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A typology of uneven development: regional disparities and socio-economic profiles in Morocco.

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Abstract:

In many middle-income countries, regional inequalities remain a central concern for policy and research, especially where decentralization has advanced without fully addressing institutional and territorial disparities. This article proposes a multidimensional classification of Moroccan regions based on socio-economic indicators that reflect demographic dynamics, education, health infrastructure, living conditions, and economic outcomes. The analysis uses official statistical data from the Haut-Commissariat au Plan and follows a two-step method: principal component analysis identifies the main axes of variation across regions, and hierarchical clustering forms internally consistent regional profiles. The results highlight sharp spatial contrasts between core and peripheral territories, with persistent inequalities linked to institutional capacity, access to public services, and economic specialization. These findings support the relevance of place-based approaches in contexts marked by asymmetric decentralization and regional development gaps.

Keywords: Regional typology; regional disparities; Principal component analysis; Hierarchical clustering; Morocco; Middle-income countries; Territorial development.

Introduction

Over the past decades, regional development has emerged as a central concern in development economics and regional science. The increasing salience of spatial inequalities, both within and between countries, has drawn attention to the differentiated capacities of regions to generate sustainable growth, reduce poverty, and foster structural transformation (Kanbur & Venables, 2005; Bourdin, 2019). In many countries of the Global South, regional disparities have persisted despite successive waves of territorial reform and decentralization, suggesting that institutional change alone does not guarantee convergence (Mehretu, 2019). Instead, development trajectories appear to be shaped by complex interactions between economic structures, governance arrangements, and spatial configurations of infrastructure and human capital (McCann, 2015).

The case of Morocco is particularly instructive. Since the 1990s, the country has embarked on a gradual process of decentralization, culminating in the 2011 constitutional reform and the adoption of "advanced regionalization" as a central pillar of its development strategy. These reforms have conferred greater autonomy to regional councils, enhanced their planning responsibilities, and emphasized the need for more balanced territorial development. However, structural disparities remain deeply entrenched. The concentration of economic activity along the Atlantic corridor, the uneven distribution of infrastructure, and disparities in access to basic services continue to divide the Moroccan territory into regions with sharply divergent development outcomes (Benaabdelaali et al., 2013; Sghiar & Lakssissar, 2023). The persistence of such gaps raises questions regarding the effectiveness of current policy frameworks and the relevance of adopting spatially blind strategies in contexts marked by strong territorial heterogeneity.

Recent literature in regional science and development studies has called for more refined approaches that take into account the diversity of regional conditions in policy design (Iammarino et al., 2019). The concept of place-based policy, as opposed to spatially neutral interventions, rests on the idea that development should build upon local capabilities, institutional environments, and knowledge systems (Barca et al., 2012; Rodríguez-Pose et al., 2024). In parallel, empirical contributions have sought to construct typologies of regions in order to inform targeted strategies. Typologies offer a way to identify clusters of regions facing similar challenges or exhibiting comparable structural features (Munandar et al., 2015). They also allow policymakers to better align policy tools with specific territorial profiles, especially

in middle-income countries where institutional capacity varies widely across space (Iddawela et al., 2021; Khan, 2022).

While these insights have gained traction in European and Latin American contexts, there remains a lack of empirical studies adopting such approaches in North African countries. In Morocco, existing analyses often rely on economic indicators without systematically identifying regional profiles or assessing their policy implications (Ouhejjou et al., 2019). To our knowledge, there are no studies that combine regional data to develop robust, empirically grounded typologies that could serve as a basis for differentiated regional strategies. This paper addresses this research gap by proposing a typology of Moroccan regions based on a multidimensional set of socio-economic indicators.

The research question guiding this study is the following: To what extent can Moroccan regions be grouped into distinct development profiles based on socio-economic indicators, and what are the implications of such typologies for the design of place-based policies in a context of advanced regionalization? The analysis draws on recent regional data produced by the Haut-Commissariat au Plan (HCP), covering domains such as employment, education, health infrastructure, poverty, and economic output. Two complementary statistical methods are applied: Principal Component Analysis (PCA), which reduces the dimensionality of the data and identifies key structuring variables, and Hierarchical Ascendant Clustering (CAH), which groups regions according to their similarity in terms of development patterns. The paper identifies homogeneous groups of regions and interprets their profiles in light of the country's territorial reform and development trajectory.

