

Tax pressure and governance in a spatially interdependent world: international evidence and Morocco's positioning

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Abstract. *This paper examines relationships between governance and tax pressure across 118 countries using country-level averages for 2000–2023. Combining Moran's I, an economic-proximity matrix, and cross-sectional regressions, it identifies significant positive clustering in both variables, stronger for taxation. Governance is positively and significantly associated with tax pressure in baseline and spatially augmented specifications. The spatial term absorbs residual dependence, while Morocco records tax pressure above its baseline-predicted level without being an outlier. The findings highlight institutional quality and economic interdependence as correlates of fiscal capacity, while avoiding causal interpretations, and support equitable tax-base development in emerging economies.*

Keywords: Tax pressure, Governance, Fiscal capacity, Spatial econometrics, Tax competition.

JEL Classification: H21, H11, C31, H26, H87.

1. Introduction

Over recent decades, globalization has profoundly transformed the environment in which fiscal policies are designed and implemented. The increasing mobility of capital, the expansion of international trade, and the growing importance of multinational enterprises have intensified economic interdependence across countries. Governments consequently operate within a more competitive fiscal environment in which national tax-policy choices may be associated with developments occurring beyond their borders. In this context, taxation is no longer solely a domestic instrument for financing public expenditure but also constitutes an important component of international economic competitiveness and strategic policy interaction.

The literature on tax competition has extensively examined how the mobility of tax bases constrains governments' capacity to raise revenue and may generate downward pressure on the taxation of mobile factors, particularly capital and corporate profits (Tiebout, 1956; Zodrow and Mieszkowski, 1986; Wilson, 1999). At the same time, empirical evidence reveals substantial differences in fiscal performance among countries facing similar economic conditions. These disparities suggest that economic fundamentals alone may not fully explain cross-country differences in fiscal capacity and revenue mobilization.

In this regard, governance quality has emerged as an important correlate of fiscal performance. Strong institutions can enhance the effectiveness of tax administration, facilitate compliance, reduce opportunities for tax evasion and avoidance, and strengthen the credibility of public policies. Countries characterized by higher government effectiveness, stronger regulatory quality, and greater adherence to the rule of law may therefore be better equipped to transform their economic potential into effective public revenue. The relationship between governance and taxation has consequently become a central issue in public finance and development economics.

Despite the expanding literature on governance and fiscal capacity, an important limitation remains. Many empirical studies treat countries as independent units and analyze taxation primarily within a national framework. In an increasingly integrated world economy, however, fiscal and institutional outcomes may also be related to developments occurring in economically comparable countries. Tax competition, policy diffusion, international benchmarking, and institutional convergence provide potential channels through which national outcomes may become interconnected. Ignoring these relationships may therefore result in an incomplete understanding of the international structure of fiscal capacity.

This perspective raises the possibility of spatial dependence in governance and taxation. Countries sharing similar economic characteristics may display comparable institutional arrangements and fiscal outcomes, generating identifiable clusters of governance quality and tax pressure. Although spatial methods have increasingly been applied to regional growth, innovation, and public expenditure, comparatively limited attention has been devoted to the international spatial structure of fiscal capacity and its relationship with governance. Moreover, existing studies often define spatial relationships through geographic proximity, even though international fiscal interactions may also occur among structurally similar economies that are geographically distant.

Against this background, this paper addresses three related questions. First, do governance and tax pressure exhibit significant spatial clustering among economically comparable countries? Second, does governance remain significantly associated with tax pressure after controlling for economic development, trade openness, and productive structure? Third, does this institutional association persist when the tax-pressure pattern observed among economically similar countries is incorporated into the econometric specification? Particular attention is devoted to Morocco, whose fiscal system has undergone important reforms while continuing to face challenges relating to effective tax-base coverage, informality, compliance, and institutional effectiveness.

The empirical analysis covers 118 countries and uses country-level averages calculated over 2000–2023. This aggregation is intended to capture long-term structural characteristics while reducing the influence of short-term fluctuations. Spatial dependence is assessed using Global Moran's I , while the weighting matrix is constructed from economic proximity in terms of income, trade openness, and productive structure. The relationship between governance and tax pressure is subsequently estimated using a cross-sectional OLS model with HC1 heteroskedasticity-consistent standard errors. An exploratory spatially augmented specification incorporating the economic-proximity-weighted average of tax pressure is also estimated to assess the robustness of the governance result.

The findings reveal positive and statistically significant spatial autocorrelation in both governance and tax pressure. Spatial association is stronger for tax pressure than for governance, indicating a more pronounced clustering of fiscal outcomes within the economic-proximity structure. The baseline regressions also show that governance is positively and significantly associated with tax pressure. Importantly, this relationship remains significant at the 1% level after introducing the economic-proximity-weighted average of tax pressure. The augmented specification eliminates the significant spatial autocorrelation detected in the baseline residuals, although it is interpreted as exploratory robustness evidence because the spatial term may be endogenous.

Morocco occupies an intermediate position within the international fiscal and institutional space. Its observed tax pressure exceeds the value predicted by the baseline model, while its standardized residual indicates that the country is not an extreme observation within the sample. This positioning suggests a meaningful capacity for revenue mobilization relative to its observed economic and institutional characteristics, while also highlighting continuing challenges concerning tax-base breadth, informality, compliance, and the distribution of the tax burden.

This paper contributes to the literature in three respects. First, it provides international evidence on the spatial clustering of governance and tax pressure. Second, it constructs an economic-proximity weighting matrix that complements conventional geographic approaches by capturing relationships among structurally comparable economies. Third, it shows that the positive association between governance and tax pressure remains stable after accounting for economic-proximity-based fiscal patterns, while providing a comparative assessment of Morocco's position within this international structure.

The analysis does not claim to establish causal effects or directly demonstrate the mechanisms of tax competition. Rather, it identifies systematic cross-country associations that are consistent with international fiscal interdependence and provides a basis for further investigation using structural spatial models and annual panel data.

The remainder of the paper is organized as follows. Section 2 reviews the theoretical and empirical literature on tax competition, governance, and fiscal capacity. Section 3 presents the data, methodology, and empirical strategy. Section 4 reports the empirical results and Morocco's positioning. Section 5 discusses the findings and their policy implications. Section 6 concludes.

