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Abstract

This paper examines the impact of unfunded mandates - defined as the mismatch between political and fiscal decentralisation - on social progress, and how this relationship is contingent upon different levels of institutional quality. Using data from 35 OECD countries over the period 1995-2017 within an Instrumental Variables framework, our results indicate that unfunded mandates are negatively associated to social progress. However, institutional quality plays a crucial role in mitigating these adverse effects. These findings highlight the importance of (i) effective decentralisation design that ensures alignment between its fiscal and political dimensions, and (ii) strengthening institutions to ensure that decentralisation processes positively contribute to national development and social progress.

Keywords: fiscal decentralisation, political decentralisation, well-being, institutional quality, OECD.

JEL codes: C26, H77, I31, O10.

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1 INTRODUCTION

In recent decades, the analysis of decentralisation has gained increased attention in the literature due to its significant impact on economic development and social welfare. Yet, empirical evidence on the effects of decentralisation remains inconclusive (MartinezVazquez et al., 2017). This lack of consensus in past research could be partly attributed to the implicit assumption of equivalence between political and fiscal decentralisation, since both variables have been often used interchangeably. Within this framework, it is assumed that a well-designed sequential decentralization process is in place, wherein finance follows function (Bahl and Martinez-Vazquez, 2013). However, asymmetrical decentralization processes can be identified throughout the world. When the decentralisation of political power is not followed by an adequate transfer of financial resources, so-called "unfunded mandates" arise, affecting the functioning of subnational governments. This misalignment can lead to inefficiencies in the provision of public goods and services, as subnational entities struggle to meet their obligations with inadequate funding (Klugman, 1994; Prud'homme, 1995). Furthermore, the financial strain placed in subnational governments can limit the capacity for innovation in less advantaged regions or even exacerbate regional disparities, as wealthier areas may be better positioned to supplement funding gaps through own revenue generation, whereas poorer regions fall further behind (Donahue, 1997; Oates, 1999). Consequently, essential services such as education, healthcare, and infrastructures may suffer, resulting in lower standards of living and reduced social welfare, thereby undermining the benefits of decentralisation (Bahl, 1999; Ross, 2018). The global trend towards the devolution of fiscal and political powers from central to subnational tiers of government in recent years and the asymmetries in these decentralization processes have rendered the issue of unfunded mandates a critical area requiring further attention.

Despite its importance, previous research has overlooked unfunded mandates and their consequences have been underexplored. This paper adds to the empirical literature on Fiscal Federalism by examining the effects of unfunded mandates on social progress. To that aim, it builds on the existing findings regarding the effects of unfunded mandates on economic growth (Rodriguez-Pose and Vidal-Bover, 2022) and extends the focus to their impact on

a broader measure of well-being: social progress. This variable is a more comprehensive measure of societal development that encapsulates the growing interest in addressing the social, environmental and subjective well-being aspects of development, thereby providing a more holistic perspective on the quality of life of citizenry. The use of this variable is suitable for the purpose of this paper as the ultimate goal of decentralization goes beyond economic growth and tries to enhance the well-being of citizens through the equitable and efficient distribution of public goods and services.

In addition, the paper also considers the crucial role of the quality of the administration responsible for providing public services in determining citizen welfare. Specifically, we emphasize that both the design of the decentralization process (i.e., who delivers public goods and services) and the institutional context in which decentralisation occurs (i.e., how effectively these public goods and services are delivered) are critical to social welfare outcomes. The literature suggests that the strength of formal institutions can enhance the benefits of decentralisation (Rodrguez-Pose and Mustra, 2022). Previous empirical evidence has shown its positive impact on economic development and growth, as well as on governmental equity and efficiency (Acemoglu and Johnson, 2003; Rodriguez-Pose and Garcilazo, 2015), indicating that institutional quality could also positively influence social progress.

Methodologically, this analysis employs a panel data model with 35 OECD countries over the period 1995-2017. The model incorporates interaction terms to investigate the connection between unfunded mandates and social progress in different institutional settings. The social progress indicator draws on data from the Social Progress Index, initially developed by Porter and Stern (2014) and recently updated by Peiro-Palomino et al. (2023). The study utilizes both an aggregate index of social progress and three disaggregated sub-indices that explore various dimensions of social progress: basic human needs, foundations of well-being, and opportunities. By using this index, this paper captures various dimensions of societal welfare, including health, education, and environmental quality, which are often overlooked in traditional economic analyses. The potential endogeneity problem between unfunded mandates, institutional quality and social progress is addressed using instrumental variable techniques. Overall, our results indicate that the relationship between unfunded mandates and social progress is contingent upon different degrees of institutional quality. This finding

highlights the central role of institutional strength in mitigating the adverse impacts of fiscal decentralisation gaps on social progress.

The paper is organised as follows. The next section presents a brief overview of relevant literature on decentralization and governance. The third section describes the econometric methodology and the data used in the empirical analysis, while the main results are presented in the fourth section. Finally, the last section concludes.

2 LITERATURE REVIEW

2.1 Decentralisation and Unfunded Mandates

According to the Fiscal Federalism Theory, decentralised institutional structures offer new avenues for improving the quality of public policies. The closer proximity between government and citizens allows for a more nuanced tailoring of public goods and services to align with their preferences and needs (Oates, 1972). Informational advantages (Hayek, 1945), inter-jurisdictional competition (Tiebout, 1956; Oates, 1999), and greater preferences homogeneity (Oates, 1972) facilitate a more efficient provision of public goods and services, enhancing the responsiveness of sub-central governments to citizens. Fiscal decentralisation can improve public sector governance in a number of different ways. On the one hand, it can reduce corruption and improve the enforcement of the rule of law (Kyriacou and Roca-Sagals , 2018). On the other hand, it can increase democratic control and accountability (Seabright, 1996; Oates, 2005; Hindriks and Lockwood, 2005; Filippetti and Sacchi, 2016). However, empirical studies cast doubt on its ability to meet these goals, due to coordination failures or a decline in the quality of public services resulting from the underutilisation of economies of scale (Prud'homme, 1995; Treisman, 2000) or the presence of external effects (Olson, 1969) that may arise as the size of jurisdictions decreases. Furthermore, there is a risk of downward fiscal competition between jurisdictions (Oates and Schwab, 1988), which has the potential to undermine the revenue-generating capacity of local governments (Wilson, 1999). In terms of equity, decentralisation can reduce inequalities between regions by in-

creasing transparency, efficiency, and equalisation between jurisdictions (Martinez-Vazquez and Timofeev, 2008). Nevertheless, it can also exacerbate income disparities between jurisdictions, as those with greater economic resources can offer better services than the less advantaged ones (Prud'homme, 1995).