The contribution of this article is threefold. First, it provides an original empirical classification of Moroccan regions grounded in a robust methodological framework. Second, it contributes to the broader literature on typologies and territorial development in middle-income countries. Third, it offers concrete recommendations for policymakers seeking to operationalize differentiated strategies aligned with regional specificities.

The rest of the paper is structured as follow: Section 2 reviews the relevant literature on regional typologies and territorial disparities in middle-income countries. Section 3 presents the data sources and methodological framework, including the use of principal component analysis and hierarchical clustering. Section 4 reports the empirical results and discusses the regional classification that emerges from the analysis. Section 5 concludes with key contributions, policy implications, and directions for future research.

1. Theoretical background

1.1 Regional disparities and the rationale for territorial differentiation

Persistent regional inequalities across the Global South cannot be explained solely by disparities in natural resources, physical geography, or economic specialization. A growing body of literature emphasizes the role of historically embedded development trajectories, path dependency, institutional asymmetries, and spatially uneven accumulations of both physical and social capital (Martin & Sunley, 2006; Eva et al., 2022; Bathelt et al., 2024). These disparities often result from long-standing exclusionary mechanisms and legacy effects of colonial infrastructures, combined with the uneven diffusion of public investment and technological capabilities (Pike et al., 2017).

In many middle-income countries, centralized planning systems have promoted standardised development models, with limited attention to the underlying territorial conditions. This spatial uniformity has contributed to the reproduction of centre-periphery divides, especially in contexts where peripheral regions exhibit low institutional quality, fragmented connectivity to national markets, and structural labour market deficits (Mehretu, 2019). Regional underdevelopment tends to become self-reinforcing, as weak territories struggle to attract investment, retain talent, or mobilize endogenous resources (Pike et al., 2017). Myrdal's theory of cumulative causation and Hirschman's unbalanced growth perspective both point to the dynamics through which regional inequalities can persist or even deepen in the absence of corrective mechanisms (Myrdal, 1957; Hirschman, 1958).

This recognition has prompted a major paradigm shift in development policy frameworks, captured by the rise of the place-based approach. Unlike spatially blind strategies, which assume that the same set of interventions can be effective everywhere, place-based development recognizes that territories differ not only in their factor endowments but also in their institutional architectures, social capital, and knowledge bases (Barca et al., 2012). Such approaches advocate for the mobilisation of locally embedded capabilities and the co-construction of policy agendas between multiple levels of governance. Far from being a mere adaptation of national programs, place-based interventions aim to create institutional conditions that allow for experimentation, learning, and resilience-building within each regional context (Iammarino et al., 2019).

In this context, regional typologies represent a critical analytical device. Their function is not limited to classifying space. When designed through robust statistical methods and multidimensional indicators, typologies offer a means of detecting latent structures, capturing heterogeneity, and enabling evidence-based differentiation in policy formulation (Libório et al., 2021). They can also serve as a basis for monitoring territorial trajectories over time and evaluating the effects of policy experimentation. Particularly in countries characterized by asymmetrical decentralization or uneven regional capacities, such as Morocco, typologies provide decision-makers with strategic tools to align national priorities with regional realities, avoid overgeneralization, and target support to the specific needs of distinct territorial configurations (Drafor, 2017; Mishra, 2019).

1.2. Decentralization and regional governance in the Global South

Since the early 1990s, decentralization has become a central pillar of governance reform in many countries across the Global South. This trend has been promoted by international institutions such as the World Bank and UNDP, who have framed decentralization as a pathway to democratization, policy efficiency, and territorial equity (Faguet, 2014; Smoke, 2015). The underlying assumption is that transferring responsibilities to subnational governments enhances policy responsiveness, fosters citizen participation, and enables more effective use of public resources. Decentralized governance is expected to align public investment with local preferences and foster greater accountability in service delivery (Litvack, Ahmad & Bird, 1998).

