SUSTAINABLE DEVELOPMENT GOALS IN PUBLIC ADMINISTRATIONS: ENABLING CONDITIONS IN LOCAL GOVERNMENTS

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Abstract

Sustainable Development Goals (SDGs) are a challenge that many public administrations face in promoting sustainable growth. Local governments, as the governmental tier closest to citizens, should deliberate upon strategies and actions attuned to achieving SDGs for the benefit of their communities. Through a comparative analysis of Italian and Spanish local governments, this research investigates the conditions that can support the achievement of SDGs. The results depict the political and financial levers that can stimulate politicians and policymakers in designing appropriate strategies and action plans towards the achievement of SDGs, while opening the path for further research that can support public administrations in their efforts at achieving sustainable growth.

Points for practitioners

Sustainable Development Goals (SDGs) are believed to play a vital role in our society. They represent the background of strategies and policies implemented at a local government level; accordingly, politicians and public managers are key actors in achieving SDGs. Our study shows that LGs tend to implement sustainable policies despite the political ideology; results also illustrate that governing in large coalitions could be a hindrance to implementing sustainable policies. Furthermore, favourable financial conditions support the achievement of SDGs.

Introduction

Sustainable Development Goals (SDGs) were the biggest challenge launched by the United Nations (UN) in 2015. These goals are at the core of recent debates in the public administration (PA) literature and bring new meaning to the development of administrative capacity (Haque et al., 2021a; Santoro, 2019). Among all PAs, local governments (LGs) are those closest to citizens and thus play an important role in governing territories and communities in accordance with the principles of sustainable growth (UCLG-CIB, 2018; Guarini et al., 2022).

Most of the studies published so far have provided theoretical reflections on this matter (Guarini et al., 2021), with only a few empirical studies addressing this issue (Abhayawansa et al., 2021; Filho et al., 2016), focusing on the conditions that can affect SDG implementation in LGs (Guarini et al., 2022). The present research intends to address this gap through a manifold contribution. First, it offers a brand-new picture of the achievement of SDGs at the LG level in two European countries, Italy and Spain, and answers the call for comparative studies on PAs (Haque et al., 2021b). Second, it investigates the five critical areas of SDGs (*People*, *Peace*, *Prosperity*, *Partnership*, and *Planet*) for two years (2018 and 2020) to examine the progress achieved. Third, the empirics unveil some key factors that can facilitate the achievement of SDGs in LGs, providing the ground for further reflections, also for practitioners and policymakers.

Considering that SDGs tend to represent the background upon which strategies and policies are built, the role of politicians and public managers is expected to be crucial for the implementation of sustainable initiatives (Guarini et al., 2022, 2021). Therefore, political factors will be tested in conjunction with variables expressing the financial conditions of these LGs, due to the relevance of the financial support offered by higher levels of government (Amundsen et al., 2010).

The results allow us to highlight those SDGs upon which LGs are more focused and some of the conditions that can facilitate their achievement. In doing so, this study enhances our empirical understanding of how certain LGs are achieving SDGs, thereby opening the path for further comparative research.

After an overview of previous studies discussing SDGs in PAs, the following section establishes some research hypotheses. Subsequently, the methodology is explained, and the empirical results are presented. Finally, the study discusses the results, offers a conclusion, and identifies the limitations and potential avenues for future research.

SDGS in Public Administrations

In 1987, the Brundtland Report prepared by the UN World Commission on Environment and Development, also well known as *Our Common Future*, introduced the concept of sustainable development, here defined as the ability to meet 'the needs of the present without compromising the ability of future generations to meet their own needs'. The proposal of this idea was intended to reconcile economic development with the protection of social and environmental balance.

During the Earth Summit in 1992, which was organised to substantiate the concept of sustainable development, Agenda 21 was approved, calling governments to take action for the environment and global development. In 2000, the UN member states subscribed the Millennium Development Goals (MDGs), which were to be achieved by 2015. After several UN meetings, reports, and conferences to assess the implementation of the MDGs, in the 2015 UN General Assembly, the 2030 Agenda was adopted by 193 countries, and the 17 SDGs were defined, together with their targets and indicators.

Role of public administration in the achievements of SDGs

Deslatte and Stokan (2020) discovered that cities facing more competition for development are more prone to integrating planning and performance measurement procedures connected to sustainability commitments. Other studies focused on governance issues. For instance, Abhayawansa et al. (2021) illustrated how governments can create value for society by focusing on SDGs and explained how this tension can affect governance. Filho et al. (2016) highlight a lack of integration at different government levels, as well as limited cooperation among different sectors in European countries, leading to insufficient results in relation to SDGs implementation.