The empirical evidence analysing the consequences of fiscal decentralisation - understood as the transfer of fiscal responsibilities and decision-making power from central government to subnational governments - and political decentralisation - defined as the degree to which a central government allows subnational levels to assume political governance functions - is extensive but inconclusive [1]. This ambiguity also extends to economic growth, which is one of the most analysed economic effects of decentralisation in the literature. A substantial body of research reports a positive relationship between fiscal decentralisation and growth (Akai and Sakata, 2002, Stansel, 2005, Iimi, 2005, Qiao et al., 2008, Gemmell et al., 2013, Filippetti and Sacchi, 2016, and Canavire-Bacarreza et al., 2020). However, other studies document a negative association (Davoodi and Zou, 1998, Zhang and Zou, 1998, Xie et al., 1999, and Rodriguez-Pose and Ezcurra, 2011), while some find no statistically significant link at all (Baskaran and Feld, 2013, Thornton, 2007, and Woller and Phillips, 1998). Empirical evidence on the effects of political decentralisation is less extensive but also yields varied results (e.g. Im, 2010 or Ezcurra and Rodriguez-Pose, 2013).

The variability of results regarding the impact of decentralisation on growth can be partly attributed to factors such as the heterogeneity of jurisdictions, the complexity of institutional frameworks, and insufficient consideration of political and administrative dimensions (MartinezVazquez et al., 2017). Moreover, the aforementioned studies employ different samples, covering various regions and countries within the OECD over different time periods, and rely upon different estimation methods to address endogeneity concerns, which contributes to the divergence in their conclusions. Additionally, the measurement of decentralisation can also contribute to the observed disparity in the results (Rodden, 2004). In particular, the multidimensional complexity of decentralisation, which encompasses political, administrative, and fiscal autonomy aspects of subnational governments, makes precise

[1] For an updated review of the economic and political effects of decentralisation, see MartinezVazquez et al. (2017).

measurement challenging (Ebel and Yilmaz, 2002) [2].

Furthermore, the bulk of the empirical literature on decentralisation have treated both decentralisation variables separately. The independent treatment of both decentralisation measures implies the assumption that "finance follows function", that is, the transfer of political governance functions to a sub-central government is accompanied by the necessary funding for their proper execution (Bahl and Martinez-Vazquez, 2013). However, the decentralisation of responsibilities and political power is not necessarily accompanied by an adequate transfer of financial resources, which can result in the emergence of the so-called "unfunded mandates". This can ultimately undermine the gains of decentralisation (Bahl, 1999; Ross, 2018). The exclusion of this phenomenon may also contribute to discrepancies in empirical findings regarding the effects of decentralisation (for an exception, see Rodriguez-Pose and Vidal-Bover, 2022). The imbalance of power and legitimacy[3] between central and subnational governments is a significant factor that contributes to the occurrence of unfunded mandates. The party with greater legitimacy tends to exert a decisive influence on the negotiations and configuration of these mandates (Rodriguez-Pose and Gill, 2003). In circumstances where the central government is perceived as more legitimate, it tends to transfer responsibilities to subnational governments without providing the necessary resources, thereby increasing the number of unfunded mandates. Conversely, in contexts where sub-central demands are more legitimised, these sub-central entities are able to obtain not only greater responsibilities but also the necessary resources to fulfil them. It can be seen, therefore, that unfunded mandates emerge as a result of variations in legitimacy and power between the central government and sub-central governments. Furthermore, their occurrence can vary over time, given that decentralisation is a constantly evolving process rather than a static event.

The existence of unfunded mandates has detrimental effects on the efficacy of subnational governments, as inefficiencies may emerge in the implementation of policies and the delivery

[2]Traditionally, fiscal decentralisation has been measured as the percentage of total public expenditure that is controlled by sub-central governments. However, it is also common to measure it by calculating own-source revenue as a share of total government revenue (Rodden, 2004). Similarly, political decentralisation has been approximated using a variety of indicators, with the most comprehensive measure being the Regional Authority Index developed by Hooghe et al. (2016, 2021)

[3]Legitimacy is the public perception that the structures, officials, and processes of government are normatively appropriate and deserve obedience Lipset (1959); Levi et al. (2009).

of essential services to the community (Klugman, 1994; Prud'homme, 1995). Additionally, the lack of financial resources can limit the capacity for innovation in public policies and economic development in less advantaged regions, as subnational governments endeavour to fulfil citizens' basic needs without sufficient economic support (Donahue, 1997; Oates, 1999). Moreover, unfunded mandates can also have an impact on social well-being. The absence of financial resources impedes the capacity of sub-national authorities to make well-informed decisions and to provide quality services, which in turn erodes citizens' trust in institutions and undermines their participation in the decision-making process (Rodrik et al , 2004). The existence of unfunded mandates has been demonstrated in both more advanced economies (de Groot, 2019; Palermo and Wilson, 2014) and developing economies (McCarten, 2003; Khambule, 2020), suggesting that their presence is not contingent on a country's level of economic development.