However, empirical evidence shows that the outcomes of decentralization are highly variable. Much depends on the institutional configuration of the state, the capacity of local authorities, and the degree of coordination between levels of government. In many cases, decentralization has taken the form of administrative deconcentration rather than genuine devolution, with limited fiscal transfers and unclear delineation of competences (Dickovick & Riedl, 2010; Rodríguez-Pose, A., & Vidal-Bover). Subnational entities often face structural constraints that hinder their ability to formulate or implement effective development strategies. These include shortages of qualified personnel, weak planning capacities, fragmented mandates, and misaligned incentives across scales (Sima et al., 2023). Furthermore, political and fiscal asymmetries can reinforce spatial inequalities when resource-rich regions accumulate advantages while lagging regions remain institutionally marginalized (Rodríguez-Pose & Ezcurra, 2011; Ezcurra & Rodríguez-Pose, 2013).

In the case of Morocco, the constitutional reform of 2011 institutionalized "advanced regionalization" as a cornerstone of the national development model. This reform aimed to strengthen regional autonomy, enhance participatory governance, and promote balanced territorial development. Regional councils were granted wider competences in economic planning, spatial development, and public investment prioritization. At least in legal terms, these changes signaled a move towards more decentralized and differentiated governance (Lokrifa & Moisseron, 2014; Jafari, M., & El Moujaddidi, 2016).

Despite this progress, the implementation of advanced regionalization has encountered significant challenges. Many regions lack the technical and institutional capacities to exercise their new responsibilities effectively. Coordination between central ministries and regional governments remains inconsistent, and the actual autonomy of regional councils is constrained by rigid budgetary rules and limited own-source revenues (Ghannouchi et al., 2023). Moreover, the spatial allocation of competencies does not always reflect the diversity of socio-economic conditions across Morocco's twelve regions. As a result, disparities in planning capacity, policy innovation, and responsiveness to local needs persist.

2. Methodology

2.1. Data sources, indicators and selection rationale

The empirical analysis rests on a comprehensive and standardized dataset composed of regional-level indicators exclusively sourced from the Haut-Commissariat au Plan (HCP), the Moroccan national statistical authority. The HCP represents the principal institution responsible for producing official statistics in Morocco, and its data are widely recognized for their methodological rigor, periodic consistency, and territorial granularity.

The indicators were selected to reflect the multidimensional nature of regional development, consistent with theoretical and empirical contributions in regional science (Capello & Nijkamp, 2019) and development economics (Schultz & Strauss, 2008). Rather than focusing solely on economic aggregates, the selected variables account for a broad spectrum of development factors, including material living conditions, access to public services, and human capital formation. This approach draws from the paradigm of integrated territorial development, which emphasizes the interplay between economic structures, institutional capabilities, and socio-spatial inequalities (Pike, Rodríguez-Pose & Tomaney, 2017).

To ensure comparability and reduce heteroscedasticity across variables measured in different units, all indicators were standardized prior to statistical analysis. This treatment also

neutralizes scale effects and allows for equal weighting of dimensions in the PCA. The indicators were grouped into five major thematic dimensions, aligned with internationally recognized frameworks for territorial development diagnostics (OECD).

The dataset captures multiple dimensions of territorial development (see Annex 1), consistent with established analytical frameworks in regional science and development economics. Economic performance is assessed through indicators such as regional gross domestic product (GDP), GDP per capita, household final consumption, and regional growth rates. Labour market conditions are reflected in the activity and unemployment rates, both disaggregated by urban and rural contexts, which offer insight into spatial disparities in employment opportunities and labour force participation.

Healthcare access is proxied by the number of hospital beds, medical professionals, and primary care facilities, which serve as critical markers of the health infrastructure available to local populations. Educational outcomes are evaluated using a range of variables, including illiteracy rates, school enrolment levels, and educational attainment across age groups and territorial contexts. These indicators shed light on the human capital base and the intergenerational dynamics of capability formation.

Finally, living standards are approximated by access to basic services such as electricity and piped water, complemented by data on poverty and vulnerability levels at the regional scale. Taken together, this multidimensional configuration aims to reflect the complex interplay between economic structures, social outcomes, and infrastructure provision that underpins territorial development trajectories in Morocco.