Other studies have discussed key factors facilitating the implementation of SDGs in local and regional planning (see Bardal et al., 2021). However, most of the previous literature consists of case studies or theoretical investigations, while only a few studies have investigated how local or regional governments embed SDGs in their strategies (Bardal et al., 2021; Guarini et al., 2021b). These studies warn about the risk of SDGs becoming rhetoric for public managers and politicians. Consequently, there is a need to identify 'what the work with SDGs actually means' (Bardal et al., 2021:15) and the levers that can support LGs in sustainability management.

Localising SDGs at the LG level

Despite the ultimate responsibility for achieving SDGs lying with the national governments, LGs are at the core of SDG implementation (Saner et al., 2017). As Biermann et al. (2022) indicate, local, regional, and national authorities are expected to join the global effort and align their policies and programmes with the SDGs and their targets, and the global goals should be reflected in the individual initiatives of the municipalities.

To identify the actions undertaken by LGs, the 17 SDGs were grouped into five areas known as the '5 Ps' (UN, 2015): *People*, *Prosperity*, *Planet*, *Peace*, and *Partnership*.

The first P, *People*, consists of six SDGs: No Poverty (Goal 1), Zero Hunger (Goal 2), Good Health and Well-Being (Goal 3), Quality Education (Goal 4), Gender Equality (Goal 5), Clean Water and Sanitation (Goal 6). LGs are supposed to play a pivotal role in achieving these SDGs, as they are in a crucial position to identify people living in poverty; provide essential services; support healthcare organisations and schools in fighting malnutrition; implement urban plans to ensure waste reduction and food security; and promote the well-being of citizens through educational programmes aimed at reducing gaps in healthcare services (Hendriks, 2018; Spitz et al., 2016; UCLG-CIB, 2018).

The second P, *Prosperity*, consists of six goals: Affordable Clean Energy (Goal 7); Decent Work and Economic Development (Goal 8); Industry, Innovation and Infrastructure (Goal 9); Reduce Inequalities (Goal 10); Sustainable Cities and Communities (Goal 11); and Responsible Consumption and Production (Goal 12). LGs contribute to the global GDP in a relevant measure (about 80%), but they are also responsible for about 70% of total energy consumption and carbon emissions (Kanuri et al., 2016). Furthermore, LGs could stimulate industrial development by investing resources in long-term sustainable infrastructures (Hendriks, 2018) and promoting sustainable consumption and production patterns (UN, 2016).

The third P, *Planet*, consists of three goals: Climate Action (Goal 13), Life Below Water (Goal 14), and Life on Land (Goal 15). LGs can promote the sustainable use of natural resources through partnerships with citizens and private-sector entities operating in high-impact sectors, such as agriculture, forests, and fisheries (Hendriks, 2018).

The fourth P, *Peace*, includes Goal 16: Peace, Justice, and Strong Institutions. LGs can play a crucial role in achieving this goal, especially in fighting corruption, becoming more effective

and accountable towards citizens, improving transparency, and facilitating free access to public data (Saner et al., 2017).

Finally, LGs play a central role in promoting the last P, *Partnership*, which includes Goal 17: Partnership for the Goal, which pushes LGs to promote a shared vision and ensure cooperation among different actors by adopting a holistic view (Monkeelbaan, 2019).

Research hypotheses

This study focuses on the pragmatic efforts of LGs by (i) investigating what they are doing to achieve SDGs and (ii) examining the key factors that can facilitate the implementation of SDGs in local planning.

As for the first issue, considering how municipalities are translating SDGs into action, the sustainability discourse is considered essential (Fiorino, 2010). Scholars have emphasised the logical relationship between planning and sustainable development, as well as how SDGs can be embedded in local strategies and plans (Guarini et al., 2021). LGs play a crucial role in addressing the 5 Ps. However, considering that the 5 Ps cover broad areas, it is reasonable to assume that LGs cannot pursue all of them with the same intensity. Furthermore, the characteristics of the local community, coupled with the institutional framework within which they operate and the financial resources they can invest, may lead LGs to assign priority to certain areas.

It could be argued that LGs tend to focus more on those goals whose achievement depends predominantly on their strategic initiatives, as in the case of the *People* and *Prosperity* goals. Indeed, *People*'s goals regard essential services that are prevalently under the responsibility of LGs (Hendriks, 2018; Spitz et al., 2016; UCLG-CIB, 2018). *Prosperity*'s SDGs can be largely influenced by investments in long-term sustainable infrastructures (Hendriks, 2018) and the promotion of the transition to sustainable energy (Bawakyillenuo et al., 2018). In contrast, SDGs related to *Planet*, *Peace* and *Partnership* require more intense collaboration with higher

levels of government and private-sector entities. Accordingly, these goals are usually included in national plans, and although LGs contribute to their achievement, they generally do so with a lower intensity. Accordingly, the following hypothesis is proposed:

H1: LGs pursue SDGs belonging to the People and Prosperity categories more frequently and vigorously than SDGs included in the categories of Planet, Peace, and Partnership.