2.2 Effects of Decentralisation on Social Progress

In the yield of economic literature, the per capita Gross Domestic Product (GDP) has traditionally been employed as an indicator of development, on the understanding that it measures the well-being or progress of a country. However, the process of decentralisation has an impact that goes beyond mere economic growth. Furthermore, the GDP measure is not an adequate indicator of the real living conditions of the population, as the concept of social well-being is not solely contingent upon the average per capita income. Rather, it encompasses a multitude of factors, including the equitable distribution of income, the reduction of unemployment, the enhancement in equality of opportunities, the access to education and healthcare, and the protection of the enviroment. Consequently, governments pursue a range of multidimensional objectives that are not adequately represented by per capita GDP alone. It is therefore necessary to assess the impact of decentralisation on these qualitative dimensions of social progress.

In order to overcome these limitations, Sen (1985) was the first to incorporate non-economic factors, including education, security, civil liberties, and environmental sustainability, from which a number of well-being indicators have been developed. These include

the World Bank's Human Development Index (HDI) and the OECD's Better Life Index. Nevertheless, a prevalent critique of these indicators is that by integrating economic and non-economic variables, they may overstate the performance of countries with constrained social progress but robust economic growth (Fehder et al., 2018).

More recently, Porter and Stern (2014) and the non-profit organization Social Progress Imperative have developed the Social Progress Index, which incorporates solely non-economic factors (Fehder et al., 2018). This index, based on three pillars - basic human needs, foundations of well-being, and opportunities-, provides a more comprehensive view that seeks to understand and measure how a society truly functions and whether socioeconomic improvements translate into tangible benefits for all citizens (Porter and Stern, 2014). In this context, social progress is defined as "the capacity of a society to meet the basic human needs of its citizens, establish the foundations that allow citizens and communities to enhance and sustain the quality of their lives, and create the conditions for all individuals to reach their full potential."

Conversely, economic literature has increasingly focused on the concept of subjective well-being, which refers to individuals' evaluations of their own lives and their satisfaction with them. The relationship between traditional economic indicators, such as GDP, and subjective well-being has been a subject of considerable debate (Fehder et al., 2018). Unlike subjective well-being, social progress is not based on individual perceptions and emotions. Rather, it employs objective and measurable indicators to provide an impartial analysis and an aggregated understanding of a society's quality of life that transcends simple economic indicators. In other words, social progress is considered an objective measure of well-being. In contrast to previous literature, mainly focused on analysing the effect of decentralisation on economic growth or subjective well-being, this paper assesses its comprehensive impact on objective well-being, proxied by the innovative Social Progress Index. This approach will facilitate a more comprehensive evaluation of the benefits of decentralisation. The principal objective of decentralisation is to enhance public policies and the provision of goods and services, with the ultimate goal of improving the well-being of the population. In this context, it is of paramount importance to examine how unfunded mandates can influence the capacity of subnational authorities to effectively promote objective well-being and social

progress.

2.3 The Role of Institutional Quality

Institutional quality is fundamental for socioeconomic development, political stability, and general well-being of a society (North, 1990; Acemoglu and Robinson, 2012). It is a multifaceted concept in the study of political and economic sciences that refers to the capacity of governmental and non-governmental institutions to develop policies and provide public services efficiently, transparently, and responsibly.

Previous empirical evidence indicates that high levels of institutional quality are positively related to development and economic growth (Acemoglu and Johnson, 2003; Amin and Thrift, 1994; Berggren et al., 2012) and to equity (Rodriguez-Pose and Garcilazo, 2015). When governments fight corruption they become more innovative and efficient (Rodriguez-Pose and Di Cataldo, 2015). Conversely, the presence of weak institutions has been demonstrated to increase corruption and to have an adverse effect on economic growth and efficiency (Rodriguez-Pose and Tselios, 2019). As regards to decentralisation, high levels of institutional quality enhance the benefits of decentralisation (Rodrguez-Pose and Mustra, 2022), whereas in contexts of low governmental quality, decentralisation can increase satisfaction with specific public services (Rodriguez-Pose and Tselios, 2019), although it could also exacerbate regional disparities (Kyriacou et al., 2015). This paper examines how institutional quality can influence the relationship between unfunded mandates and social progress, positing that robust governance can act as an essential catalyst for translating decentralisation policies into social advancements.

3 EMPIRICAL ANALYSIS

3.1 Data

The relationship between unfunded mandates, institutional quality, and social progress is analysed using a sample of 35 OECD countries [4] from 1995 to 2017. Country selection was based on data availability for the entire period [5].

First, social progress is assessed using the Social Progress Index (SPI), developed by Porter and Stern (2014) and most recently updated by Peiro-Palomino et al. (2023). The SPI comprises three pillars: basic human needs, foundations of well-being, and opportunities (see Table 1).

Second, fiscal decentralisation is measured as the share of subnational public expenditure relative to total public expenditure, a measure commonly used in the economic literature (MartinezVazquez et al., 2017), using OECD data. Political decentralisation is assessed through the Regional Authority Index developed by Hooghe et al. (2016, 2021). This index evaluates subnational autonomy based on eight components, which are grouped in two pillars: self-government, referring to the autonomy of subnational governments over their territories, and shared governance, which reflects the capacity of subnational governments to influence central government decisions. To prevent collinearity with fiscal decentralisation, fiscal autonomy and fiscal control components were excluded from the index.

Following Rodriguez-Pose and Vidal-Bover (2022), the unfunded mandates variable is constructed as the difference between the standardised values (mean zero and standard deviation one) of political and fiscal decentralisation. A positive value indicates the existence of unfunded mandates, as the political power exceeds the available fiscal resources, while a negative values suggests that subnational governments have adequate funding for their responsibilities. Although this measure does not provide an absolute value of unfunded

[4] Australia, Austria, Belgium, Canada, Chile, Colombia, Costa Rica, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Israel, Italy, Japan, Latvia, Lithuania, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Slovakia, Slovenia, South Korea, Spain, Turkey, United Kingdom and United States.

