 5 events	2
		6–10 events	3
		11–15 events	4
		16 events or more	5

#### 4.7 Transparency and Openness

Transparency and openness is a classical indicator of being socially responsive. Although well-developed local governments are sometimes criticized for offering excessive information for their local citizens, this is not the case in the consolidating democracies in South-eastern Europe. This component is of crucial importance for the local social responsiveness, at a stage of development in which some municipalities do not even have websites or published documents. Local government transparency demonstrates government's ability to place more power into citizen hands in order to increase the democratic accountability and responsiveness. It is easier for local citizens to contribute and follow local decision-making process by having access to local publications and information. The focus here on outward-facing information channels from the government to the public is a particularly important kind of responsiveness. In our methodology we stayed focused on some

**Table 5** Indicators of responsiveness to ethnic issues. *Source:* Authors' calculations and cluster analysis using data from the municipalities and the National Statistics Office

	Indicator	Assignment of scores	
N/16	Functionality of committee for inter-ethnic or inter-municipal relations ( <i>committee</i> )	No committee in the municipality Established committee, but does not convene Established functional committee (convenes regularly)	1 2 3
N/17	Equitable ethnic representation in the municipal administration ( <i>equitable</i> )	Functional committee, which regularly submits recommendations to the municipal council $\chi^2$ test for equality of the ethnic structure of the local public administration and the structure of the local population	4 1/0

**Table 6** Indicators of responsiveness in public service delivery. *Source:* Authors' calculations and cluster analysis using data from the municipalities and the National Statistics Office

Code	Indicator	Assignment of scores	
N18	Adopted ISO 9001 standard for delivery of services ( <i>ISO</i> )	1 if there is adopted ISO 9001 standard and 0 otherwise	1/0
N19	Promptness in responding to citizens' requests ( <i>promptness</i> )	No response	1
		Response after 16 working days	2
		Response between 8 and 15 working days	3
		Response between 3 and 7 working days	4
		Response within 2 working days	5
N20	Protocol for procedure in case of emergency ( <i>protocol</i> )	1 if there is protocol and 0 otherwise	1/0
N21	Citizen satisfaction surveys ( <i>frequency</i> )	No survey	1
		Occasional surveys	2
		Surveys on regular basis	3

frequently used indicators, such as functional municipal website, promptness in giving feedback by the municipal administration, free access to public information, and adoption of citizens' initiatives in local projects. For informational convenience, the scoring function for the indicators is presented in Table 7.

Having collected the data across all indicators, we compute the scores for each component and the composite indicator for all 81 municipalities. Following the methodology, in the next section we present the empirical results based on the model of equal weights, unobserved components model, and the budget allocation model.

## 5 Empirical Results

The empirical results reveal substantial differences in social responsiveness across the 81 municipalities. Table 8 illustrates the ranking of the municipalities in terms of the composite Social Responsiveness Indicator (*SRI*) for the year 2016, based on the model of equal weights, unobserved components model, and the budget allocation model. Our preferred model is the one based on the budget allocation process.

The composite indicators lead to some important findings based on the BAP baseline model. Despite the same legal responsibilities and similar assignments, the discrepancy in social responsiveness scores is nearly three times between the best-and the worst-performing municipalities.

The top five socially responsive municipalities (Strumica, Karposh, Gjorche Petrov, Veles and Shtip) are also leading in terms of responsiveness in provision of local public services, transparency, openness, and economic responsiveness. Their progress is well-balanced and distributed across all areas of responsiveness, suggesting the important role of a holistic approach. All of them are urban and economically developed municipalities with greater awareness of local administration for the benefits of being socially responsive (Fig. 3 in the "Appendix" section). The best-performing municipalities are also those that have a high degree of political responsiveness. The correlation does not imply causation, because high political responsiveness scores are immediately reflected in high social responsiveness scores.

**Table 7** Indicators of transparency and openness. *Source:* Authors' calculations using data from the municipalities

Code	Indicator	Assignment of scores
N22	Municipal government has web transparency	Scores from 1 to 5
N23	Published minutes of sessions of the municipal council, budget, annual account	1 if there are published minutes of sessions of the municipal council, budget, annual account, and 0 otherwise
N24	Local government provision of information by e-mail	Does not respond to inquiries by email 1 Responds in a period of more than 1 month 2 Responds within 15 days 3 Responds within 1 week 4 Responds within 1 day 5
N25	Appointed person for free access to public information	1 if there is appointed person, and 0 otherwise
N26	Code of ethics for elected officials and municipal administration	1 if there is code of ethics, and 0 otherwise
N27	Percentage of adopted citizen participation initiatives	No CPI adopted 1 Less than 30% CPI adopted 2 More than 31% of CPI adopted 3