The second issue this study aimed to examine was the identification of the key factors that can facilitate or hinder the achievement of SDGs. LGs are expected to pursue these goals through several policies and actions (Guarini et al., 2022), whose implementation, in turn, mainly relies on two features: political characteristics and financial conditions.

First, the political structure of municipal governments and the surrounding political culture could affect both decision-making and implementation processes (Fiorino, 2010). In general, political culture has shifted from a concern with materialistic values (e.g., economic well-being, military security, and internal order) to post-materialistic values (e.g., environmental protection, quality of life, individual self-expression, and disarmament; Inglehart, 1997), the latter of which are reflected in the SDGs. Respect for those values characterising the political arena is essential for maintaining the social order (Dumont, 1986) and influencing the development of a particular society (Easton, 1981).

In the political arena, the partisan model (Hibbs, 1977) considers governments to be led by ideological motivations, since each party represents the interests of different segments of the electorate that are usually placed on the left-wing or right-wing ideology. Cusak (1997) documented that parties with different ideologies differ in managing public resources and defining the objectives to pursue. Concretely, citizens supporting left-wing parties tend to be more concerned about sustainable development and environmental quality than citizens

supporting right-wing counterparts (Iizuka, 2016). More recently, Farashah and Rezvani (2021) found that political ideology influences sustainable consumption through beliefs and concerns.

Furthermore, SDGs are supposed to be incorporated into strategic plans, as they require a long-term perspective to produce the expected benefits. These plans must be formally approved by the main body of the LG (Guarini et al., 2022, 2021). Decision making in the public sector may be affected by the extent to which power is dispersed among different parties or politicians. Roubini and Sachs's hypothesis (RSH) states that large coalition governments usually face coordination problems between the parties involved in the government because of the diversity of political orientations and public priorities (Roubini and Sachs, 1989a; 1989b). Accordingly, inconsistent compromises are more likely to occur in fragmented governments, which could lead to a prevalent short-termism—with a consequent policy implementation failure (Benito et al., 2015) and instability in economic and fiscal decisions (Dalle Nogare, 2000)—or a postponement of policy changes (Ashworth et al., 2005). In line with these considerations, the following hypotheses are proposed:

H2a. SDGs tend to be implemented by left-wing governments to a greater extent than by those with other ideologies.

H2b. The existence of coalitions in LGs negatively affects the implementation of SDGs.

Second, the implementation of policies to achieve SDGs requires not only defining priorities but also collecting and investing adequate resources (Hendriks, 2018). Ad hoc investments are required to implement specific strategies and policies that are either directly or indirectly related to the daily work of LGs, meaning that SDGs should be reflected in sustainable budgets to have a significant impact (Martens, 2013). Financial resources are then expected to be collected and directed towards these objectives. Mutiarani and Siswantoro (2020) argued that the larger the capital expenditure, the higher the LG's ability to achieve SDGs, but they did not find a

statistically significant association between LGs resources and the achievement of SDGs. The issue here may be that the ability to collect and invest financial resources depends on the global financial conditions of the municipality. A fiscal deficit, for instance, may impede the devotion of resources to, for example, reducing inequalities or mitigating the negative effect of pollution; however, positive financial conditions could facilitate the implementation of ad hoc policies to pursue SDGs. Furthermore, local authorities face considerable budgetary and institutional constraints, and they tend to rely heavily on support from other levels of government to carry out effective sustainability actions in urban areas (Hickmann, 2021). Accordingly, the following hypothesis is proposed:

H3: LGs with better financial conditions tend to pursue SDGs to a greater extent.

Methodology

Context and sample

Our analyses were performed using a sample of Spanish and Italian municipalities that share certain similarities (De Gregorio et al., 2015). For instance, they share the Family Welfare Model (León and Migliavacca, 2013), and both have exhibited an increase in women's workforce participation, which are related to several SDGs (e.g., 3, 5, and 10). Furthermore, both countries share similar climate change challenges, and they are developing some of the same policies that focus on energy efficiency and the promotion of cleaner energy sources (De Gregorio et al., 2015). These policies are related to different SDGs (13, 14, and 15). Moreover, although Italian and Spanish municipalities have promoted sustainable urban mobility, main roads still suffer from congestion problems, and despite major efforts to raise awareness of this problem, there is no clear trend towards more sustainable modes of transport (European Court of Auditors, 2020). This affects the achievement of some SDGs, such as 11 and 12. These countries also share political and institutional frameworks that have led to the development of

similar governance structures, as well as characteristics of the production, labour, and social models, in that they have similar economic growth rates, high unemployment rates, skewed social spending, and high levels of indebtedness, to name a few examples (Pérez and Rhodes, 2015). These characteristics affect the attainment of several SDGs, such as 1, 2, 4, 6, 7, 8, and 9.