2. Literature Review

Economic globalization has profoundly transformed the environment in which fiscal policies are designed and implemented. The increasing mobility of capital, foreign direct investment, and multinational profits has intensified fiscal competition among countries, reducing governments' autonomy in tax-policy design. In this context, tax competition has become a central issue in public finance, as jurisdictions seek to attract mobile tax bases while preserving their capacity to generate public revenues.

The theoretical foundations of tax competition originate from the seminal contribution of Tiebout (1956), who emphasized the role of factor mobility in shaping fiscal outcomes. This framework was subsequently formalized by Zodrow and Mieszkowski (1986) and Wilson (1999), who modeled tax competition as a strategic interaction among governments. Their analyses suggest that competition for mobile capital may generate downward pressure on tax rates and lead to suboptimal fiscal equilibria. Empirical studies have largely confirmed the existence of tax-competition effects, particularly in relation to corporate taxation and investment decisions (Devereux et al., 2008; De Mooij and Ederveen, 2008).

More recently, the literature on Base Erosion and Profit Shifting (BEPS) has highlighted the growing ability of multinational enterprises to exploit differences across tax systems, thereby increasing the challenges faced by national tax authorities (OECD, 2015; Beer et al., 2020). Empirical research identifies transfer pricing, intra-group profit shifting, and the location of intangible assets as important channels through which multinational enterprises respond to international tax differentials (Bartelsman and Beetsma, 2003; Huizinga and Laeven, 2008; Dischinger and Riedel, 2011; Dharmapala, 2014; Heckemeyer and Overesch, 2017). These developments reinforce the view that fiscal systems operate within an increasingly interconnected international environment.

Despite these external constraints, countries exhibit substantial differences in revenue mobilization. Economies characterized by similar levels of development often display markedly different tax performance, suggesting that economic fundamentals alone cannot explain variations in fiscal capacity. In this regard, governance quality has emerged as a critical determinant of revenue mobilization. Strong institutions improve administrative efficiency, enhance tax compliance, strengthen enforcement mechanisms, and increase

policy credibility (Besley and Persson, 2013; Moore, 2004). Consequently, countries characterized by higher levels of government effectiveness, regulatory quality, and adherence to the rule of law generally achieve greater fiscal capacity and more stable tax systems.

The concept of fiscal capacity has become a central component of the development and public-finance literature. According to Besley and Persson (2013), fiscal capacity reflects the state's ability to mobilize revenue through effective institutions and administrative structures. Countries with stronger fiscal capacity are generally better positioned to finance public goods, support economic development, and respond to external shocks. By facilitating the provision of productive public expenditure, fiscal capacity may also contribute to long-term economic performance (Barro, 1990). Differences in fiscal outcomes may therefore reflect institutional disparities rather than purely economic constraints.

The literature on fiscal effort further reinforces this argument. Traditionally defined as the ratio of actual tax collection to potential tax capacity, fiscal effort seeks to explain why countries with comparable economic structures generate different levels of tax revenue (Lotz and Morss, 1967). Subsequent studies have shown that institutional quality, administrative performance, and the extent of informality play a central role in shaping fiscal outcomes (Bird et al., 2008; Fenochetto and Pessino, 2013). The persistence of informality constrains effective tax-base coverage and revenue mobilization, particularly in developing economies (La Porta and Shleifer, 2014). Fiscal performance therefore reflects not only economic conditions but also governments' capacity to transform economic potential into effective public revenue.

At the same time, governance itself cannot be viewed exclusively as a domestic phenomenon. Institutional reforms increasingly spread through processes of policy diffusion, international benchmarking, and regulatory convergence. Countries often adopt practices observed in economically comparable economies, generating similarities in institutional arrangements and fiscal outcomes. This suggests that governance and taxation may be associated with broader international interaction mechanisms rather than solely with domestic determinants.

These considerations point to the relevance of a spatial perspective. Spatial econometrics provides a framework for analyzing situations in which observations are interconnected and potentially influenced by neighboring or comparable units (Anselin, 1988). Applied to public finance, spatial methods make it possible to identify whether governance quality and tax pressure exhibit clustering patterns across countries. Positive spatial autocorrelation indicates that comparable countries tend to display similar outcomes, whereas negative spatial autocorrelation indicates that comparable countries tend to display dissimilar outcomes.

Recent studies increasingly emphasize the relevance of spatial dependence in public finance, showing that fiscal policies and institutional outcomes may be associated with strategic interactions among jurisdictions. Such relationships may arise through tax competition, policy imitation, institutional convergence, or common responses to comparable economic constraints, generating clustering patterns that conventional econometric approaches may not adequately capture.

Although spatial approaches have been widely applied to regional growth, innovation, and public expenditure, their application to the governance–taxation nexus remains relatively limited. Existing studies generally rely on geographic proximity to define spatial relationships. However, in an increasingly globalized economy, fiscal competition and institutional convergence may also occur among economically similar countries rather than exclusively among geographically adjacent ones. Countries sharing comparable levels of development, openness, and productive specialization may face similar constraints and adopt comparable fiscal strategies regardless of physical distance.

Despite substantial advances in the literature on tax competition, governance, and fiscal capacity, the spatial dimension of their interaction remains insufficiently explored. Existing studies frequently treat countries as independent observations and rarely examine whether governance and tax pressure exhibit structured relationships among economically comparable economies. Furthermore, the predominant reliance on geographic proximity may overlook the role of economic similarity in structuring fiscal and institutional outcomes.

This study addresses these limitations by examining governance and tax pressure across 118 countries using country-level averages over 2000–2023. By employing a spatial framework based on economic proximity rather than geographic distance, it provides evidence on international clustering in governance and fiscal capacity. In addition, it assesses the conditional association between governance and tax pressure and offers a comparative evaluation of Morocco’s position within the international fiscal landscape.

3. Methodology

This study examines the spatial patterns of governance and tax pressure across countries while assessing Morocco’s position within the international fiscal landscape. Given the increasing importance of tax competition and cross-border economic interactions, fiscal capacity cannot be fully understood without considering the interdependencies among economically comparable countries.

The empirical strategy combines exploratory spatial analysis with cross-sectional econometric analysis. First, global Moran’s *I* statistics are used to determine whether governance and tax pressure exhibit clustering patterns among economically similar countries. Second, a cross-sectional regression is estimated to assess the conditional association between governance and tax pressure while controlling for economic development, trade openness, and productive structure. This combined approach makes it possible to examine both the spatial organization of institutional and fiscal outcomes and the structural factors associated with cross-country differences in revenue mobilization.