**Table 8** Scores and ranking of municipalities based on three methods of weighting. *Source:* Authors' calculations based on data from the state statistical office, ministry of finance, ministry of internal affairs, and municipal administration

#	Municipality	Scores			Ranking		
		Model with equal weights	Budget allocation model	Unobserved components model	Model with equal weights	Budget allocation model	Unobserved components model
1	Strumica	84.3	84.1	82.6	1	1	1
2	Karposh	82.7	82.4	81.3	2	2	2
3	Veles	81.2	78.8	77.5	3	4	3
4	Gjorche Petrov	76.5	81.2	76.1	5	3	4
5	Gevgelija	78.7	76.7	76.0	4	7	5
6	Shtip	75.9	78.7	75.3	6	5	6
7	Ilinden	71.3	77.9	71.4	8	6	7
8	Bitola	73.1	68.8	70.4	7	9	8
9	Skopje	68.5	70.5	69.9	10	8	9
10	Centar	63.6	59.6	69.3	13	18	10
11	Dojran	69.1	67.5	66.6	9	11	11
12	Radovish	65.1	62.7	64.5	11	12	12
13	Novaci	63.3	62.0	64.2	14	14	13
14	Kumanovo	63.0	57.6	64.2	15	23	14
15	Sveti Nikole	64.8	68.8	64.1	12	10	15
16	Ohrid	59.6	61.6	61.7	18	15	16
17	Aerodrom	59.6	62.6	61.6	17	13	17
18	Kavadarci	59.0	59.9	61.2	21	17	18
19	Kochani	56.2	55.2	60.7	29	29	19
20	Resen	55.9	56.2	60.3	31	25	20
21	Vevchani	54.0	55.8	59.9	36	27	21
22	Vasilevo	57.7	60.0	59.9	26	16	22

Table 8 (continued)

#	Municipality	Scores			Ranking		
		Model with equal weights		Unobserved components model	Model with equal weights		Unobserved components model
		Budget allocation model	Budget allocation model		Budget allocation model	Budget allocation model	
23	Petrovec	57.7	52.9	59.8	25	36	23
24	Mavrovo and Rostusha	56.5	52.7	58.7	28	39	24
25	Prilep	56.2	54.6	58.7	30	32	25
26	Novo Selo	62.0	58.8	58.6	16	20	26
27	Lozovo	55.6	58.3	58.6	32	21	27
28	Tetovo	59.3	57.9	58.2	20	22	28
29	Delchevo	54.9	54.9	57.2	34	31	29
30	Vinica	58.3	53.6	57.0	23	35	30
31	Berovo	54.3	52.9	56.7	35	37	31
32	Demir Kapija	55.2	56.1	55.9	33	26	32
33	Karbinci	58.3	55.1	55.9	22	30	33
34	Cheshinovo-Obleshevo	59.3	59.1	55.8	19	19	34
35	Kriva Palanka	58.0	56.5	55.3	24	24	35
36	Rosoman	50.6	48.8	54.4	43	43	36
37	Pehchevo	53.4	47.9	51.9	37	45	37
38	Bogdanci	48.1	47.5	51.5	50	47	38
39	Gostivar	47.2	46.3	51.3	54	56	39
40	Brvenica	52.5	54.4	50.5	39	33	40
41	Studenchani	52.2	52.7	50.4	40	38	41
42	Makedonska Kamenica	56.8	55.3	50.3	27	28	42
43	Kichevo	50.3	52.1	50.3	44	40	43
44	Tearce	51.2	46.6	49.7	41	54	44