[5] Iceland, Luxembourg, and Switzerland were excluded from the sample due to the lack of Social Progress Index data.

Table 1: Components of the Social Progress Index.

Pillar I: Basic Human Needs	
Components	Indicators
(I.1) Nutrition and basic medical care	Prevalence of undernourishment
	Depth of the food deficit
	Maternal mortality ratio
	Mortality rate under-5
	Death from infectious diseases
(I.2) Access to clean water, sanitation and shelter	People using at least basic drinking water services
	People with access to electricity
	People using at least basic sanitation services
	People practicing open defecation
	Access to clean fuels and technologies for cooking
(I.3) Personal safety	Homicide rate
	Traffic deaths
	Physical violence
	Political stability and absence of terrorism
Pillar II: Foundations of well-being	
Components	Indicators
(II.1) Access to basic knowledge	Literacy rate
	Gender parity
	Access to basic education
(II.2) Access to information and communications	Mobile cellular subscriptions
	Population using the Internet
	Media corruption
	Government censorship effort-media
(II.3) Health and wellness	Life expectancy at birth
	Health equality (II.4) Environmental quality
CO2 emissions	
	Renewable energy consumption
	Forest conservation
	Terrestrial biome protection
	Species protection
Pillar III: Opportunities	
Components	Indicators
(III.1) Personal rights	Political rights
	Freedom of expression
	Freedom of religion
	Access to justice
	Respect of woman property rights
(III.2) Personal freedom and choice	Freedom of foreign movement
	Freedom from slave work
	Political corruption
	Public sector corruption
	Women empowerment
(III.3) Tolerance and inclusion	Equality of political power by gender
	Equality of political power by socioeconomic position
	Equality of political power by social group
(III.4) Access to advanced education	Average years of education
	University students
	School enrolment in tertiary education
	Scientific production

Source: Own elaboration based on Peiro-Palomino et al. (2023).

mandates, it allows for cross-country and temporal comparisons.

Third, institutional quality is measured usinng the World Governance Indicators (Kaufmann et al., 2010), widely recognised in the literature. These six indicators, ranging from -2.5 (weak performance) to 2.5 (strong performance) include: voice and accountability, political stability and absence of violence/terrorism, government effectiveness, regulatory quality, rule of law, and control of corruption. The first two indicators relate to the functioning of the democratic process, while the remainiing four assess the effectiveness of public service delivery (Helliwell and Huang, 2008). To synthesise the information provided by these six indicators and minimise information loss, Principal Component Analysis (PCA) is applied (Hair et al., 2010). This technique is particularly useful in the presence of high correlation between variables, reducing them into at least one uncorrelated principal component, which is a weighted linear combination of the initial variables. As shown in Table 2, the first principal component explains 85% of the variance of the original data set, making it a suitable proxy for aggregate institutional quality. Table 3 displays the weights applied to each variable to obtain the first principal component, indicating the strength and direction of the relationship of each variable with that component and the contribution of each variable to the first component. As observed, all variables are contributing similarly (between 14 and 17 percent). The Kaiser-Meyer-Olkin (KMO) index of 0.8981 confirms the suitability of the dataset for PCA [6].

Table 2: Principal component analysis.

Component	Own value	Difference	Ratio	Cumulative
Component 1	5.1289	4.5877	0.8548	0.8548
Component 2	0.5411	0.4043	0.0902	0.9450
Component 3	0.1368	0.0473	0.0228	0.9678
Component 4	0.0895	0.0282	0.0149	0.9827
Component 5	0.0612	0.0188	0.0102	0.9929
Component 6	0.0425	0.0000	0.0071	1.0000

Source: own elaboration.

Figure 1 presents preliminary correlation analyses between the main variables of interest.

[6]The Kaiser-Meyer-Olkin (KMO) index was calculated to test whether the partial correlations between variables are small. It provides an index, between 0 and 1, of the proportion of variance among the variables that could be common variance. An index value in the 0.90s is "wonderful", in the 0.80s "meritorious", in the 0.70s "average", in the 0.60s "mediocre", in the 0.50s "miserable" and below 0.5 "unacceptable". Our analysis gives a value of 0.90, indicating that the sampling adequacy was above 0.5 and therefore satisfactory.

Table 3: Weights and contribution of each variable in the PCA.

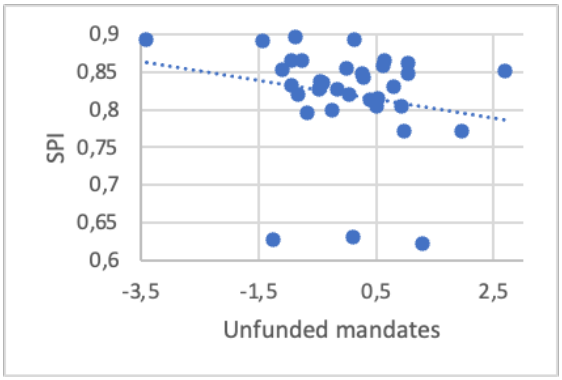
Variable	Weights (eigenvectors)	Contribution of each variable
Voice and accountability	0,4177	0,1709
Political stability	0,3463	0,1417
Government effectiveness	0,4187	0,1713
Regulatory quality	0,4105	0,1680
Rule of law	0,4305	0,1762
Control of corruption	0,4201	0,1719

Source: own elaboration.

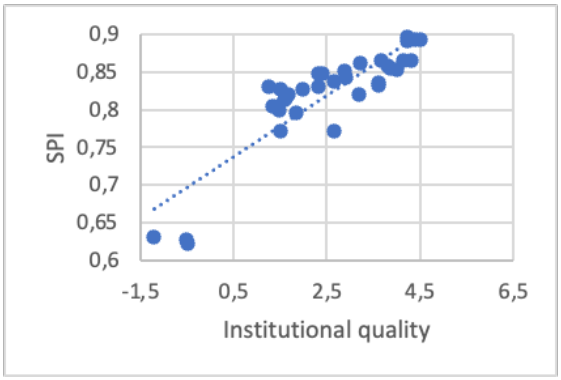
Panel A indicates a negative correlation between unfunded mandates and social progress, while panel B reveals a clear positive correlation between institutional quality and social progress. These relationships suggest that stronger institutions are associated with greater social progress, whereas the presence of unfunded mandates may hinder it. However, these figures only capture simple correlations. The next section provides a rigorous econometric analysis to further explore the mechanisms underlying these relationships.