The analysis is based on a cross-sectional sample of 118 countries, including developed, emerging, and developing economies. Data are obtained from the World Development Indicators (WDI) of the World Bank and the Worldwide Governance Indicators (WGI). For each country, the variables are calculated as averages over the period 2000–2023. This aggregation attenuates short-term cyclical fluctuations and captures the long-run fiscal,

institutional, and economic characteristics of the countries included in the analysis. The resulting dataset therefore comprises 118 observations, one for each country.

Tax pressure (TF) is measured as the average ratio of total tax revenue to gross domestic product over the study period:

$$TF_i = \frac{1}{T_i} \sum_{t=2000}^{2023} \left(\frac{\text{Tax Revenue}_{it}}{GDP_{it}} \times 100 \right) \quad (1)$$

where TF_i denotes the average tax pressure of country i , and T_i represents the number of annual observations available for that country over 2000–2023.

Governance (GOV) is measured using a composite index constructed from three dimensions of the Worldwide Governance Indicators: Government Effectiveness (GE), Regulatory Quality (RQ), and Rule of Law (RL). The composite indicator is first calculated annually and then averaged over the study period:

$$GOV_i = \frac{1}{T_i} \sum_{t=2000}^{2023} \left(\frac{GE_{it} + RQ_{it} + RL_{it}}{3} \right) \quad (2)$$

Where GE denotes Government Effectiveness, RQ denotes Regulatory Quality, and RL denotes the Rule of Law.

This composite indicator captures governments' institutional capacity to formulate, implement, regulate, and enforce public policies. Its construction gives equal weight to the three institutional dimensions and provides a broad measure of governance quality.

Three control variables are included in the analysis. Economic development is measured by the average logarithm of GDP per capita:

$$LNGDPPC_i = \frac{1}{T_i} \sum_{t=2000}^{2023} \ln(GDPPC_{it}) \quad (3)$$

Trade openness (OPEN) is measured as the average ratio of exports plus imports to GDP:

$$OPEN_i = \frac{1}{T_i} \sum_{t=2000}^{2023} \left(\frac{\text{Exports}_{it} + \text{Imports}_{it}}{GDP_{it}} \times 100 \right) \quad (4)$$

Productive structure (IND) is proxied by the average share of industrial value added in GDP:

$$IND_i = \frac{1}{T_i} \sum_{t=2000}^{2023} \left(\frac{\text{Industrial Value Added}_{it}}{GDP_{it}} \times 100 \right) \quad (5)$$

These variables respectively capture countries' level of economic development, degree of international integration, and sectoral composition.

Spatial dependence is assessed using the global Moran's I statistic:

$$I = \frac{n}{S_0} \cdot \frac{\sum_{i=1}^n \sum_{j=1}^n (x_i - \bar{x})(x_j - \bar{x})}{\sum_{i=1}^n (x_i - \bar{x})^2} \quad (6)$$

where n is the number of countries, x_i is the value of the variable under consideration for country i , $\bar{x}$ is the corresponding sample mean, w_{ij} is the spatial weight linking countries i and j , and:

$$S_0 = \sum_{i=1}^n \sum_{j=1}^n w_{ij}$$

The statistic is calculated separately for governance and tax pressure. A positive and statistically significant Moran's I indicates that economically similar countries tend to exhibit comparable values of the variable under consideration. Conversely, a negative and statistically significant value indicates that economically similar countries tend to exhibit dissimilar values.

Statistical significance is evaluated using the standardized Z-statistic:

$$Z = \frac{I - E(I)}{\sqrt{\text{var}(I)}} \quad (7)$$

where $E(I)$ and $\text{Var}(I)$ denote the expected value and variance of Moran's I under the null hypothesis of spatial independence.

Unlike conventional approaches based on geographic distance, this study constructs a spatial weighting matrix based on economic proximity. This choice is motivated by the assumption that tax competition, institutional diffusion, and policy convergence are more likely to occur among countries sharing similar economic structures than among countries that are merely geographically adjacent.

For each country, the economic profile is defined as:

$$Z_i = (y_i, \text{OPEN}_i, \text{IND}_i) \quad (8)$$

Governance and tax pressure are deliberately excluded from the construction of the weighting matrix to avoid mechanically generating spatial similarity in the variables whose spatial patterns are being tested.

The three variables included in the economic profile are standardized before calculating economic distances. This standardization prevents differences in measurement scales from disproportionately influencing the proximity matrix. The Euclidean economic distance between countries i and j is defined as:

$$d_{ij} = \sqrt{(Z_{\text{LNGPPC},i} - Z_{\text{LNGPPC},j})^2 + (Z_{\text{OPEN},i} - Z_{\text{OPEN},j})^2 + (Z_{\text{IND},i} - Z_{\text{IND},j})^2} \quad (9)$$

where the lowercase Z terms represent the standardized values of the corresponding variables.

The initial spatial weights are defined as the inverse of economic distance:

$$W_{ij} = \begin{cases} \frac{1}{d_{ij}}, & i \neq j, \\ 0, & i = j \end{cases} \quad (10)$$

The diagonal elements are set to zero because a country cannot be its own neighbor. The weighting matrix is then standardized by row:

$$w_{ij}^* = \frac{w_{ij}}{\sum_{j=1}^n w_{ij}} \quad (11)$$

This specification implies that the intensity of interaction increases as countries become more similar in terms of income level, trade openness, and productive structure.

To assess the conditional association between governance and tax pressure, the following cross-sectional model is estimated using Ordinary Least Squares:

$$TF_i = \alpha + \beta_1 GOV_i + \beta_2 LNGDPPC_i + \beta_3 OPEN_i + \beta_4 IND_i + \varepsilon_i \quad (12)$$

where α is the constant term, β_1 measures the conditional association between governance and tax pressure, β_2 , β_3 , and β_4 are the coefficients associated with the control variables, and ε_i is the error term. Since the analysis is cross-sectional and based on a single long-run average for each country, no country-specific or time-specific effects are included.

Several diagnostic tests are conducted to assess model reliability. Multicollinearity among the explanatory variables is evaluated using centered Variance Inflation Factors (VIFs). Heteroskedasticity is examined using the Breusch–Pagan test, while residual normality is assessed using the Jarque–Bera test. Because the observations are connected through an economic-proximity weighting matrix, Moran's I is also calculated for the OLS residuals to determine whether unexplained spatial dependence remains after controlling for governance and the structural variables.