Data concerning the implementation of SDGs in 2018 and 2020 in Italian and Spanish LGs have been retrieved from the reports available on *www.sdgindex.org*. Each report shows the degree of implementation of SDGs in the largest Italian (103) and Spanish (102) municipalities in 2018 and 2020, so our sample includes 410 observations. These reports use the methodology proposed by the Sustainable Development Solutions Network (SDSN), and they are based on individual indicators to represent each SDG. The Italian reports[1] were prepared by the *Fondazione Eni Enrico Mattei* (Cavalli and Farnia, 2018; Cavalli et al., 2020), and the Spanish reports[2] were created by the *Red Española para el Desarrollo Sostenible* (Sánchez de Madariaga et al., 2018; 2020).

Models and variables

To explain the degree of implementation of the SDGs, the following model was estimated:

$$SDG_{k_i} = \beta_0 + \beta_1 Ideology_i + \beta_2 Coalition_i + \beta_3 Pop.dependent_i + \beta_4 FRI_i + \beta_5 CEI_i +$$
$$\beta_6 Balance_i + \beta_7 Investment_i + \varepsilon_i \tag{1}$$

where β is the parameter to be estimated, ε is the error term, and subindex *i* refers to each municipality of the sample.

The dependent variable (SDG_k) refers to the degree of implementation of each SDG, represented in each report through a colour, namely 'red', 'orange', 'yellow', and 'green',

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[1] Italian reports use 46 indicators, retrieved from 10 data sources, to represent 16 out of 17 SDGs, with the exception of Goal 14 (Cavalli and Farnia, 2018; Cavalli et al., 2020).

[2] Spanish reports use 106 indicators to represent 17 SDGs by using 24 data sources (Sánchez de Madariaga et al., 2018; 2020).

which indicate low, medium-low, medium-high, and high implementation, respectively. Accordingly, we assigned numbers ranging from 1–4 to specify the lowest to the highest degrees of implementation. The 17 SDGs were then grouped into five indicators[3] based on the five critical areas ('5Ps') previously discussed (UN, 2015). Concretely, we summed SDGs 1 to 6 to create the indicator called *People*, which could have values ranging from 6 to 24; the indicator *Prosperity* grouped SDGs 7 to 12, having values between 6 and 24; *Planet* grouped SDGs 13 and 15, having values between 2 and 8 (SDG14 was removed because data were not available for Italian LGs); *Peace* included SDG 16, and *Partnership* included SDG 17, both having values between 1 and 4. Then, Model 1 was estimated by using each global indicator (*People*, *Prosperity*, *Planet*, *Peace*, and *Partnership*) as a dependent variable, resulting in five equations.

As independent variables, each equation included two political factors related to the second hypothesis: *Ideology* and *Coalition*. The former was an ordinal variable that took the value 1 if the municipality was governed by a left-wing party, 2 if it was governed by a centre-wing party, and 3 if it was governed by a right-wing party. The latter was a dummy variable[4] that took the value of 1 if the municipality was governed in coalition by different parties, and 0 otherwise.

Additionally, each model included four budgetary and financial indicators, namely, *FRI*, *CEI*, *Balance*, and *Investment*, to test the third hypothesis. *FRI* was the ratio between income from taxes and total current income, which was a proxy of the financial autonomy of the LGs

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[3] The 17 SDGs were grouped into five global indicators to enhance the comprehensibility of the analysis. Otherwise, 17 equations should have been presented in each year. In any case, the results of these equations are available upon request.

[4] There are different ways to represent the strength of the government, such as through the Herfindahl index, the number of parties in governments, the share of votes/councillors of the winning party, the coalition's stability along the time, and so on. Following the previous literature (Benito et al., 2015; Solé Olle, 2003; Bastida et al., 2013; Geys, 2007; Goeminne and Smolders, 2010; Allers and Elhorst, 2005; Garmann, 2014), this study used a dummy variable. In this case, coalitions were usually formed by two parties, and three or more parties in a few cases. In general, coalitions persisted during the Mandate years. Thus, including the number of parties in power served no purpose because there would not be variability in the data. In addition, measuring the coalition's stability over time requires the use of a relatively long period of time, while here we used only two years that were not even consecutive. We have checked the robustness of our findings by using the share of votes/councillors of the party in power, but the results were very similar to those obtained by using the dummy variable.

(i.e., the [relative] freedom to impose local taxes, collect revenue, and allocate financial resources without external interference, while complying with the central government's rules). *CEI* referred to current expenditure per capita, which represented the effort of the government to provide public services to the population. *Balance* was the ratio between total income and total expenditure, so it referred to budgetary equilibrium. Finally, *Investment* was the ratio between capital expenditure and current expenditure, representing the relevance of long-term projects.

As a control variable, each equation included the percentage of the population under 16 and over 65 years old (*Pop.dependent*), which are considered the dependent population, or at least economically non-independent because, to a large extent, they are not in the age of working. Additional control variables (e.g. population density, economic development, unemployment, and immigrant population) were not included because they were highly correlated with the rest of the variables, so they may have created multicollinearity problems in the model.