2.2. Typology analysis

To construct a robust and interpretable typology of Moroccan regions, the analysis follows a two-step approach: PCA is first applied to reduce the dimensionality of the socio-economic dataset and identify latent development patterns; HCA is then used on the extracted components to group regions into internally homogeneous and externally distinct clusters, offering a synthetic classification grounded in both statistical rigour and territorial relevance.

Principal component analysis

The first stage of the empirical investigation involves reducing the dimensionality of the dataset through PCA. This method constructs a smaller set of uncorrelated variables—called principal components—that explain the maximum amount of variance within the original dataset. The covariance matrix was computed to identify the structure of interdependencies between

variables. Eigenvalues and eigenvectors were then extracted to determine the dominant axes of variation. The selection of principal components was guided by the Kaiser criterion (retaining components with eigenvalues greater than one) and the cumulative explained variance rule, with a threshold generally set at 70%.

The application of PCA in this context serves several analytical purposes. First, it mitigates the effects of multicollinearity among socio-economic variables, a frequent challenge in multidimensional regional datasets. Second, it allows the detection of latent dimensions of regional development, such as contrasts between economic dynamism and social vulnerability, that may not emerge from raw indicators taken separately. Third, it provides a robust statistical foundation for subsequent classification, concentrating most of the dataset's variance into a few synthetic and interpretable components.

Hierarchical clustering analysis

The second stage applies HCA to the principal components retained from the PCA. HCA is a non-parametric classification technique used to group units—in this case, Moroccan regions—into internally coherent clusters based on their similarity across multiple dimensions. In this study, the Ward linkage method was employed in combination with Euclidean distance. This combination minimizes within-cluster variance while maximizing inter-cluster distinctiveness. The result is a balanced clustering structure that reflects meaningful differences in regional development profiles. A dendrogram was produced to visualize the sequence of cluster aggregations. The optimal number of clusters was identified by examining discontinuities in the dendrogram's linkage distances and validating these against the agglomeration schedule. Additional consideration was given to the clarity, internal consistency, and policy relevance of the emerging regional groupings.

HCA was preferred over partition-based alternatives such as k-means due to its flexibility, its independence from a predefined number of clusters, and its ability to reveal nested hierarchies within the data. When applied to the principal components derived from PCA, HCA becomes particularly powerful in detecting consistent territorial patterns within complex socio-economic environments.

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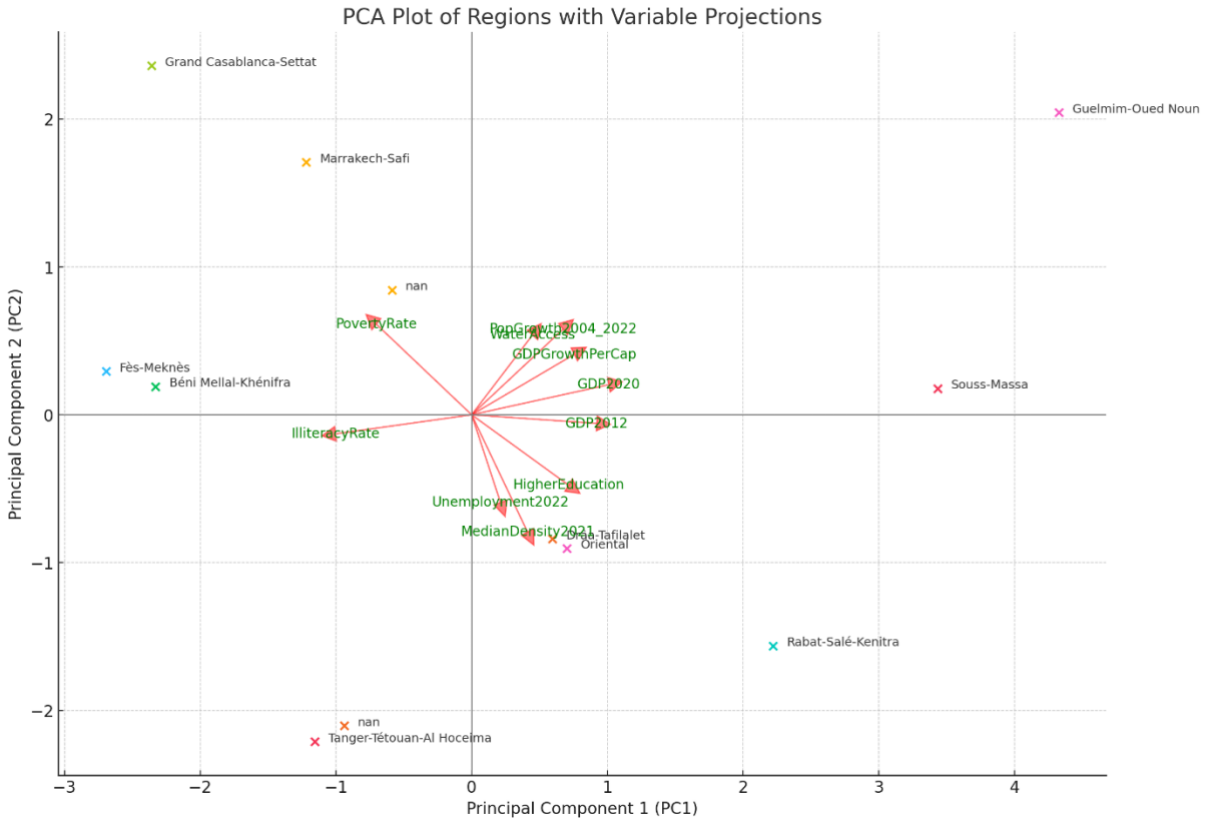
3. Results