When heteroskedasticity is detected, heteroskedasticity-consistent standard errors are employed to ensure reliable statistical inference. If significant spatial dependence remains in the regression residuals, the OLS results are interpreted cautiously and a spatial regression specification is considered as an additional robustness analysis.

4. Results

4.1. Descriptive Analysis and Relationships between Variables

Descriptive statistics provide an initial overview of the main characteristics of the sample and help assess the distributional properties of the variables included in the analysis.

Table 1. *Descriptive Statistics and Normality Tests*

Variable	Mean	Std. Dev	Min	Max	Jarque-Bera	Prob.
GOV	0.070	0.945	-1.654	2.036	6.58	0.037
TF	15.705	6.481	0.375	32.902	2.57	0.276
LNGDPPC	8.639	1.465	6.049	11.556	4.47	0.107
OPEN	82.260	46.065	23.197	325.656	721.27	0.000
IND	28.245	10.777	7.786	65.147	40.17	0.000

Note: The statistics are calculated from country-level averages over the period 2000–2023 for 118 countries.

Source: Authors' calculations based on World Bank (WDI) and Worldwide Governance Indicators (WGI) data, using EViews.

The descriptive results reveal substantial cross-country heterogeneity in governance quality and fiscal performance. Governance (GOV), the central explanatory variable of the analysis, has a mean value of 0.070 and a standard deviation of 0.945, with values ranging from −1.654 to 2.036. This wide dispersion highlights marked institutional disparities across the 118 countries, particularly in government effectiveness, regulatory quality, and the rule of law.

Tax pressure (TF) averages 15.705% of GDP and also displays considerable variation, ranging from 0.375% to 32.902%. This dispersion reflects significant differences in countries' capacity to mobilize public revenues. The broad ranges observed for trade openness and industrial value added further illustrate the structural diversity of the economies included in the sample. Taken together, these results suggest that differences in fiscal performance cannot be explained solely by levels of economic development and should also be examined in relation to institutional quality and structural characteristics.

The Jarque–Bera test rejects the null hypothesis of normality for GOV at the 5% significance level ($p = 0.037$), indicating a statistically significant departure from normality in the cross-country distribution of governance quality. Normality is also rejected for OPEN and IND, with trade openness exhibiting the strongest departure. By contrast, the null hypothesis of normality cannot be rejected for TF and LNGDPPC. These distributional patterns provide further evidence of the substantial institutional and economic heterogeneity characterizing the countries included in the analysis.

Table 2. *Correlation Matrix and VIFs*

Variables	GOV	TF	LNGDPPC	OPEN	IND	Centered VIF
GOV	1.000	0.533	0.870	0.365	-0.155	5.292
TF	0.533	1.000	0.380	0.233	-0.363	-
LNGDPPC	0.870	0.380	1.000	0.379	0.083	5.154
OPEN	0.365	0.233	0.379	1.000	0.084	1.188
IND	-0.155	-0.363	0.083	0.084	1.000	1.294

Note: Centered VIFs are reported only for the explanatory variables. The dash indicates that no VIF is calculated for TF, the dependent variable.

Source: Authors' calculations based on WDI and WGI data, using EViews.

The correlation matrix reveals a positive association between governance and tax pressure (0.533), indicating that countries characterized by stronger institutional quality tend to exhibit higher levels of fiscal capacity. This finding is consistent with the fiscal capacity literature, which emphasizes the role of effective institutions in strengthening tax administration, improving compliance, and supporting revenue mobilization.

A strong positive correlation is also observed between governance and economic development (0.870). This relationship is theoretically plausible, since higher-income economies generally benefit from stronger administrative, regulatory, and legal institutions. However, its magnitude warrants closer examination because GOV constitutes the central explanatory variable of the analysis and LNGDPPC captures a related but conceptually distinct economic dimension.

The centered VIF values are 5.292 for GOV and 5.154 for LNGDPPC, indicating moderate collinearity between governance quality and economic development. Nevertheless, these values remain below the conventional threshold of 10 generally associated with severe multicollinearity. By contrast, the VIF values for OPEN and IND are close to one, indicating no meaningful collinearity involving these variables. Overall, the diagnostics do not reveal severe multicollinearity requiring the exclusion of any explanatory variable. Retaining both GOV and LNGDPPC remains theoretically justified, as they capture distinct institutional and economic dimensions of countries' fiscal capacity.

4.2. Spatial Structure of Governance and Tax Pressure

Table 3. *Global Moran's I Statistics*

Variable	Moran's I	Z-statistic	p-value
GOV	0.124	3.005	0.0026
TF	0.196	4.634	< 0.001

Note: The statistics are calculated using country-level averages over 2000–2023 for 118 countries and a row-standardized economic-proximity weighting matrix.

Source: Authors' calculations based on WDI and WGI data, using EViews.

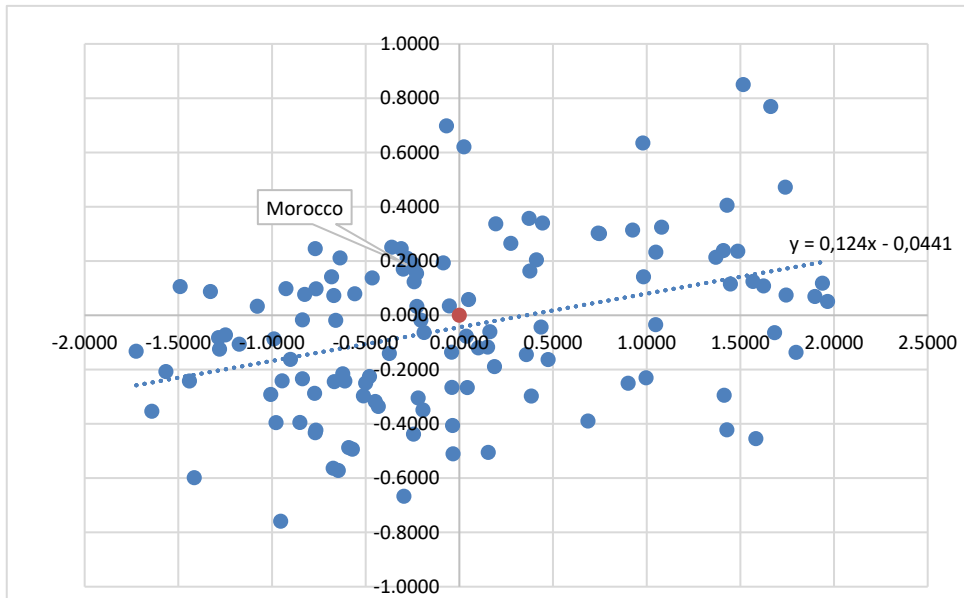
The results reported in Table 3 reveal positive and statistically significant spatial autocorrelation for both governance and tax pressure. Moran's I reaches 0.124 for governance ($Z = 3.005$; $p = 0.0026$) and 0.196 for tax pressure ($Z = 4.634$; $p < 0.001$). The null hypothesis of spatial independence is therefore rejected for both variables. Governance quality and tax pressure are not randomly distributed within the international economic space defined by the economic-proximity weighting matrix. Instead, economically similar countries tend to exhibit comparable institutional and fiscal outcomes.