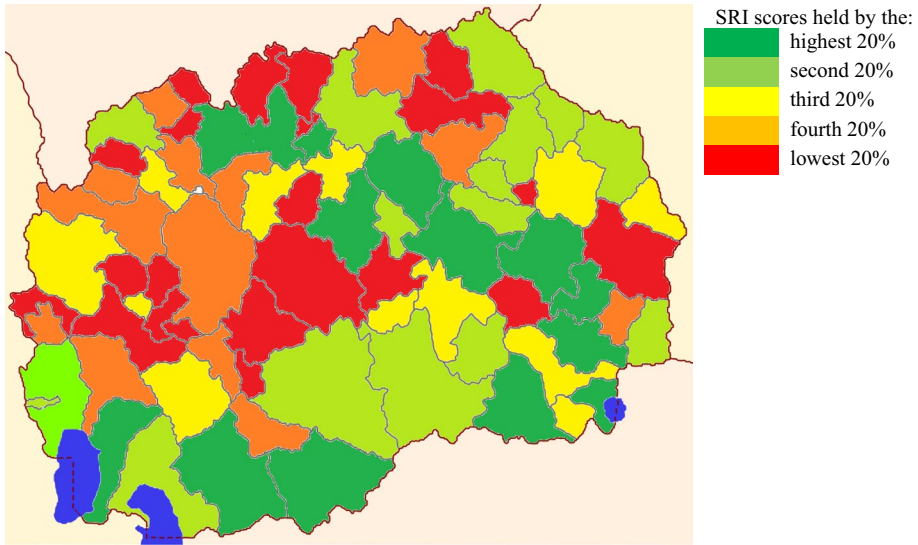
Table 8 (continued)

#	Municipality	Scores			Ranking		
		Model with equal weights			Model with equal weights		
		Budget allocation model	Unobserved components model	Unobserved components model	Budget allocation model	Unobserved components model	Unobserved components model
45	Kisela Voda	50.9	53.9	49.5	42	34	45
46	Valandovo	48.1	47.3	49.3	49	48	46
47	Chair	48.5	47.9	49.2	47	44	47
48	Bosilovo	49.1	46.9	49.1	45	52	48
49	Demir Hisar	49.1	51.5	49.1	46	41	49
50	Zelenikovo	53.1	50.4	49.0	38	42	50
51	Butel	48.5	46.9	47.9	48	53	51
52	Mogila	46.9	46.5	47.8	57	55	52
53	Shuto Orizari	47.2	47.3	47.5	55	49	53
54	Zhelino	47.5	43.4	46.4	53	60	54
55	Probishtip	43.2	42.1	46.3	63	62	55
56	Sopishte	42.9	41.0	46.1	65	64	56
57	Krushevo	47.8	47.2	45.9	51	50	57
58	Gazi Baba	43.8	44.1	45.4	61	59	58
59	Makedonski brod	47.8	47.0	45.0	52	51	59
60	Negotino	45.7	47.7	44.7	59	46	60
61	Bogovinje	45.7	45.1	44.0	58	57	61
62	Dolneni	43.8	39.2	43.6	60	69	62
63	Staro Nagorichane	47.2	42.1	42.8	56	63	63
64	Struga	40.4	36.9	42.8	68	72	64
65	Konche	43.2	40.3	40.3	62	67	65
66	Debar	37.0	32.1	40.2	76	77	66

Table 8 (continued)

#	Municipality	Scores			Ranking		
		Model with equal weights			Model with equal weights		
		Budget allocation model	Unobserved components model	Unobserved components model	Budget allocation model	Unobserved components model	Unobserved components model
67	Kratovo	37.7	40.6	40.1	75	66	67
68	Jegunovce	36.4	34.8	39.0	77	75	68
69	Krivogashani	38.0	39.1	38.8	73	70	69
70	Chashka	42.0	39.6	38.7	66	68	70
71	Zrnovci	40.1	36.8	38.5	69	73	71
72	Debarca	40.7	43.3	36.8	67	61	72
73	Chucher-Sandevo	34.3	28.7	36.7	80	80	73
74	Gradsko	39.2	37.1	35.8	71	71	74
75	Rankovce	38.3	34.8	33.9	72	74	75
76	Centar Zhupa	42.9	44.9	33.8	64	58	76
77	Vrapchishte	39.5	40.9	33.5	70	65	77
78	Plasnica	38.0	33.0	30.5	74	76	78
79	Arachinovo	35.8	31.5	27.8	78	78	79
80	Saraj	35.8	28.4	27.5	79	81	80
81	Lipkovo	30.9	29.4	21.6	81	79	81





**Fig. 1** Cartogram of social responsiveness scores

We leave for our future work to explore whether the citizens indeed vote for mayors and council members displaying socially responsive behavior. Given the fact that social responsiveness is not mentioned in any provision as a legal municipal obligation, it is clear that high-score socially responsive municipalities are step ahead. They recognize the essence of good local governance and decentralization as a way of being closer, more efficient and quickly responding to citizens' needs. These socially responsive municipalities go beyond the obligatory rules for being responsible and accountable.