Since the dependent variable was ordered (i.e. the higher the level, the higher the implementation of SDGs), all the equations were estimated using the ordered probit model. Panel data techniques could not be used because the sample included only two years (2018 and 2020). Then, each equation was estimated with cross-section methods for 2018 and 2020.

Results

Descriptive analysis

Table 1 illustrates the descriptive statistics. The mean values of *People* and *Prosperity* were 15.74 and 14.82, respectively, ranging from 6 to 24. Similarly, the mean value of *Planet* was 5.64, ranging between 2 and 8, while the mean values of *Peace* and *Partnership* were 2.89 and 2.62, respectively, ranging between 1 and 4. The situation had improved between 2018 and 2020, as Figure 1 shows, although some SDGs—such as SDG3, SDG14, and SDG15—had

been reduced. The last two indicators were included in the variable *Planet*, which was the only one that had decreased in 2018–2020.

<Insert Table 1 about here>

Bearing in mind the first research hypothesis, it can be argued that, on average, the LGs included in our sample were in a halfway position. On the one hand, the results documented that they had started putting SDGs into their political agendas and were implementing policies and strategies to achieve them. On the other hand, there was room for improvement, and further efforts were needed to achieve these goals. Observing the trend of SDGs related to *People*, SDG3 (*Good Health and Well-Being*) and SDG6 (*Clean Water and Sanitation*) were the most relevant ones, probably because LGs are expected to play a crucial role in achieving them (Hendriks, 2018; Spitz et al., 2016; UCLG-CIB, 2018). Furthermore, a marked increase was noted for SDG5 (*Gender Equality*). As for *Prosperity*, there was no emerging indicator, even though SDG8 (*Decent Work and Economic Development*) increased from 2018 to 2020. SDGs related to the other 3Ps (*Planet*, *Peace*, and *Partnership*) illustrated, on average, a quite stable trend, with the already observed exceptions of SDGs 14 (calculated only for Spain) and 15; furthermore, SDG13 (*Climate Action*) reached, on average, the same values of the indicators related to *People* and *Prosperity*, underlining the great relevance of issues connected to climate change (OECD, 2014).

Figure 2 shows minimal differences between the two countries: Spain stood above Italy in terms of the *Prosperity* and *Peace* indicators, while Italy overtook Spain in SDGs related to *People*, *Planet*, and *Partnership* (although there were no Italian data for SDG14). The main differences regard SDG1, where Italy showed a much higher value than Spain, suggesting that Italian LGs are more active in the fight against poverty than Spanish LGs. However, Spain stood out in SDGs 7 and 16, indicating a greater implementation of measures to achieve affordable and clean energy, as well as peace, justice, and strong institutions.

<Insert Figure 1 about here>

<Insert Figure 2 about here>

Table 1 also illustrates that 76.21% of LGs governed in coalition; 35.32% of the population were economically dependent, being under 16 or over 65 years of age. Regarding the financial situation, the mean value of *Balance* was higher than 1, indicating that total income covered total expenditures; the autonomy ratio (*FRI*) suggested that about 55.46% of current income came from taxes and other internal revenue, and about 30.39% of expenditures were dedicated to investments (i.e. capital expenditures). As for the ordinal variable *Ideology*, the frequency of each value was observed: 50.73% of observations took the value of 1—that is, they were municipalities governed by left-wing parties; 37.14% of municipalities were governed by right-wing governments; and the remaining LGs were defined as having a centre-orientation.

Table 2 illustrates the correlations between the independent variables to know if multicollinearity problems occur[5]. In our case, correlations are not extremely high, being lower than 0.5, which is the "rule of thumb" for multicollinearity (Wooldridge, 2010). The highest ones are those between *Balance* and *Investment* (-0.4828), *Balance* and *Pop.dependent* (-0.4228), and *Balance* and *Coalition* (-0.3443). Furthermore, we calculated the variance inflation factor (VIF), which is also largely used as a multicollinearity diagnostic. High VIF values indicate the involvement of some explanatory variables in at least some linear dependency. The threshold value is generally taken as 10 (Alin, 2010). Table 2 shows that VIF values are lower than 2 in all cases, suggesting that there are not multicollinearity problems.

Regarding correlations between explanatory and dependent variables, *Pop.dependent* and *Planet* were also correlated (-0.5023), suggesting that the dependent population could be an

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[5] Multicollinearity means that explanatory variables are correlated so it is not possible to analyse individually the effect of each one on the dependent variable. When a model suffers from multicollinearity, some problems may appear, for instance, small changes in data may result in large changes in estimators; estimated coefficients may have large standard errors and low statistical relevance; or coefficients may have the opposite effect to what was expected (Greene, 1999).

important factor in explaining the implementation of the SDGs included in *Planet*. Regarding the correlations between the 5Ps, *Prosperity* had the higher coefficients, especially with *People* (0.3972), *Planet* (-0.3512), and *Peace* (0.344). These results suggest that the SDGs are related between them, which is in line with the theoretical assumption that sustainable development is introduced through small changes covering all the SDGs together (Hendricks, 2018).