From an economic perspective, this spatial structuring indicates that institutional quality and fiscal capacity are associated with broader patterns of international interdependence among economically comparable countries. The positive spatial autocorrelation observed for governance is consistent with institutional diffusion, international benchmarking, and convergence among structurally similar economies. However, Moran's I identifies spatial association rather than causality and does not, by itself, establish the mechanisms generating these patterns.

Spatial autocorrelation is stronger for tax pressure than for governance, as indicated by the higher Moran's I value for TF. This result suggests that tax pressure exhibits a more pronounced clustering pattern across economically comparable countries. Such a pattern is consistent with international interaction mechanisms, including tax competition, policy diffusion, and strategic fiscal responses. By contrast, the weaker—although statistically significant—spatial autocorrelation of governance may reflect the more gradual and path-dependent nature of institutional development.

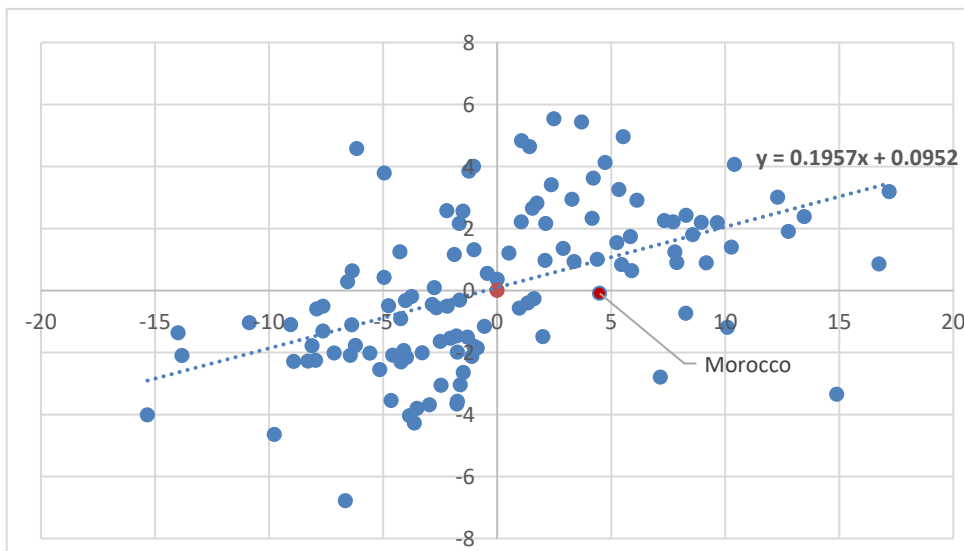
The Moran scatterplots provide graphical confirmation of the positive spatial autocorrelation reported in Table 3. In each figure, the positive slope indicates that countries tend to be associated with economically similar countries displaying comparable values of the variable under consideration.

The four quadrants must be interpreted separately for each variable. In the governance scatterplot, the High–High (HH) quadrant comprises countries with high governance scores associated with economically similar countries that also exhibit high governance scores. The Low–Low (LL) quadrant comprises countries with low governance scores surrounded by comparable economies with similarly low scores. In the tax-pressure scatterplot, the HH and LL quadrants have the same interpretation but refer specifically to tax pressure. In both figures, the High–Low (HL) and Low–High (LH) quadrants identify spatial outliers whose values differ from those of their economically comparable neighbors.

Figure 1. *Moran Scatterplot for Governance*

Note: The horizontal axis represents standardized governance, while the vertical axis represents its spatial lag based on the row-standardized economic-proximity matrix.

Source: Authors' calculations using EViews.

Figure 2. *Moran Scatterplot for Tax Pressure*

Note: The horizontal axis represents standardized tax pressure, while the vertical axis represents its spatial lag based on the row-standardized economic-proximity matrix.

Source: Authors' calculations using EViews.

Overall, the spatial distribution reveals significant clustering patterns in both institutional quality and fiscal capacity. These patterns indicate that governance and tax pressure are embedded in structured relationships among economically comparable countries, thereby supporting the relevance of an economic-proximity approach to understanding fiscal capacity in an increasingly interconnected global environment.

4.3. Cross-Sectional Estimation Results

The relationship between governance and tax pressure is first estimated using a cross-sectional Ordinary Least Squares (OLS) model based on country-level averages over the period 2000–2023. Because the Breusch–Pagan–Godfrey test applied to the baseline specification rejects homoskedasticity at the 5% level ($\text{Obs} \cdot R^2 = 9.988$; $p = 0.0406$), HC1 heteroskedasticity-consistent standard errors are reported.

The presence of statistically significant spatial autocorrelation in the baseline residuals further motivates the estimation of a spatially augmented specification incorporating the economic-proximity-weighted average of tax pressure, denoted WTF. The results of both specifications are presented in Table 4.

Table 4. Cross-Sectional Estimation Results

Variables	Baseline OLS	Spatially Augmented OLS
Constant	23.588*** (5.783)	8.764 (5.822)
GOV	3.839*** (1.126)	3.576*** (1.126)
LNGDPPC	−0.535 (0.751)	−0.466 (0.741)
OPEN	0.014 (0.013)	−0.008 (0.014)
IND	−0.165*** (0.050)	−0.093* (0.050)
WTF	—	0.886*** (0.217)
R ²	0.374	0.453
Adjusted R ²	0.352	0.429
Wald F-statistic	22.022***	24.037***
Prob. (Wald F-statistic)	0.0000	0.0000
Observations	118	118

Note: HC1 heteroskedasticity-consistent standard errors are reported in parentheses. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively. WTF denotes the economic-proximity-weighted average of tax pressure. The spatially augmented model is estimated as an exploratory robustness specification rather than as a structural spatial autoregressive model.