Figure 1: Correlation between social progress, unfunded mandates and institutional quality (average of the entire series).

(a) Panel A



(b) Panel B



Source: own elaboration.

3.2 Econometric Strategy

In order to analyse the relationship between unfunded mandates and social progress, and whether this relationship is mediated by governance quality, we specify the following two-way fixed effects interaction model within a panel data framework, allowing us to evaluate

whether improvements in unfunded mandates over time affect social progress:

$$\mathrm{SP}_{i,t} = \beta_0 + \beta_1 \mathrm{UM}_{i,t} + \beta_2 \mathrm{IQ}_{i,t} + \beta_3 \mathrm{UM}_{i,t} * \mathrm{IQ}_{i,t} + \beta_4 \mathrm{X}_{i,t} + \delta_i + \gamma_t + \varepsilon_i \quad (1)$$

Where the terms i and t denote country ($i = 1, ..., 35$) and time (1995-2017), respectively, leading to a balanced panel of 805 observations. $SP_{i,t}$ represents the social progress of country i in year t, $UM_{i,t}$ are the unfunded mandates, and $IQ_{i,t}$ is the institutional quality. Both variables are also presented in the form of interaction ($UM_{i,t} * IQ_{i,t}$) to isolate whether the impact of a variable on the outcome depends on the values of the other variable. δ_i captures country fixed effects, isolating intrinsic and constant characteristics of each country that could affect social progress, such as cultural or institutional factors, allowing for the control of unobserved cross-country heterogeneity. γ_t refers to time fixed effects, controlling for global variations that impact all countries uniformly at a given point in time, such as economic crises or technological advances, to ensure that these external factors do not bias the estimated effects of the variables of interest on social progress. $\varepsilon_{i,t}$ is the error term.

Finally, in $X_{i,t}$ we include a set of control variables that capture key structural and socio-economic factors essential for assessing the various dimensions of social progress. First, the natural logarithm of GDP per capita (in constant national prices) is included as a measure of the level of economic development, which is expected to have a positive impact on social progress (e.g. Pritchett, 2022). Second, total productivity of welfare-relevant factors (also in constant national prices) is used as an indicator of economic efficiency. Third, two variables capture the size and composition of the public sector -tax revenues and public health expenditure (both expressed as a percentage of GDP)- which reflect a country's capacity to invest in essential public services and are likewise expected to positively influence social progress (e.g. Hessami, 2010). Fourth, the unemployment rate, a key indicator of economic and social stability, is included, with an expected negative effect on social progress (Castells-Quintana and Royuela, 2012). Finally, the degree of urbanisation -measured as the percentage of the urban population relative to the total population- is considered, with an expected positive impact on improving access to public services and overall quality of life (e.g. Bertinelli and Black, 2004). This variable is included in both linear and quadratic

forms to account for the inverted U-shaped relationship identified by Castells-Quintana and Royuela (2015). This relationship suggests that while urbanisation tends to foster social progress in early stages of a country's development, its benefits diminish in more advanced stages, potentially leading to negative effects. Descriptive statistics and data sources of all variables used in the analysis are presented in Table 4.

Table 4: Descriptive statistics

Variable	Source	Mean	Std. dev.	Min	Max
Social progress:					
SPI aggregate	Peir-Palomino et al. (2023)	0.8309	0.0680	0.5680	0.9243
SPI pillar 1	Peir-Palomino et al. (2023)	0.9493	0.0478	0.6693	0.9954
SPI pillar 2	Peir-Palomino et al. (2023)	0.7859	0.0696	0.5304	0.8849
SPI pillar 3	Peir-Palomino et al. (2023)	0.7574	0.0982	0.3206	0.9176
Unfunded mandates	OECD and Hooghe et al. (2021)	1.38e-17	0.9493	-2.7294	1.8401
Institutional quality:					
Voice and accountability	Kaufmann et al. (2010)	1.0848	0.4589	-0.6159	1.8010
Political stability	Kaufmann et al. (2010)	0.6722	0.7686	-2.3760	1.7587
Government effectiveness	Kaufmann et al. (2010)	1.1580	0.6412	-0.4879	2.3464
Regulatory quality	Kaufmann et al. (2010)	1.1545	0.4799	-0.1682	2.0252
Rule of law	Kaufmann et al. (2010)	1.1122	0.6710	-0.9250	1.9952
Control of corruption	Kaufmann et al. (2010)	1.1125	0.8077	-0.5701	2.4591
Control variables:					
GDP per capita (ln)	Penn World Table	9.9809	0.7313	8.2824	11.2335
Welfare-relevant TFP	Penn World Table	0.9536	0.1030	0.5377	1.3430
Tax revenue	World Bank	0.3236	0.0826	0.0991	0.5003
Public expenditure on health	World Bank	0.0769	0.0201	0.0245	0.1620
Unemployment	World Bank	0.0831	0.0400	0.0205	0.2479
Urban population	World Bank	0.7434	0.1086	0.5062	0.9774

Source: own elaboration. Period: 1995 - 2017. Observations: 805.