<Insert Table 2 about here>

Empirical analysis

Table 3 illustrates the empirical results of the five equations (one for each 'P') in 2018 and 2020. Focusing on *People* (SDGs 1 to 6), the *Pop.dependent* variable was positive and statistically relevant in both years, suggesting that the proportion of the population that was economically dependent pressed the LGs to implement policies that aimed to end poverty and hunger and to ensure that all human beings could fulfil their potential in dignity, equality, and a healthy environment (UN, 2015). There are other variables that may be relevant to explaining *People*, but these results depend on the year of analysis; for instance, *FRI* negatively impacted *People* in 2018, and *Ideology* negatively impacted *People* in 2020.

Regarding the *Prosperity* variable, *Coalition* and *FRI* were statistically relevant in both years, and the coefficients were negative. These findings indicate that LGs in coalitions and those with higher financial autonomy tend to implement fewer policies and actions that ensure economic, social, and technological progress in harmony with nature (UN, 2015). Defining priorities and devoting resources are essential for SDGs (Hendriks, 2018), and these activities could be more difficult if there is a lack of consensus in the coalition.

The variable *Coalition* was also statistically relevant in explaining *Planet*, although its effect was positive in this case. This means that LGs governed in coalitions tend to implement more policies to protect the planet from degradation, thus promoting sustainable consumption and production, sustainably managing natural resources, and taking urgent action on climate change

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(UN, 2015). Interestingly, municipalities with the worst financial balance situation also tended to show a higher level of implementation of SDGs related to *Planet*. Furthermore, *Pop.dependent* and *FRI* were statistically relevant in explaining *Planet*, but they were significant only in Panel A (year 2018), so the results are not conclusive, requiring further analysis.

Many variables were relevant in the fourth equation, where the dependent variable was *Peace*. *Coalition* and *CEI* had negative coefficients, while *Pop.dependent* and *Balance* had positive coefficients. These results indicate that LGs with lower levels of current expenditure per capita, a balanced financial situation, and a higher proportion of the dependent population tend to implement more actions to foster peaceful, just, and inclusive societies that are free from fear and violence (UN, 2015). However, governments in coalitions tend to have difficulty carrying out these policies. Furthermore, *Ideology* and *FRI* variables were statistically relevant in explaining *Peace*, but only in 2018, so these results are not conclusive.

Finally, *Partnership* was harder to explain with any of the selected variables. The amount of current expenditure per capita (*CEI*) negatively affected *Partnership* in 2018, while *Pop.dependent* affected it positively in 2020.

<Insert Table 3 about here>

Discussion and Conclusions

This research offers several contributions to the debate on SDGs and PAs. It provides a comparative view of two European countries over two years, thus allowing us to gain an understanding of the progress of LGs in promoting sustainable development. Our results highlight important differences between Italian and Spanish municipalities, implicitly underlining that the implementation of adequate policies to pursue SDGs has to take into account the context. Furthermore, as Figure 1 illustrates, SDGs related to *People* and *Prosperity*

increased from 2018 to 2020, while *Planet*, *Peace,* and *Partnership* goals tended to be stable. This result is consistent with H1, according to which LGs are more inclined to pursue goals that largely depend on their own policies and strategies (Guarini et al., 2021; Hendriks, 2018; Spitz et al., 2016), compared with SDGs asking for greater involvement of higher levels of government.

The empirical analysis unveils some political and economic conditions that can positively affect the achievement of SDGs in LGs, which opens the path for further analyses investigating which levers can be operationalised to improve the contribution of LGs towards Agenda 2030. Contrary to what we expected in the second hypothesis (H2a), the effect of ideology was not statistically significant in several cases, meaning that the implementation of SDG policies does not depend on the political orientation of the governing body. This result could be explained by considering the increasing global pressure on politicians, who are stimulated to implement policies coherent with sustainable objectives. Therefore, our findings contribute to the ongoing debate on the role of political ideology (Farashah and Rezvani, 2021), thereby calling for further research.

With respect to the degree of fragmentation, the findings suggest that political coalitions negatively affect the implementation of SDGs, especially those related to *Prosperity* and *Peace*. This result—which is consistent with H2b—suggests that coalition governments usually face coordination problems that cause policy implementation failures (Ashworth et al., 2005; Benito et al., 2015), which is in line with the idea that large coalition governments experience coordination problems due to different political orientations and prioritization (Roubini and Sachs, 1989a; 1989b). However, the findings indicate that LGs governed in coalitions tend to implement more policies to combat climate change and protect, conserve, and restore terrestrial and marine ecosystems. These themes are transversal, are frequently included in national plans, and may secure unanimity, as they are widely shared by all segments of the electorate.