Source: Authors' calculations based on World Bank (WDI) and Worldwide Governance Indicators (WGI) data, using EViews.

The baseline results reveal a positive and statistically significant relationship between governance and tax pressure. The coefficient of GOV is 3.839 and is significant at the 1% level ($p = 0.0009$). Conditional on the other explanatory variables, a one-unit increase in the governance index is therefore associated with an increase of approximately 3.84 percentage points in tax pressure. Given the cross-sectional and observational nature of the analysis, this coefficient should be interpreted as a conditional association rather than as a causal effect.

This finding is consistent with the fiscal-capacity literature, according to which stronger institutions facilitate revenue mobilization by improving administrative effectiveness, strengthening regulatory enforcement, promoting taxpayer compliance, and limiting opportunities for tax evasion. Governance therefore emerges as the central institutional correlate of countries' capacity to transform economic activity into public revenue.

Among the control variables, industrial value added has a negative and statistically significant coefficient in the baseline model ($\beta = -0.165$; $p = 0.0013$). This conditional association may reflect cross-country differences in productive structures, sector-specific tax incentives, informality, or the relative contribution of industrial activities to the effective tax base. By contrast, the coefficients of LNGDPPC and OPEN are not statistically significant. Their lack of significance indicates that, after controlling for governance and productive structure, the data do not provide sufficient evidence of an independent association between these variables and tax pressure in this cross-sectional sample. The relatively strong correlation between GOV and LNGDPPC, reflected in their moderate VIF values, may also reduce the precision with which their separate associations are estimated.

The baseline model is jointly significant (robust Wald $F = 22.022$; $p < 0.001$) and explains approximately 37.4% of the cross-country variation in tax pressure. However, Moran's I calculated from its residuals is positive and statistically significant ($I = 0.126$; $Z = 3.042$; $p = 0.0024$). This result indicates that the baseline explanatory variables do not fully capture the dependence generated by the economic-proximity structure.

The spatially augmented specification addresses this issue by introducing WTF, the economic-proximity-weighted average of tax pressure. Its coefficient is positive and highly significant ($\beta = 0.886$; $p < 0.001$), indicating a strong association between a country's tax pressure and that observed among economically similar countries. The inclusion of WTF increases the explanatory power of the model, with R^2 rising from 0.374 to 0.453.

Most importantly, the governance coefficient remains positive and significant at the 1% level in the spatially augmented specification ($\beta = 3.576$; $p = 0.0019$). Its magnitude remains close to that obtained from the baseline model, providing evidence that the central governance result is robust to the introduction of the economic-proximity structure. LNGDPPC and OPEN remain statistically insignificant, while the negative coefficient of IND becomes smaller and is significant only at the 10% level.

Table 5. *Residual Diagnostic Tests*

Diagnostic test	Baseline OLS	Spatially Augmented OLS
Breusch–Pagan–Godfrey Obs $\cdot R^2$	9.988	9.617
BPG p-value	0.0406	0.0868
Residual Moran's I	0.126	-0.055
Moran Z-statistic	3.042	-1.064
Moran p-value	0.0024	0.2873
Jarque–Bera statistic	11.707	20.275
Jarque–Bera p-value	0.0029	< 0.001

Note: The residual Moran's I statistics are calculated using the row-standardized economic-proximity matrix. The null hypotheses are homoskedasticity for the Breusch–Pagan–Godfrey test, absence of spatial autocorrelation for Moran's I , and residual normality for the Jarque–Bera test.

Source: Authors' calculations using EViews.

The diagnostic results show that the spatially augmented model successfully absorbs the residual dependence detected in the baseline specification. Its residual Moran's I is negative and statistically insignificant ($I = -0.055$; $Z = -1.064$; $p = 0.2873$), meaning that the null hypothesis of spatial independence can no longer be rejected. The Breusch–Pagan–Godfrey test also fails to reject homoskedasticity at the 5% level in the augmented model ($\text{Obs} \cdot R^2 = 9.617$; $p = 0.0868$), although the result remains marginal at the 10% level. HC1 standard errors are therefore retained as a precaution.

The Jarque–Bera test rejects residual normality in both specifications. In the spatially augmented model, this result primarily reflects excess kurtosis rather than pronounced asymmetry. Given the sample size and the use of heteroskedasticity-consistent standard errors, this departure does not invalidate the estimated conditional relationships, but it requires cautious statistical interpretation.

Overall, the findings provide consistent evidence of a positive relationship between governance and tax pressure. This association remains statistically significant after controlling for economic development, trade openness, productive structure, and the tax-pressure pattern observed among economically comparable countries. Nevertheless, because the spatial lag is introduced directly into an OLS framework and may be endogenous, the augmented results should be interpreted as exploratory robustness evidence rather than as definitive estimates of a structural spatial autoregressive process.

4.4. Morocco's Positioning in the International Fiscal Space

The descriptive and spatial evidence places Morocco in an intermediate position within the international fiscal and institutional space. Its profile differs both from economies combining strong governance with high revenue-mobilization capacity and from countries characterized by simultaneously weak institutional quality and low tax pressure. Morocco's position therefore reflects a transitional configuration in which a comparatively developed tax system coexists with continuing institutional and structural constraints.

The baseline cross-sectional model provides an additional perspective on this positioning. Morocco's residual is positive and equal to approximately 4.735 percentage points, indicating that its observed tax pressure exceeds the value predicted by governance, economic development, trade openness, and industrial structure in the baseline specification. The corresponding standardized residual is 0.924, which means that Morocco is not a statistical outlier in the international sample. This positive residual should not be interpreted as a direct measure of tax efficiency or optimal taxation; rather, it indicates that Morocco mobilizes more tax revenue than the baseline model predicts on the basis of the selected structural characteristics.

This result may reflect several features of the Moroccan tax system, including its established revenue-administration framework and its significant reliance on relatively stable domestic tax bases. At the same time, revenue mobilization remains concentrated on formal taxpayers and on comparatively less mobile bases, particularly labor income and domestic consumption. Consequently, a relatively substantial tax pressure does not necessarily imply that the tax burden is evenly distributed or that the full revenue potential of the economy has been achieved.