Methodologically, this analysis addresses two key challenges commonly discussed in the literature: the limited time variability of decentralisation variables that define the unfunded mandate indicator (Rodriguez-Pose and Vidal-Bover, 2022), and the potential endogeneity of decentralisation (Baltagi et al., 2003; Canavire-Bacarreza et al., 2020). Traditionally, studies on decentralisation have relied on fixed effects models, which effectively control for unobserved country-specific characteristics but cannot accommodate time-invariant variables. An alternative approach is the random effects model, which allows for the inclusion of time-constant variables. However, in this case, the Hausman test rejects its suitability. Some studies have instead relied on pooled ordinary least squares (pooled OLS) to address the limited time variation of decentralisation (e.g. Rodriguez-Pose and Tselios, 2019). However, this method fails to account for country-specific characteristics, such as cultural differences, which can introduce bias and distort the observed relationships, ultimately lead-

ing to endogeneity issues.

Beyond these methodological concerns, there is potential endogeneity between decentralisation and social progress, further complicating the analysis. Evidence evidence suggests a bidirectional relationship between per capita income and fiscal decentralisation, wherein wealthier economies tend to favour fiscal decentralisation (Letelier, 2005), which in turn has been linked to higher economic growth (Canavire-Bacarreza et al., 2020). Similarly, a bidirectional link exists between per capita income and institutional quality, as more developed economies tend to establish stronger institutions (Islam and Montenegro, 2002; Rigobon and Rodrik, 2004), which further stimulate economic growth (Alonso and Garcimartn, 2013; Alonso et al., 2020). Given that this study employs the Social Progress Index as an alternative measure to GDP, a similar dynamic is likely to exist between decentralisation and social progress as well as between institutional quality and social progress. Decentralisation can enhance social progress by enabling policies tailored to local needs, while greater social progress may encourage further decentralisation. Likewise, stronger institutions can promote governance efficiency and social progress, while social progress itself may lead to improvements in institutional quality. The high correlations found between institutional quality and the SPI pillars support this bidirectional relationship[7].

To address potential endogeneity, we use the Hausman-Taylor (HT) estimator (Hausman and Taylor, 1981), which relies on an instrumental variables approach. This method employs strictly exogenous variables as instruments to correct for endogeneity in the independent variable (Wooldridge, 2010). The selected instruments must meet two conditions: (i) they must be strongly correlated with the endogenous explanatory variable (unfunded mandates), and (ii) they must be uncorrelated with the model's error term. The HT estimator bridges the divide between fixed and random effects models by incorporating both time-invariant and time-varying variables. It allows for consistent estimation of time-varying regressors using a within transformation (as in the fixed effects model) while also estimating coefficients for time-invariant variables, which fixed effects models typically omit. The estimator categorises explanatory variables as either exogenous (uncorrelated with unobserved

[7]Institutional quality is significantly correlated with the aggregate Social Progress Index (0.8094), as well as its subcomponents: basic human needs (0.8426), foundations of well-being (0.6155), and opportunities (0.8261).

individual effects and the error term) or endogenous (correlated with unobserved individual effects), further distinguishing them as time-invariant or time-variant. It then uses both the between and within variation of the strictly exogenous variables as instruments, but the set of internal instruments depends on whether regressors are time-invariant or time-varying: endogenous time-invariant regressors are instrumented using a within transformation of the exogenous time-varying variables, while endogenous time-invariant regressors are instrumented from the individual means of the exogenous time-varying variables. The regression process follows a two-stage approach. First, the dependent variable is transformed into partial deviations determined by potentially exogenous and endogenous variables, which are divided into time-varying and time-invariant categories. Second, the transformed dependent variable is regressed on the potentially endogenous time-varying and time-invariant variables using a two-stage least-squares (2SLS) framework. This approach allows both the unfunded mandates variable and the institutional quality variable (and their interaction) to be treated as potentially endogenous regressors. Unlike standard 2SLS, HT does not require external instruments, making it a strong alternative for addressing endogeneity. This method has been applied in previous studies (see, e.g.,Canavire-Bacarreza et al., 2016; Rodriguez-Pose and Vidal-Bover, 2022; Hortas-Rico and Rodriguez-Crespo, 2025) with consistent results.

Overall, the HT estimator provides a robust methodological framework for obtaining precise and reliable estimates of the relationship between unfunded mandates and social progress, overcoming key limitations of conventional econometric methods. However, the results should be interpreted with caution as the validity of this estimator depends on having both time-invariant and time-varying regressors, ensuring that some are correlated while others remain uncorrelated with the error term.

4 RESULTS

4.1 Baseline results

This section presents the results from estimating the model described in Equation (1). While the use of the HT estimator to address potential endogeneity has been previously justified, results obtained via pooled Ordinary Least Squares (pooled OLS) and fixed effects are also reported for comparison purposes. All specifications include robust standard errors to account for heteroskedasticity and panel-level autocorrelation.

Table 5 displays the results for the aggregate Social Progress Index under the three estimation methods used (columns 1 to 3), along with the disaggregated results for its three pillars, estimated using the HT approach (columns 4 to 6). As it can be observed, the results are sensitive to the estimation method. Specifically, under pooled OLS and fixed effects, the estimated coefficient for unfunded mandates is not statistically significant. This might reflect both the limitations of these simpler models and potential omitted variable bias. In contrast, the HT estimator yields a negative and statistically significant relationship between unfunded mandates and social progress (column 4), suggesting that unfunded mandates constrain the capacity of subnational institutions to operate effectively, potentially undermining the intended benefits of decentralisation (Khambule, 2020). This supports earlier findings that a mismatch between fiscal and political decentralisation can harm social progress, as it does with economic growth (Rodriguez-Pose and Vidal-Bover, 2022). Results in Columns 5 to 6 reveal a heterogeneous impact of unfunded mandates across the three pillars of the social progress index. Specifically, the effect of unfunded mandates is not statistically significant for the *Basic Human Needs* pillar, which includes core indicators such as nutrition, basic medical care, access to clean water, and personal safety. This suggests that basic needs are typically safeguarded in public policy, even in contexts of fiscal stress. In contrast, negative and significant effects are observed for the *Foundations of Wellbeing* and *Opportunity* pillars -dimensions that reflect access to education, healthcare, well-being, and social inclusion. These results suggests that unfunded mandates constrain subnational governments' capacity to invest in essential services beyond survival-level needs, thereby

undermining opportunities for economic mobility and social development.