Our results confirm the third hypothesis, which attests that good financial conditions are essential in pursuing SDGs in LGs (Martens, 2013), especially those related to *People* and *Prosperity* that involve essential services for local communities. However, capital expenditure plays a limited role, in contrast to the results of Mutiarani and Siswantoro (2020). Accordingly, our findings open the way for further research to identify whether capital expenditure effects on SDGs are context specific.

Further research is recommended to provide a deeper understanding of conditions favouring the achievement of SDGs. For instance, future studies may consider strategic plans and performance reports to explore why and how governance bodies are consciously operating towards sustainable development. Our results suggest that politicians are limiting their actions to achieving isolated goals, while sustainable development requires a holistic approach from governments.

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Sánchez de Madariaga I, Benayas del Álamo J, García-López J, Sisto R, Urquijo-Requera J and García-Haro M (2020) Los Objetivos de Desarrollo Sostenible en 100 ciudades españolas. Madrid: Red Española para el Desarrollo Sostenible.

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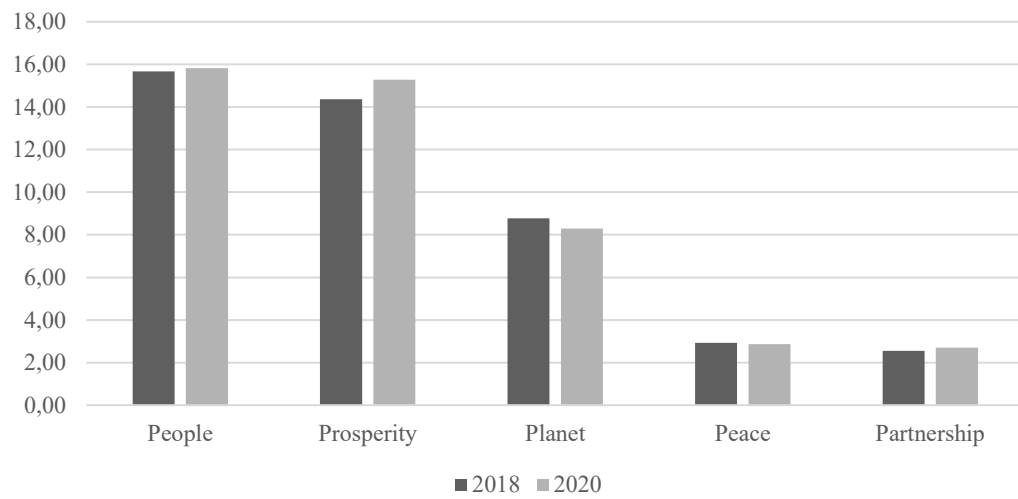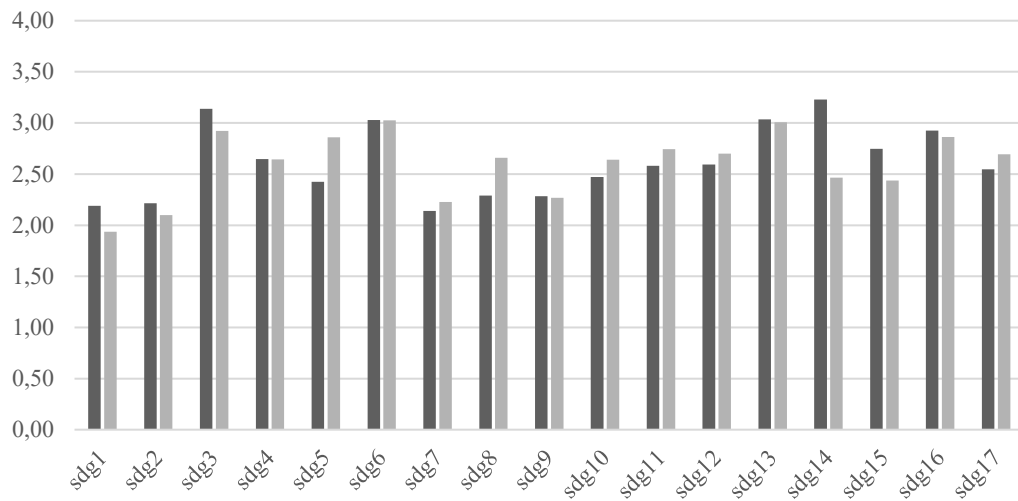| Table 1. Descriptive statistics					
Variable	**Description**	**Mean**	**Std. Dev.**	**Min**	**Max**
People	SDG1 to SDG6	15.7389	1.9617	10	20
Prosperity	SDG7 to SDG12	14.8189	2.0779	9	20
Planet	SDG13 to SDG15	5.6366	1.1452	2	8
Planet_W14	SDG13 and SDG15	8.5455	1.7203	5	12
Peace	SDG16	2.8943	0.7664	1	4
Partnership	SDG17	2.6216	0.8734	1	4
Ideology	Dummy variable (1 if the municipality is governed by a left-wing party; 0 otherwise)	1.8568	0.9392	0	3
Coalition	Dummy variable (1 if the municipality is governed in coalition by different parties; 0 otherwise)	0.7621	0.4263	0	1
Pop_dependent	Percentage of population under 16 and over 65	35.3228	2.6436	25.82	43.25
FRI	Ratio between income from taxes and total current income	0.5546	0.1174	0.1801	0.9966
CEI	Current expenditure per capita	1388.65	5183.35	2.4412	74992.37
Balance	Ratio between total income and total expenditure	1.0132	0.1117	0.5840	1.4927
Investment	Ratio between capital expenditure and current expenditure	0.3039	0.3704	0.0021	4.0939