3.1. Principal component structure and territorial differentiation

The biplot projection of Moroccan regions alongside socio-economic variables offers a detailed visualisation of the underlying structure of regional disparities. The direction and length of the variable vectors provide valuable insights into their contribution to the principal components and their interrelationships.

Figure 1. PCA Biplot



Variables oriented in the same direction indicate strong positive correlations. In this regard, GDP per capita (both in 2012 and 2020), the share of the population with higher education, and GDP growth are aligned along the positive side of PC1, suggesting that regions with higher income levels also tend to exhibit better educational outcomes and more dynamic economic trajectories. This is consistent with the theory of cumulative advantages, where initial endowments in human capital and infrastructure foster virtuous cycles of development (Pike et al., 2017; Iammarino et al., 2019).

Conversely, variables such as the poverty rate, illiteracy rate, and limited access to water infrastructure are positioned in the opposite direction along PC1. Their placement indicates an inverse relationship with the previous group of variables, reflecting a well-documented pattern

in regional development: economically weaker regions often accumulate multiple disadvantages across social, infrastructural, and institutional domains (Rodríguez-Pose, 2013). The strong contrast between these variable clusters reinforces the idea that PC1 captures a fundamental development gradient.

The relative length of the vectors also conveys information about the weight of each variable in shaping the overall variance. The GDP-related indicators and higher education exhibit long vectors, indicating a high contribution to the construction of PC1. These variables are the principal drivers of differentiation across Moroccan regions in the reduced socio-economic space. In contrast, variables such as demographic growth or access to water infrastructure appear closer to the origin, suggesting a more limited contribution to the first two components, yet potentially relevant for higher-order components.

The position of the unemployment rate, situated closer to the origin, suggests that its explanatory power is more diffuse and does not sharply differentiate regions along the principal axes. This may reflect the complexity of labour market dynamics, which are often influenced by national-level policies and seasonal or informal employment structures not fully captured in static indicators.

The spatial configuration of the twelve Moroccan regions on the PCA biplot confirms the structuring role of PC1 as a key axis of territorial differentiation. Overall, the dispersion of Moroccan regions along the PCA axes illustrates a clear spatial gradient between urban, diversified, and economically integrated regions on one side, and structurally lagging, peripheral territories on the other. At the positive end of the axis, Rabat-Salé-Kénitra and Souss-Massa clearly emerge as the most economically dynamic and structurally advanced regions. Their position reflects high GDP per capita, significant educational attainment, and a stronger presence of health infrastructure. The case of Rabat-Salé-Kénitra, in particular, illustrates the centrality of administrative capital regions in driving both economic and institutional performance.

Close to the origin, regions such as Fès-Meknès and Béni Mellal-Khénifra appear to occupy an intermediate position. Their profiles combine some positive traits—such as moderate infrastructure or demographic dynamism—with continued deficits in poverty alleviation and educational outcomes.