Institutional quality, by contrast, exhibits a robust and positive association with social progress across all model specifications. This aligns with the results obtained in previous studies (Berggren et al., 2012; Pritchett, 2022), thus reinforcing the notion that strong institutions are crucial for the socio-economic development of countries (Acemoglu and Robinson, 2012). Furthermore, the interaction term between unfunded mandates and institutional quality reveals a consistently positive and significant effect - again, except in the case of the *Basic Human Needs* pillar. This result highlights the moderating role of institutional quality: strong and effective institutions can mitigate the negative impact of unfunded mandates, thereby supporting improved social development outcomes.

Nonetheless, the results for the unfunded mandates variable presented in Table 5 should be interpreted with caution, as its estimated coefficient does not account for its global effects when interaction terms are included in the model specification. To obtain the global effect of unfunded mandates on social progress considering the moderating role of institutional quality (i.e. the combined effect of the estimated coefficient of unfunded mandates, β_1, and that of the interaction term, β_3), we need to calculate the global marginal effects (see Brambor et al., 2006). The results are presented in Figure 2. We observe that the relationship between unfunded mandates and the social progress index is negative but becomes progressively positive and with narrower confidence intervals as the values of institutional quality increase. In other words, high institutional quality substantially weakens the adverse effects of unfunded mandates, underscoring the pivotal role of institutions in compensating for budget constraints in decentralised governance frameworks.

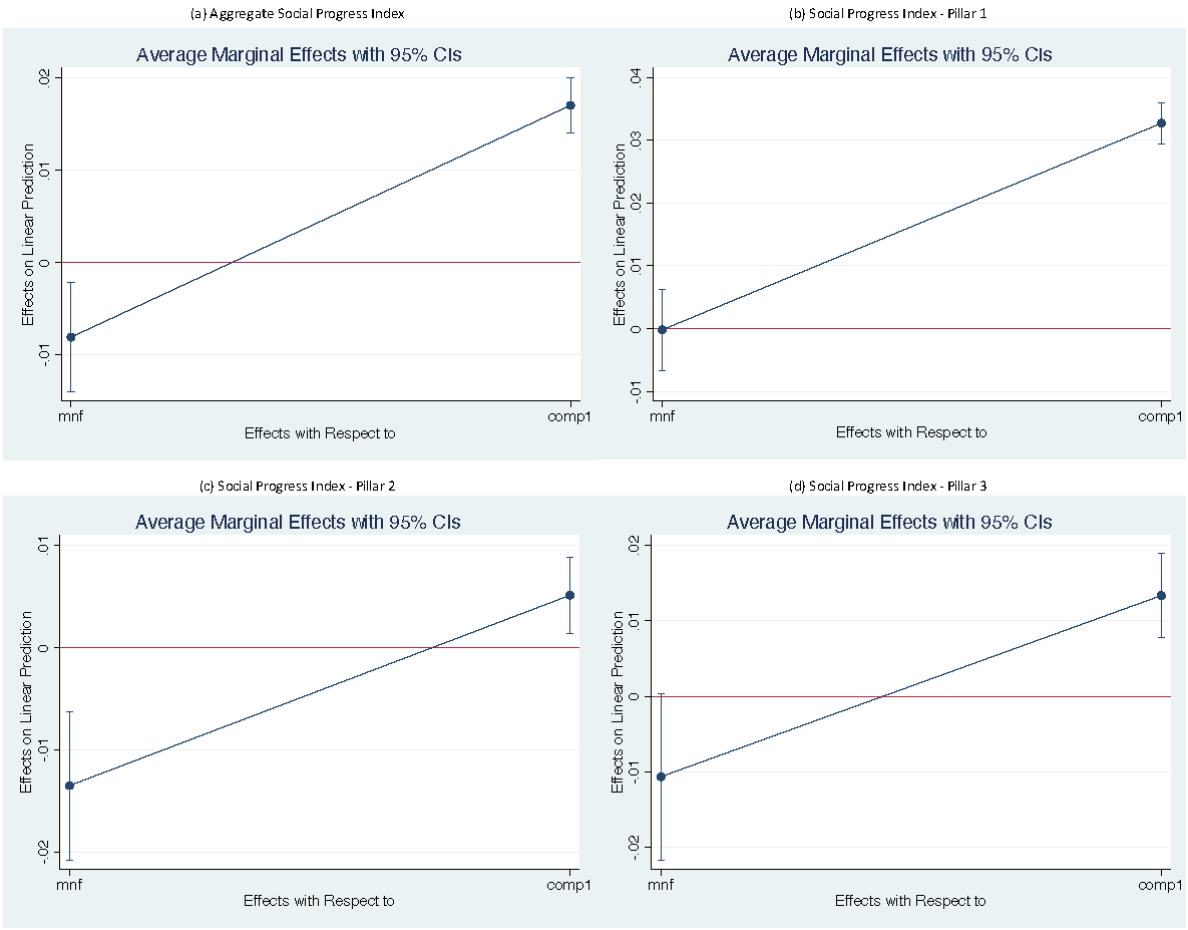
Regarding the control variables of the model, GDP per capita shows a positive and significant association with social progress, supporting the view that economic development facilitates improvements in living standards and the provision of essential public services, as in Pritchett (2022). Additionally, greater economic development is associated with reduced terrorims risk, thereby enhancing social progress outcomes (Freytag et al., 2011). Tax revenues also exert a positive and significant effect, reinforcing the notion that stronger fiscal capacity enables higher investment in social welfare. When raised through progressive tax-