The econometric results attach particular importance to Morocco's institutional trajectory. Among the structural covariates, governance is the only variable that remains positive and statistically significant at the 1% level in both the baseline and spatially augmented specifications. Across the international sample, higher levels of government effectiveness, regulatory quality, and adherence to the rule of law are therefore associated with stronger revenue mobilization. For Morocco, this finding suggests that strengthening fiscal capacity requires attention not only to statutory tax parameters but also to tax-administration effectiveness, regulatory consistency, taxpayer compliance, and the integration of informal activities into the effective tax base.

The spatial analysis further indicates that fiscal performance should not be interpreted solely through domestic characteristics. Tax pressure exhibits significant clustering among economically comparable countries, while the positive and statistically significant coefficient of WTF shows that, across the sample, national tax pressure is associated with the outcomes observed among structurally similar economies. Accordingly, Morocco's fiscal position should be considered not only in relation to its domestic characteristics but also within the broader economic-proximity structure. These patterns are consistent with policy diffusion, international benchmarking, tax competition, and common responses to comparable economic constraints. However, the analysis identifies statistical associations and does not establish the specific mechanisms or direction of causality underlying these relationships.

Morocco's positive baseline residual and intermediate international position therefore convey a nuanced message. The country displays a meaningful capacity to mobilize tax revenue relative to its observed characteristics, but this performance coexists with challenges concerning the breadth of the tax base, the distribution of the tax burden, informality, compliance, and institutional effectiveness. Strengthening governance and broadening the effective tax base consequently appear more appropriate than relying primarily on higher statutory taxation.

Overall, Morocco's positioning illustrates the central conclusion of the analysis: fiscal capacity is shaped jointly by domestic institutional quality, structural economic characteristics, and the broader environment formed by economically comparable countries. Continued improvements in governance can help Morocco consolidate revenue mobilization while promoting a more balanced, inclusive, and sustainable tax system.

5. Discussion

The findings provide statistically significant evidence of positive spatial autocorrelation in both governance and tax pressure. Global Moran's I is positive for governance ($I = 0.124$; $p = 0.0026$) and tax pressure ($I = 0.196$; $p < 0.001$), indicating that these outcomes are not randomly distributed within the international economic space defined by the weighting matrix. Countries with similar levels of income, trade openness, and productive structure tend to display comparable institutional and fiscal characteristics. These results support an interpretation of fiscal capacity that considers both domestic conditions and the broader environment formed by economically comparable countries.

The results also contribute to the literature on international fiscal interactions by showing that relevant relationships need not be limited to geographic proximity. Economic similarity may provide an alternative channel through which fiscal practices, administrative models, and institutional arrangements become associated across countries. Governments frequently compare their tax systems with those of structurally similar economies, respond to comparable competitive constraints, and draw on common international standards. Nevertheless, because the weighting matrix is specifically constructed from economic characteristics, the spatial findings must be interpreted as conditional on this definition of proximity and should not be generalized automatically to geographic or geopolitical relationships.

Spatial dependence is stronger for tax pressure than for governance, as shown by the respective Moran's I values of 0.196 and 0.124. This difference is consistent with the proposition that fiscal outcomes may adjust more readily to external economic conditions, whereas institutional development is generally gradual and path-dependent. Tax systems can respond relatively quickly to changes in trade integration, tax-base mobility, international standards, and the policies adopted by competing economies. Governance structures, by contrast, are shaped by longer-term administrative, legal, and political processes. However, the Moran statistics identify patterns of association rather than the mechanisms or direction of transmission; the observed difference should therefore not be interpreted as direct evidence of tax competition or institutional diffusion.

The cross-sectional estimation results reinforce the central role of governance. In the baseline OLS model, the coefficient of GOV is positive and significant at the 1% level ($\beta = 3.839$; $p = 0.0009$). This indicates that, conditional on economic development, trade openness, and productive structure, a one-unit increase in the governance index is associated with approximately 3.84 additional percentage points of tax pressure. The result is consistent with fiscal-capacity theory, which emphasizes the importance of government effectiveness, regulatory quality, and the rule of law in strengthening tax administration, facilitating compliance, and limiting revenue losses.

Importantly, the governance result remains stable after accounting for the economic-proximity-weighted average of tax pressure. In the spatially augmented specification, the GOV coefficient remains positive and significant at the 1% level ($\beta = 3.576$; $p = 0.0019$), while the coefficient of WTF is also positive and highly significant ($\beta = 0.886$; $p < 0.001$). The similarity of the governance coefficients across the two specifications indicates that the institutional association is not driven solely by the tax-pressure patterns observed among economically comparable countries. The increase in R^2 from 0.374 to 0.453 further shows that incorporating the economic-proximity structure improves the model's explanatory power.

The residual diagnostics provide additional support for this interpretation. The baseline residuals display positive and significant spatial autocorrelation ($I = 0.126$; $p = 0.0024$), suggesting that the conventional OLS model does not fully capture the structure of international fiscal interdependence. After the introduction of WTF, the residual Moran's I becomes statistically insignificant ($I = -0.055$; $p = 0.2873$). The augmented specification therefore absorbs the residual spatial pattern detected in the baseline model. The Breusch–

Pagan–Godfrey test also fails to reject homoskedasticity at the 5% level in the augmented specification ($p = 0.0868$), although HC1 standard errors are retained because the result remains marginal at the 10% level.

The control-variable results require a more nuanced interpretation than initially expected. Neither LNGDPPC nor OPEN is statistically significant in the baseline or spatially augmented specification. Accordingly, the findings do not establish an independent relationship between economic development or trade openness and tax pressure once governance, productive structure, and economic proximity are taken into account. The strong correlation between GOV and LNGDPPC, together with their moderate VIF values, may reduce the precision with which their separate conditional associations are estimated. Their conceptual distinction nevertheless justifies retaining both variables: LNGDPPC represents economic development, whereas GOV captures institutional capacity.

Industrial value added displays a negative and significant coefficient in the baseline model, but its magnitude and significance decline after WTF is introduced. This instability suggests that the relationship between productive structure and tax pressure may partly reflect broader similarities among countries. It may also arise from differences in sectoral tax incentives, informality, industrial composition, and the extent to which industrial activity contributes to the effective tax base. Consequently, the negative coefficient should not be interpreted as evidence that industrial development necessarily reduces fiscal capacity.