At the opposite end of the spectrum, regions like Drâa-Tafilalet and Oriental are located in the negative quadrant of PC1, signalling a concentration of structural vulnerabilities. These territories are characterized by lower income levels, weak public service provision, and higher rates of illiteracy and poverty. Their position suggests limited integration into national growth dynamics and continued exclusion from the benefits of territorial modernization.

Interestingly, Grand Casablanca-Settat is projected far from the origin, confirming its singular status in the national urban and economic hierarchy. While its socio-economic indicators suggest significant advantages, the region's distance along PC2 may also reflect internal heterogeneity and metropolitan disparities. In contrast, Guelmim-Oued Noun and Marrakech-Safi occupy more ambiguous positions, warranting further investigation into the diversity of their intra-regional profiles.

3.2. Typology of Moroccan regions

The dendrogram below illustrates the hierarchical structure of interregional similarity based on the Ward method. The height at which branches merge reflects the dissimilarity between the grouped regions.

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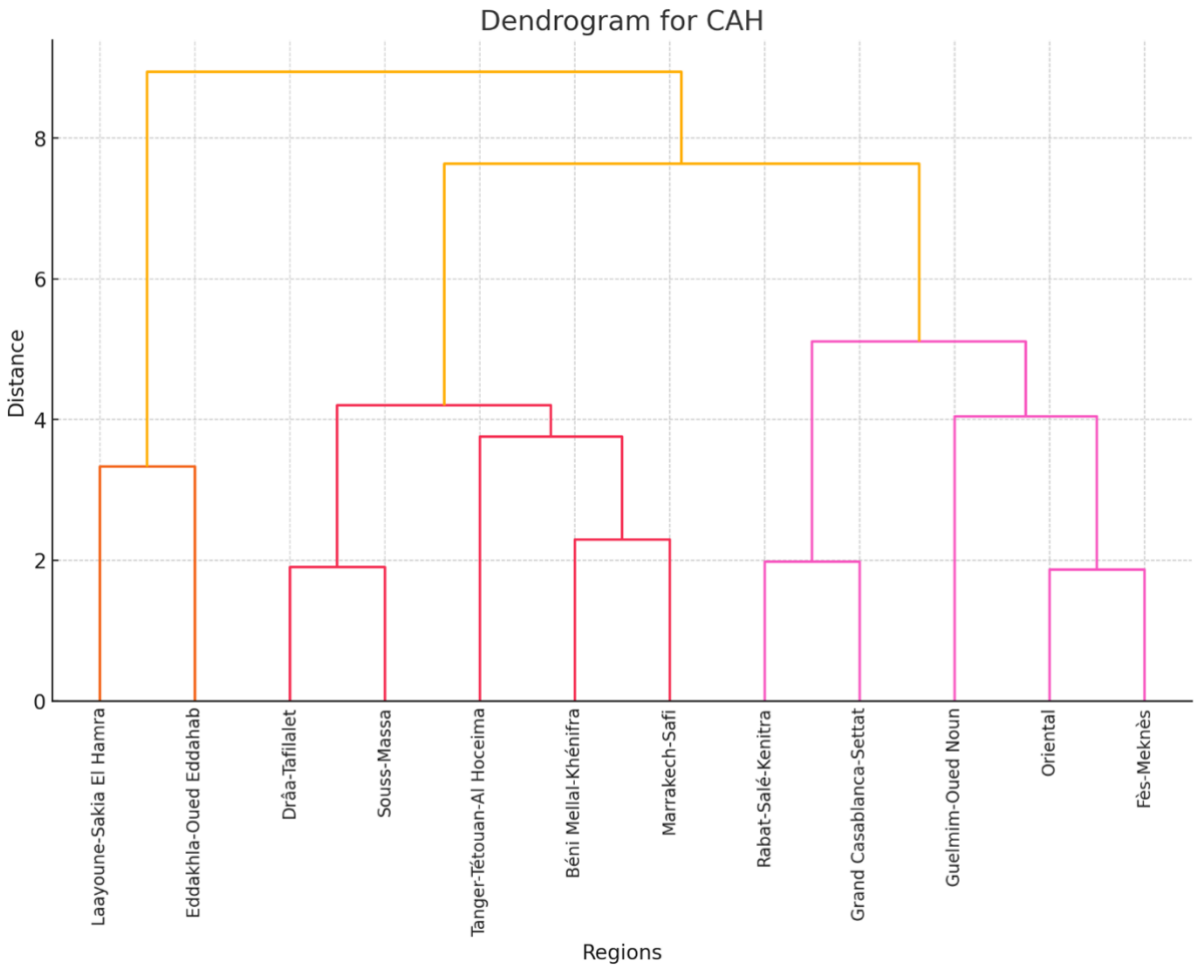
Figure 2. Dendrogram resulting from HCA