The worst-performing municipalities are primarily villages in underdeveloped regions in the peripheral northern and the central parts (Lipkovo, Arachinovo, Plasnica, Jegunovce and Rankovce) (Fig. 1). Additionally, there is one administratively classified urban municipality that has all the rural characteristics (Saraj). These municipalities are characterized by huge emigration waves, limited revenue collection and therefore constrained economic responsiveness, also reflected in very poor delivery of communal services. Given the magnitude of their problems, there is a need for a more careful regional development policy by the central government in order to reduce the immense socio-economic disparities.

The social responsiveness metrics would be particularly beneficial if monitored over time. Unlike previous empirical studies (e.g., da Cruz and Marques 2016), our composite indicator is based on a much broader set of indicators and on empirical mapping of a particular theoretical framework. Some indicators are published by the national statistics and are very reliable. Other indicators require a contact with local government officials, which are not always cooperative. The data collection process for them is expensive, because they require "cross-examination" of several officials to ensure consistent responses.

**Table 9** Average rank shifts

Change in the step	Reference method	Alternative method	Average rank shift
A. Method of normalization only	BAP and Min–max	BAP and z-score	3.43
	EWM and Min–max	EWM and z-score	3.85
	UCM and Min–max	UCM and z-score	2.77
B. Weighting scheme only	BAP and Min–max	EWM and Min–max	3.93
	BAP and Min–max	UCM and Min–Max	5.46
	EWM and Min–max	UCM and Min–Max	4.59
C. Method of normalization and weighting scheme	BAP and Min–max	EWM and z-score	5.09
	BAP and Min–max	UCM and z-score	5.09
	EWM and Min–max	UCM and z-score	3.85
	BAP and z-score	EWM and z-score	3.21
	<i>BAP and z-score</i>	<i>UCM and z-score</i>	3.21

*BAP* budget allocation process, *EWM* method of equal weights, *UCM* unobserved components model

## 6 Uncertainty and Sensitivity Analysis

Recent studies on composite indicators outlines the benefits of uncertainty analysis and robustness checks (Saisana et al. 2005, 2011; OECD 2008; Munda et al. 2009; Marozzi 2015; Marozzi and Bolzan 2016; Greco et al. 2018). The sensitivity of the resulting municipalities' rankings and the significance of the associated policy message depend on the selected methods during the construction of the composite indicator. For instance, the decision to employ geometric aggregation as opposed to arithmetic aggregation is far from irrelevant.

We initially explore the average shift in the municipalities' ranks or the relative shift in the position of the entire system of municipalities due to alternative step in the construction of the composite indicator. In line with Saisana et al. (2005), the average of the absolute differences in municipalities' ranks with respect to a reference ranking over the  $M$  municipalities is defined as:

$$\bar{R}_s = \frac{1}{M} \sum_{m=1}^M \left| \text{rank}_{ref}(Y_m) - \text{rank}(Y_m) \right|$$

where  $\bar{R}_s$  is the average shift,  $Y_m$  is the composite indicator for a given municipality  $m$ ,  $\text{rank}_{ref}$  is the ranking in the reference model and  $\text{rank}$  is the ranking in the comparator model. The rank-shift analysis refers to an alternative method of normalization only, an alternative weighting scheme only, a combination of both and to an exclusion of one indicator at a time.

### 6.1 Alternative Method of Normalization

When the method of normalization is changed to *z-score* transformation, the average rank shift is modest (between 2.77 and 2.85 ranks) across the three weighting schemes.

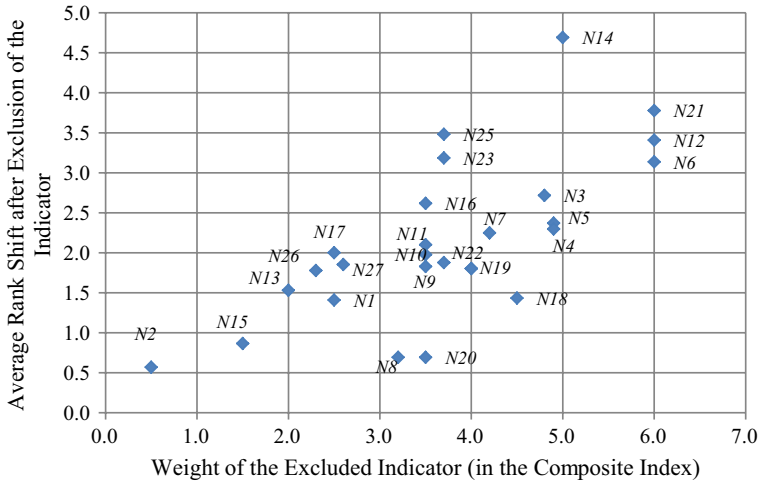


Fig. 2 Weights of the individual indicators versus average rank shift after exclusion of an indicator

### 6.2 Alternative Weighting Scheme

The average rank shift is highest (5.46) when the baseline weighting method (the Budget Allocation Process) is replaced with the Unobserved Components Model (Table 9).