The results have important implications for the distribution of the tax burden. Stronger governance may improve revenue mobilization without requiring higher statutory tax rates by increasing administrative effectiveness, expanding effective coverage, and strengthening compliance. By contrast, where institutional capacity remains limited, governments may rely disproportionately on visible and relatively less mobile tax bases, particularly formal employment and domestic consumption. Such reliance can preserve revenue in the short term but may intensify concerns regarding horizontal equity, informality, and the concentration of taxation on compliant taxpayers.

Morocco illustrates this institutional and fiscal tension. Its positive baseline residual of approximately 4.735 percentage points indicates that observed tax pressure exceeds the level predicted by governance, income, openness, and industrial structure in the baseline model. Its standardized residual of 0.924 nevertheless shows that the country is not an extreme statistical observation. This result suggests a meaningful capacity for revenue mobilization relative to the selected characteristics, but it should not be interpreted as a direct measure of tax efficiency, optimality, or equitable burden sharing.

Morocco's fiscal positioning therefore calls for a balanced interpretation. Progress in tax-administration modernization has supported revenue mobilization, yet challenges remain in relation to informality, effective tax-base coverage, compliance, and the concentration of the burden on formal taxpayers. Given the strong and stable association identified between governance and tax pressure, further improvements in government effectiveness, regulatory consistency, and the rule of law may offer a more sustainable route to strengthening fiscal capacity than relying primarily on increases in statutory taxation.

The results should nevertheless be considered in light of several methodological limitations. First, the analysis is based on country-level averages over 2000–2023 and therefore captures long-term structural differences rather than annual dynamics. Although averaging reduces the influence of short-term fluctuations, it does not identify how fiscal and institutional relationships evolve over time. Second, the cross-sectional design establishes conditional associations but does not demonstrate causality. Reverse causality may also exist because stronger fiscal capacity can provide governments with resources to improve institutional quality.

Third, the spatially augmented model introduces WTF directly into an OLS framework. Because this variable is constructed from the tax pressure of economically comparable countries, it may be endogenous. Its coefficient must therefore be interpreted as exploratory evidence of spatial association rather than as a structural spatial spillover estimate. Moreover, the Jarque–Bera test rejects residual normality, principally because of excess kurtosis. HC1 standard errors and the sample size support asymptotic inference, but the estimates should still be interpreted cautiously. Future research could address these limitations through instrumental-variable methods, maximum-likelihood spatial models, spatial two-stage least squares, alternative weighting matrices, and annual or multi-period panel data.

Overall, the analysis indicates that fiscal capacity is associated jointly with domestic institutional quality and the broader environment formed by economically comparable countries. Governance remains the most stable explanatory variable across the estimated specifications, while the spatial findings show that national tax outcomes are embedded in structured international relationships. For Morocco and other emerging economies, sustainable revenue mobilization therefore depends on institutional strengthening, broader and more equitable tax-base coverage, and an informed response to the fiscal practices of structurally comparable countries.

6. Conclusion

This paper examined the relationship between governance and tax pressure across 118 countries, with particular attention to Morocco's position within the international fiscal landscape. The analysis relies on country-level averages over 2000–2023 to capture long-term institutional and economic characteristics. By combining exploratory spatial analysis with cross-sectional econometric estimation, the study assesses both the international structuring of fiscal outcomes and the conditional association between governance and revenue mobilization.

The results reveal positive and statistically significant spatial autocorrelation in governance and tax pressure. Global Moran's I reaches 0.124 for governance and 0.196 for tax pressure, indicating that economically comparable countries tend to exhibit similar institutional and fiscal outcomes. The stronger spatial association observed for tax pressure suggests that fiscal outcomes display a more pronounced international clustering pattern than governance. However, these findings identify statistical association within the economic-proximity matrix and do not, by themselves, establish the underlying mechanisms or direction of transmission.

The cross-sectional estimates highlight the central role of governance. In the baseline model, a one-unit increase in the governance index is associated with approximately 3.84 additional percentage points of tax pressure, conditional on economic development, trade openness, and productive structure. This association remains positive and statistically significant at the 1% level after introducing the economic-proximity-weighted average of tax pressure, with a coefficient of 3.58. Governance therefore emerges as the most stable explanatory variable across the estimated specifications.

The spatially augmented model also provides evidence of a strong positive association between national tax pressure and the tax pressure observed among economically comparable countries. Its inclusion increases the model's explanatory power and eliminates the significant spatial autocorrelation initially detected in the OLS residuals. Nevertheless, because the spatial lag is introduced directly within an OLS framework and may be endogenous, this result should be interpreted as exploratory robustness evidence rather than as a definitive estimate of a structural spatial spillover.

Morocco occupies an intermediate position within the international institutional and fiscal space. Its observed tax pressure exceeds the value predicted by the baseline model by approximately 4.74 percentage points, while its standardized residual of 0.924 indicates that it is not an extreme observation within the sample. This result points to a meaningful capacity for revenue mobilization relative to the country's observed characteristics, but it should not be interpreted as a direct measure of tax efficiency, fiscal optimality, or equitable burden sharing. Challenges relating to informality, effective tax-base coverage, compliance, and the concentration of taxation on formal taxpayers remain important.

From a policy perspective, the findings suggest that sustainable revenue mobilization depends not only on statutory tax parameters but also on institutional capacity. Improving government effectiveness, regulatory quality, tax administration, and the rule of law may strengthen revenue collection while reducing excessive reliance on higher tax rates or a narrow group of compliant taxpayers. For Morocco, broadening the effective tax base, integrating informal activities, improving compliance, and ensuring greater consistency in tax enforcement appear essential for reconciling fiscal capacity with equity and economic competitiveness.

The study is subject to several limitations. The use of period averages captures structural cross-country differences but does not reflect annual dynamics. The cross-sectional design identifies conditional associations rather than causal effects, and reverse causality between governance and fiscal capacity cannot be excluded. Moreover, the results depend on the selected definition of economic proximity, residual normality is rejected, and the spatially augmented OLS specification does not fully address the potential endogeneity of the spatial lag. Future research could extend the analysis using annual panel data, alternative weighting matrices, spatial instrumental-variable techniques, maximum-likelihood spatial models, and dynamic spatial specifications.

Overall, the findings indicate that fiscal capacity is associated with both domestic institutional quality and the broader environment formed by economically comparable countries. Governance remains the most consistent correlate of tax pressure, while the

spatial evidence demonstrates that fiscal outcomes are embedded in structured international relationships. For Morocco and other emerging economies, strengthening institutions and broadening the effective tax base therefore constitute central elements of a more sustainable, balanced, and resilient fiscal strategy.

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