Source: Authors' computation

The diagram reveals three main regional clusters. These groups reflect distinct development logics and structural characteristics. Their delineation is based on statistical proximity but also confirms patterns identified in the PCA. The three groups are presented as follows:

Identified Groups	Orange cluster	Red cluster	Pink cluster
Regions	Laâyoune–Sakia El Hamra, Eddakhla–Oued Eddahab	Drâa–Tafilalet, Souss–Massa, Tanger–Tétouan–Al Hoceima, Béni Mellal–Khénifra, Marrakech–Safi	Rabat–Salé–Kénitra, Grand Casablanca–Settat, Guelmim–Oued Noun, Oriental, Fès–Meknès
Main features	Peripheral, resource-based, demographically sparse	Agriculturally productive, industrializing or tourist-oriented, with intermediate development profiles	Metropolitan or diversified urban regions and transition zones with mixed socio-economic trajectories

Source: Authors' classification

(1) Orange cluster: resource-based peripheries

The regions of Laâyoune–Sakia El Hamra and Eddakhla–Oued Eddahab are grouped at the lowest level of dissimilarity, indicating a high degree of socio-economic similarity. Both territories are characterized by a strong reliance on natural resource exploitation, notably fisheries and phosphates. Economic activities are concentrated in sectors with low population density but high value-added export orientation. Public investment has focused on basic infrastructure (such as ports and extraction-related facilities), while demographic pressure remains limited.

Recent national strategies have attempted to promote settlement and improve living conditions in these regions. Nevertheless, the high level of fusion between these two regions and the clear distance from other groups highlight their structural particularity within the Moroccan regional system.

(2) Red cluster: agricultural, touristic, and emergent poles

The second group displays greater internal diversity but is united by shared development challenges and sectoral profiles. A first subgroup—Drâa–Tafilalet and Souss–Massa—stands out for its reliance on agricultural production. The former is known for oasis-based agriculture and date cultivation, while the latter has a more diversified output, including citrus fruits and argan production. Both regions face challenges related to water scarcity and climate change, which have prompted investment in rural development, irrigation networks, and environmental resilience. Tourism also plays a significant role in their economies, through desert tourism and coastal ecotourism respectively.

A second subgroup includes Tanger–Tétouan–Al Hoceima, Béni Mellal–Khénifra, and Marrakech–Safi. Despite different sectoral orientations—automobile and logistics in the north, agriculture and agro-industry in Béni Mellal, and international tourism in Marrakech—these regions share a trajectory of industrialization and urban growth. The integration of global value chains, the presence of major transport hubs (e.g. Tanger-Med port), and the rise of diversified urban economies position these territories as emergent poles of development. However, the variation in their productive bases and labour market dynamics warrants regionally adjusted policy mixes. The clustering of these two subgroups within the same branch suggests common ground in terms of intermediate development, but also calls for targeted support tailored to sectoral specializations and structural constraints.

(3) Pink cluster: metropolitan cores and hybrid regions

The third group comprises two structurally differentiated subgroups. The first, including Rabat–Salé–Kénitra and Grand Casablanca–Settat, corresponds to the political and economic cores of the country. Rabat–Salé–Kénitra hosts the main public institutions, administrative centers, and universities, while Casablanca serves as the country's financial and industrial powerhouse. These regions register high levels of GDP per capita, education, and infrastructure provision. Their inclusion in the same cluster reflects shared advantages in terms of capital accumulation, service provision, and connectivity. Nevertheless, the differentiation between political-institutional and market-industrial functions remains a key axis of intra-group asymmetry.