### 6.3 Combination of Both

When alternative method of normalization and alternative weighting scheme is applied, the resulting average rank shift is in the range between 3.21 and 5.09.

### 6.4 Exclusion of One Indicator at a Time

In the next step we investigate the robustness of the rankings when excluding one indicator at a time. The initial weight of the indicator is redistributed across the remaining indicators, by observing their relative weights. Then, we recompute the scores in the preferred model based on the min–max normalization method and BAP as a weighting scheme. Figure 2 presents the average rank shift compared to the baseline model, after exclusion of the indicator. The average rank shift is positively correlated with the initial weight of that indicator in the composite Social Responsiveness Index. Nevertheless, the relative shift in the position of the entire system of municipalities is modest and within acceptable levels.

The exclusion of one indicator at a time has a limited impact on the rank shifts among the top ten socially responsive municipalities. The average rank shift from all recomputations in this case is 2.15, which is not worrisome.

The exclusion of some indicators produces somewhat stronger impact on the resulting rankings. The largest impact is observed when we exclude *N14 Presence of neighborhood self-government units (urban communities and village councils)*, the average rank shift is 4.69. In the NCG paradigm, the presence of neighborhood self-government units improves

the network coordination and strongly influences the undertaking of the societal roles of the municipalities. The second largest shift on rankings is caused by the exclusion of *N21 Frequency of citizen satisfaction surveys*. The average rank shift of 3.8 and the weight of this indicator (6.0%) suggest that frequent surveys of citizens' opinions are very important ingredient of social responsiveness. The other indicators that significantly influence rank shifts are *N25 Appointed person for free access to public information* and *N12 Addressed needs of vulnerable and marginalized groups in the municipality*. Since these indicators carry larger policy significance, they should be carefully addressed by the socially responsive municipalities.

The exclusion of the ethnicity-related indicators (*N16 Functionality of Committee for Inter-Ethnic Relations* and *N17 Equitable ethnic representation in the municipal administration*) has also a modest impact on the average rank shift (3.5 and 2.5, respectively). In a country in which the fear of federalization and disintegration is merely constant, most municipalities have been very responsive to the ethnic issues.

The modest average rank shifts due to alternative methodological steps provide reasonable comfort with the baseline model encompassing min–max normalization and expert-based weighting scheme. Still, an important limitation of our sensitivity analysis is that we do not apply strong and weak dominance rules for ranking municipalities across several observed weighting schemes (Cherchye et al. 2008; Sharpe and Andrews 2012). Minimizing the impact of decisions on methodology and weighting will be an important avenue for our future research.

## 7 Conclusions

This study examines whether local governments are sufficiently responsive in meeting not only their mandatory responsibilities, but also the rapidly expanding range of societal expectations. The social responsiveness of local governments focuses on their societal roles as network governors that attempt to meet the diverse needs of local stakeholders. The article contributes to the existing local governance literature by offering a novel methodology and a set of indicators for measuring the quality of local governance. The proposed empirical characterization of the NCG paradigm is investigated by building a composite indicator of social responsiveness. We want to highlight several major findings.

First, the proposed composite local governance indicator is most suitable for a group of developing and transition countries, also known as consolidating democracies. The reason is that they have similar degree of fiscal decentralization and similar institutional, economic, social and cultural features that make them a rather homogenous group. We apply the novel methodology to examine the level of social responsiveness of 81 municipalities in Macedonia, a case-study country that implemented numerous reforms in local governance in the recent decade.

Second, unlike previous empirical studies, our composite indicator is based on a much broader set of indicators and on empirical mapping of a particular theoretical framework. Earlier empirical work mainly replicates good governance indicators published by the World Bank.

Third, the design of the methodology has encompassed significant distillation of legal, economic, political and social concepts in order to come up with a useful empirical tool. The progress in each area of social responsiveness is measured by a composite indicator that contains six components, encompassing 27 indicators altogether. Accordingly,

demographic responsiveness, economic responsiveness, political responsiveness, responsiveness to diverse ethnic groups, responsiveness in public service delivery, and transparency and openness are synthesized in an aggregate indicator that reflects the progress in creating a socially responsive local environment. All indicators are important for the final assessment, albeit not with an equal weight. The methodology provides evidence that the social responsiveness of a municipality depends not only on its fiscal and natural resources, but also on the public administration capacities to address diverse citizen needs.