Table 2. Bivariate correlations											
	People	*Prosperity*	*Planet*	*Peace*	*Partnership*	*Ideology*	*Coalition*	*Pop.dependent*	*FRI*	*CEI*	*Balance*	*Investment*
People	1										
Prosperity	0.3972***	1									
Planet	0.0104	-0.3512**	1								
Peace	0.1954***	0.344***	-0.1164	1							
Partnership	0.1221*	0.1678***	-0.3401**	0.1241*	1						
Ideology	-0.0511	-0.0746	0.2332†	-0.0702	0.0751	1					
Coalition	0.0862	-0.1162*	0.2031	-0.2884***	0.1239*	0.0472	1				
Pop.dependent	0.2758***	0.0361	-0.5023***	-0.0742	0.2086***	0.1567**	0.2846***	1			
FRI	0.008	-0.2629***	0.1162	-0.2453***	0.0072	0.1146*	0.1938***	0.2233***	1		
CEI	0.0777	-0.0152	-0.2159†	-0.0574	0.0017	-0.0623	0.0625	0.2297***	0.0572	1	
Balance	-0.1249*	0.1174*	0.0602	0.3142***	-0.1769***	-0.1079*	-0.3443***	-0.4228***	-0.2225***	-0.1005†	1
Investment	-0.0064	-0.1072*	-0.0612	-0.3015***	0.0655	0.1591**	0.2599***	0.2748***	0.1002†	0.0842	-0.4828***	1
Notes: †, *, **, and *** refers to statistical significance at 90, 95, 99, and 99.9%, respectively.											

Table 3. Determinants of SDG implementation										
Year 2018										
	People		**Prosperity**		**Planet**		**Peace**		**Partnership**	
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
Ideology	-0.0925	0.0744	0.0068	0.0759	0.1221	0.0838	-0.1973*	0.0848	0.0190	0.0884
Coalition	0.0876	0.1706	-0.3176†	0.1689	0.7588***	0.1764	-1.0167***	0.2169	-0.1320	0.2239
Pop_dependent	0.1367***	0.0342	0.1102**	0.0348	-0.1057**	0.0353	0.1075**	0.0366	0.0189	0.0364
FRI	-1.1771†	0.6424	-2.2668***	0.6487	2.8723**	0.9620	-3.0595***	0.6609	-0.4804	0.7162
CEI	-0.0039	0.0044	-0.0098*	0.0041	0.0042	0.0041	-0.0267***	0.0053	-0.0123**	0.0044
Balance	-0.7124	0.9121	1.2056	0.8080	-2.3022*	1.0086	3.5973**	1.1509	-0.0017	0.8835
Investment	-0.2102	0.1698	0.1242	0.2297	0.0244	0.3862	-0.6750*	0.3373	-0.0741	0.1557
Year 2020										
	People		**Prosperity**		**Planet**		**Peace**		**Partnership**	
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
Ideology	-0.1877*	0.0952	-0.0347	0.2439	0.0431	0.1199	-0.0565	0.1023	0.0494	0.0961
Coalition	0.0598	0.2546	-0.1583†	0.0939	0.7408**	0.2661	-0.4686*	0.2228	-0.0632	0.2406
Pop_dependent	0.1245**	0.0406	0.0418	0.0409	-0.0622	0.0409	0.1352***	0.0383	0.0735*	0.0327
FRI	0.0793	0.7075	-2.6755***	0.7425	-0.1705	0.8011	-0.9732	0.7617	-0.6735	0.7616
CEI	0.0039	0.0045	-0.0053	0.0044	0.6805	0.8665	-0.0128**	0.0041	-0.0037	0.0046
Balance	-1.0768	0.7105	0.9647	0.8236	-0.0169***	0.0051	3.1622**	0.9372	0.5821	0.9440
Investment	-0.3972	0.2495	-0.5195	0.3755	0.5620†	0.2968	-0.1933	0.1943	-0.5014	0.3113
Notes: †, *, **, and *** refers to statistical significance at 90, 95, 99, and 99.9%, respectively.										

Figure 1. SDG by year

Figure 2. SDG by country