Table 5: Results by different panel data estimation methods, 1995-2017

	(1)	(2)	(3)	(4)	(5)	(6)
				SPI pillar 1	SPI pillar 2	SPI pillar 3
	Pooled OLS	FE	HT	HT	HT	HT
Unfunded mandates	-0.00291	-0.00811	-0.00766**	-0.000210	-0.0129***	-0.0102*
Institutional quality (PCA)	0.0358***	0.0170**	0.0176***	0.0318***	0.00589***	0.0145***
UM * Instutional quality	0.00226**	0.00374**	0.00346***	0.000428	0.00583***	0.00442***
GDP per capita (ln)	0.00589*	0.0217	0.0285***	0.0256***	0.0312***	0.0211**
Welfare-relevant TFP	-0.0137	-0.00282	-0.0109	-0.0485***	-0.0309***	0.0563***
Tax revenues	0.229***	0.127**	0.135***	0.163***	0.0325	0.202***
Public expenditure on health	-0.185***	-0.128	-0.0858	-0.257***	-0.0136	-0.0322
Unemployment	0.175***	0.0606**	0.0642***	0.0208	-0.0423**	0.210***
Urban population	0.0839	0.0159	0.0127	0.585***	-0.244*	-0.300
Urban population (squared)	-0.101*	-0.0819	-0.0756	-0.442***	0.128	0.0796
Year dummies	YES	YES	YES	YES	YES	YES
Supraregional dummies	NO	NO	0.000371	-0.00637	0.000516	0.00658
Land Area	NO	NO	-0.00126**	-0.000368	-0.00190**	-0.00148
Constant	0.635***	0.587***	0.470***	0.448***	0.530***	0.508***
Observations	805	805	805	805	805	805
R2	0.858	0.902	0.809	0.672	0.678	0.531

Note: *** p<0.01; ** p<0.05; * p<0.1. Pooled OLS stands for pooled Ordinary Least Squares, FE for Fixed Effects Model, and HT for Hausman-Taylor. In the HT regression, (i) unfunded mandates, institutional quality, and their interaction are introduced as endogenous regressors and (ii) Adj. R-squared (R2) is computed using the approach described in Carrre (2006): 1-(Sum of squared residuals/Total sum of squares). Columns 1 to 3 report the results for the aggregate measure of social progress, while Columns 4, 5, and 6 use pillar 1, 2, and 3 of social progress as dependent variable, respectively.

Figure 2: Global marginal effects of unfunded mandates on social progress conditional on institutional quality, 19952017.



Source: own elaboration.

ation, these revenues can also contribute to reducing income inequality Martinez-Vazquez (2012), aligning fiscal policy with inclusive development goals. Conversely, public health expenditure shows a negative and often significant effect, implying that higher spending alone does not guarantee improved social outcomes, as in Hessami (2010). This finding echoes the results of Berggren et al. (2012) for high-income countries since and supports the view of Hessami (2010) that inefficiencies or misallocations in spending may limit its social impact. As Bergh and Henrekson (2011) note, the direction and magnitude of this relationship are contingent on the country context. Although productivity is not statistically significant in most specifications, previous work by Isaksson (2007) emphasizes the foundational role of education and infrastructure in driving productivity, which highlights the importance of these factors when analysing social progress. Unemployment displays a positive coefficient, suggesting inefficiencies in labour force utilisation. In this regard, the OECD (2012) emphasizes the importance of labour protection policies and unemployment benefits in reducing income disparities, which may help reconcile this counterintuitive result. Finally, urban population, although largely insignificant, shows a negative relationship with social progress. This may reflect the adverse effects of urbanisationsuch as congestion, pollution, or inadequate infrastructure- that offset potential benefits. In the *Basic Human Needs* pillar, the linear term for urban population is positive while the squared term is negative, indicating an inverted U-shape relationship that is consistent with the urbanisation threshold hypothesis discussed in Castells-Quintana and Royuela (2015).

5 CONCLUSIONS

In recent decades, decentralisation has gained considerable attention in the economic literature. Most existing studies -though with notable exceptions (e.g. Rodriguez-Pose and Vidal-Bover, 2022)- have operated under the assumption that "financing follows function" (Bahl and Martinez-Vazquez, 2013); that is, political decentralisation (the transfer of political decision-making responsibilities) is accompanied by corresponding fiscal decentralisation (the transfer of fiscal responsibilities provision and financing) necessary for its implementation. However, when this alignment does not occur, unfunded mandates emerge, often

undermining the operability of sub-national governments (Klugman, 1994; Prud'homme, 1995) and potentially harming the population welfare (Rodrik et al , 2004).

This study contributes to this literature by analysing the relationship between unfunded mandates and an objective measure of social welfare, thereby complementing previous work on the consequences of unfunded mandates, mainly focused on their relationship with economic growth. Given that the ultimate goal of decentralisation is to enhance citizens' well-being, it is essential to examine how unfunded mandates impact broader dimensions of welfare -such as health, education, or environmental quality- that are central to quality of life. Furthermore, this paper explores the moderating role of governance quality in this relationship, drawing on empirical evidence of its positive influence on development and economic growth (Amin and Thrift, 1994; Berggren et al., 2012).

Using panel data on 35 OECD countries for the period 1995-2017, the results point to a negative association between unfunded mandates and social progress. A disaggregated analysis of the three pillars comprising the Social Progress Index reveals that this negative relationship is particularly pronounced for the "foundations of well-being" and "opportunities" dimensions, while it is not statistically significant for "basic human needs". Importantly, in all cases we find that strong institutional quality can mitigate the adverse effects of unfunded mandates on social progress, highlighting the critical role of governance in promoting social progress in decentralised settings.

These findings underscore the need for decentralisation policies to be carefully designed and implemented, with particular attention to ensuring that sub-national governments are equipped with adequate financial resources. In other words, achieving a genuine alignment between political and fiscal decentralisation is essential. Additionally, maintaining and strengthening the quality of formal institutions emerges as a key mechanism for enhancing the benefits of decentralisation and fostering more equitable and sustainable social development.

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