Fourth, the sensitivity analysis reveals relatively weak impact in terms of average rank shifts, when a different normalization method or a different weighting scheme is applied. The municipal rankings are also relatively robust to exclusion of each indicator at a time.

Fifth, the composite indicator of social responsiveness should be monitored over time in order to increase its policy impact. The proposed components, indicators, and weights can be tailored to the contextual factors. As we elaborated in the introductory section, one-size-fits-all solutions in *SRI* assessment should be avoided.

Sixth, we identify a need for further exploration of alternative responsiveness' indicators. In some cases, the existing indicators reflect citizen engagement more than municipal action, which might be interpreted as a weakness in our selection of variables. Yet we leave this for our future academic work. Since we intend to replicate the analysis in the forthcoming years, we strongly believe that the composite indicator will serve as a tool for municipalities seeking to improve capacity for social responsiveness. It has the potential to "name and shame" socially irresponsible local governments and to detect the main weaknesses in the network coordination of local governments.

Last, but not least, the best-performing socially responsive municipalities are also leading in terms of responsiveness in provision of local public services, transparency, openness, and economic responsiveness. Their progress is well-balanced and distributed across all areas of responsiveness, suggesting the important role of synergetic activities. The empirical results from the case study suggest that ethnic heterogeneity of the municipality cannot be an excuse for being socially irresponsible. As usual in implementing novelties in practice, the improvement of social responsiveness requires stronger fiscal and administrative capacities, but even more important—stronger political will and greater public awareness. In our case, the worst-performing municipalities are primarily villages in underdeveloped regions. They are characterized by huge emigration waves, limited revenue collection and therefore constrained economic responsiveness, also reflected in very poor delivery of communal services. Given the magnitude of their problems, there is a need for a more careful regional development policy by the central government in order to reduce the substantial socio-economic disparities.

The proposed composite indicator offers numerous insights for improved policy formulation and local governance, in general. We strongly believe that it provides a useful policy tool that synthesizes emerging thinking on good local governance.

## Appendix

See Fig. 3 and Tables 10 and 11.

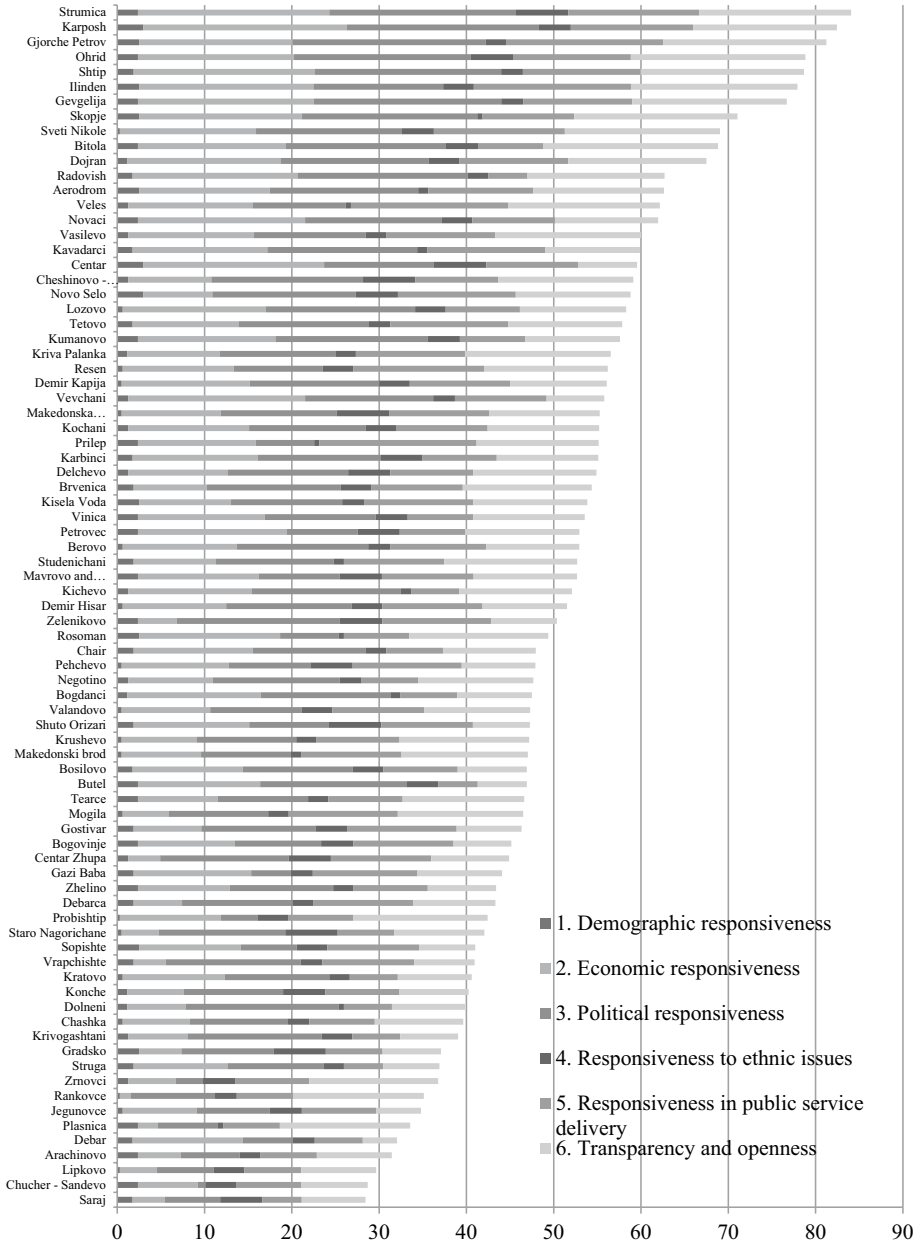


Fig. 3 Structure of the social responsiveness index by municipalities (2016)

**Table 10** Correlation matrix for the 27 indicators within the Social Responsiveness Index. *Source:* Authors' calculations

	n1	n2	n3	n4	n5	n6	n7	n8	n9	n10	n11	n12	n13
n1	1.00												
n2	-0.05	1.00											
n3	-0.04	0.15	1.00										
n4	0.20	0.04	0.35	1.00									
n5	0.24	0.12	0.05	0.02	1.00								
n6	0.41	-0.05	0.12	-0.01	0.39	1.00							
n7	0.01	0.15	0.46	0.10	0.20	0.39	1.00						
n8	-0.01	0.11	0.24	-0.04	0.36	0.28	0.39	1.00					
n9	0.07	-0.08	-0.44	0.02	-0.15	-0.03	-0.16	0.07	1.00				
n10	0.11	-0.04	-0.39	0.05	0.06	-0.02	-0.14	-0.27	0.46	1.00			
n11	0.36	-0.03	0.28	0.24	0.31	0.50	0.33	0.10	-0.16	0.05	1.00		
n12	0.08	-0.12	0.18	0.20	0.09	0.14	0.10	0.10	-0.14	-0.01	0.23	1.00	
n13	0.10	0.08	0.25	0.13	0.26	0.27	0.24	0.06	-0.11	0.06	0.14	0.01	1.00
n14	-0.07	0.24	0.24	0.16	0.16	0.17	0.34	0.32	-0.04	-0.12	0.16	0.24	-0.02
n15	0.01	0.15	0.46	0.10	0.20	0.39	1.00	0.39	-0.16	-0.14	0.33	0.10	0.24
n16	-0.15	0.07	0.22	0.07	-0.15	-0.17	0.02	0.03	-0.06	-0.03	-0.10	-0.03	-0.02
n17	0.09	0.11	0.04	-0.03	0.00	0.02	-0.01	-0.04	0.06	0.01	0.04	0.01	0.15
n18	0.14	-0.18	0.03	0.01	0.29	0.47	0.14	0.14	-0.14	-0.01	0.38	0.14	-0.01
n19	0.12	0.13	0.18	-0.15	0.34	0.42	0.30	0.32	-0.17	-0.06	0.37	0.14	0.09
n20	-0.06	0.04	0.17	-0.03	0.31	0.23	0.30	0.57	0.10	-0.24	0.14	0.16	0.12
n21	0.06	-0.06	0.10	0.21	-0.10	-0.03	0.03	0.08	0.00	0.11	0.12	0.22	-0.02
n22	0.07	-0.09	0.09	-0.03	0.40	0.50	0.43	0.49	-0.08	-0.04	0.46	0.27	0.14
n23	-0.10	-0.03	0.12	-0.09	0.03	0.08	0.17	0.00	0.08	0.15	0.08	0.13	0.01
n24	0.16	0.14	0.21	-0.09	0.39	0.44	0.34	0.35	-0.19	-0.10	0.40	0.15	0.15
n25	0.09	-0.09	0.08	0.17	0.04	0.28	0.12	-0.07	-0.08	0.02	0.33	0.30	-0.05

Table 10 (continued)

	n1	n2	n3	n4	n5	n6	n7	n8	n9	n10	n11	n12	n13	
n26	0.11	-0.06	-0.03	0.04	0.02	0.07	-0.11	0.00	-0.15	0.04	0.26	0.15	-0.05	
n27	-0.12	0.02	-0.06	-0.02	-0.01	0.00	-0.18	0.01	-0.06	-0.09	0.00	-0.09	0.00	
	n14	n15	n16	n17	n18	n19	n20	n21	n22	n23	n24	n25	n26	n27
n1														
n2														
n3														
n4														
n5														
n6														
n7														
n8														
n9														
n10														
n11														
n12														
n13														
n14	1.00													
n15	0.34	1.00												
n16	0.02	0.02	1.00											
n17	0.09	-0.01	-0.28	1.00										
n18	-0.01	0.14	-0.13	-0.03	1.00									
n19	0.16	0.30	-0.11	0.10	0.29	1.00								
n20	0.26	0.30	-0.10	0.04	0.12	0.30	1.00							
n21	0.02	0.03	0.10	-0.03	0.05	0.00	0.08	1.00						
n22	0.18	0.43	-0.15	-0.06	0.41	0.42	0.47	0.19	1.00					



Table 10 (continued)

	n14	n15	n16	n17	n18	n19	n20	n21	n22	n23	n24	n25	n26	n27
n23	0.11	0.17	0.08	-0.09	0.05	0.07	-0.03	-0.10	0.10	1.00				
n24	0.17	0.34	-0.12	0.12	0.31	0.18	0.33	-0.02	0.42	0.06	1.00			
n25	0.07	0.12	-0.15	-0.14	0.20	0.12	0.00	0.23	0.35	0.18	0.13	1.00		
n26	0.05	-0.11	0.05	-0.06	0.14	0.14	-0.01	0.14	0.10	-0.11	0.13	0.12	1.00	
n27	-0.05	-0.18	-0.07	-0.17	-0.05	-0.04	0.00	0.12	0.03	-0.12	-0.05	-0.02	-0.02	1.00

**Table 11** Rankings of top ten socially responsive municipalities after exclusion of an indicator

Municipality	Strumica	Karposh	Gjorche Petrov	Veles	Štip	Ilinden	Gevgelija	Skopje	Bitola	Sveti Nikole
Baseline model	1	2	3	4	5	6	7	8	9	10
Excl. N1	1	2	3	4	5	6	7	9	10	8
Excl. N2	1	2	3	5	4	6	7	8	10	9
Excl. N3	1	3	2	5	4	6	7	8	9	10
Excl. N4	1	3	2	4	5	6	7	8	9	11
Excl. N5	1	2	3	4	5	6	7	9	10	8
Excl. N6	1	2	4	3	6	7	5	10	11	9
Excl. N7	2	3	1	5	6	4	7	8	10	9
Excl. N8	1	2	3	4	5	6	7	8	9	10
Excl. N9	1	2	3	4	6	5	7	8	9	10
Excl. N10	1	2	4	5	6	3	7	8	10	9
Excl. N11	1	2	3	4	5	6	7	8	9	10
Excl. N12	1	2	3	4	5	6	7	8	10	11
Excl. N13	1	2	3	6	5	4	7	9	10	8
Excl. N14	1	2	3	4	5	6	7	8	9	10
Excl. N15	1	2	3	4	6	5	7	8	10	9
Excl. N16	2	1	3	6	4	7	5	8	9	10
Excl. N17	1	3	2	5	6	4	7	8	10	11
Excl. N18	1	4	5	2	3	7	6	8	9	11
Excl. N19	1	2	3	4	5	6	7	8	9	10
Excl. N20	1	2	3	4	5	6	7	8	9	10
Excl. N21	1	2	3	4	5	6	7	9	8	10
Excl. N22	1	2	3	5	6	4	7	8	11	9
Excl. N23	1	2	3	4	5	6	7	8	9	10

Table 11 (continued)

Municipality	Strumica	Karposh	Gjorche Petrov	Veles	Shtip	Ilinden	Gevgelija	Skopje	Bitola	Sveti Nikole
Excl. N24	1	2	3	4	5	6	7	8	9	10
Excl. N25	1	2	3	4	5	6	7	8	9	10
Excl. N26	1	2	3	4	5	6	7	8	9	10
Excl. N27	1	2	3	5	4	7	6	8	10	9

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