The second subgroup—composed of Oriental, Fès–Meknès, and Guelmim–Oued Noun—presents a more heterogeneous profile. The Oriental region has prioritized industrial development through free zones and cross-border economic initiatives. Fès–Meknès blends a strong cultural heritage with a rural-based economic structure, while Guelmim–Oued Noun leverages natural resources and local knowledge for sustainable development strategies. These regions are integrated within national development strategies but still face structural limitations in institutional capacity and labour productivity.

4. Discussion and conclusion

4.1. Advancing place-based diagnostics and typological approaches in middle-income countries

This article advances the literature in regional science and development economics along three main lines. The article provides a bridge between empirical diagnostics and normative frameworks in territorial policy. It strengthens the foundations of a place-based agenda tailored to the specificities of middle-income countries and supports the integration of typological reasoning into national planning processes.

First, it introduces an original empirical typology of Moroccan regions based on multidimensional socio-economic indicators. The approach combines PCA and hierarchical clustering to produce a structured classification of territories. Most typological exercises documented in the literature focus on high-income or European countries. This article extends the analytical reach of regional science to North Africa, where empirical work of this kind remains scarce (Ouhejjou et al., 2019). It provides a detailed and context-specific understanding of regional disparities across Morocco's twelve administrative regions.

Second, the study contributes to development economics by shedding light on the structural persistence of regional inequalities in middle-income countries. The results support the argument that disparities emerge from cumulative disadvantages rooted in long-standing institutional and spatial asymmetries (Rodríguez-Pose, 2013; Iammarino et al., 2019). The findings confirm that territorial heterogeneity plays a central role in shaping development trajectories, as emphasized in the work of Kanbur and Venables (2005) and Mehretu (2019). Regions with similar institutional and socio-economic characteristics tend to follow comparable paths, which reinforces the need for differentiated policy approaches.

Third, this contribution offers a methodological perspective that responds to the challenge of territorial fragmentation. The two-step combination of PCA and HCA proposed here aligns with the growing call for analytical tools that reflect complexity while remaining accessible to policymakers (Libório et al., 2021; Drafor, 2017). This approach reveals the internal structure of regional development patterns and supports the design of strategies rooted in place-based reasoning, as advocated by Barca et al. (2012) and Rodríguez-Pose et al. (2024). The typology helps align institutional responsibilities with territorial profiles in contexts where decentralization remains incomplete and capacities remain uneven (Faguet, 2014; Ghannouchi et al., 2023).

4.2. Policy implications

This article calls for a more effective alignment between regional planning instruments and national development strategies. Regional Development Plans (PDRs) should systematically incorporate typological diagnostics such as the one presented here to inform their priorities, enhance institutional coordination, and adapt interventions to local capabilities. The High Commission for Planning (HCP) and regional councils should collaborate on creating territorial intelligence platforms to support evidence-based decision-making and continuous policy learning across regions.

The typological analysis highlights the existence of distinct regional profiles in Morocco, indicating the need for a fundamental reorientation of public policies based on territorially differentiated approaches. The socio-economic heterogeneity revealed in this study points to the limitations of uniform national interventions, which often overlook structural disparities. A more granular reading of regional dynamics requires reallocating public investment, responsibilities, and support instruments in accordance with the specific needs of each regional cluster.

Regions in the first cluster, such as Laâyoune-Sakia El Hamra and Dakhla-Oued Eddahab, display highly specific socio-economic characteristics, including resource-based economic structures and low demographic density. These areas would benefit from policies that reinforce basic infrastructure, improve access to essential services, and promote economic diversification beyond extractive sectors. Investment in higher education and medical infrastructure, combined with incentives for local entrepreneurship in sectors such as ecotourism and fisheries, would strengthen the resilience and attractiveness of these regions.

Regions in the second cluster combine medium development indicators with considerable internal diversity. For example, Souss-Massa and Drâa-Tafilalet share a strong agricultural base but differ in their levels of access to education and health services. Policymakers should prioritise integrated rural development plans tailored to each sub-region, placing emphasis on irrigation systems, agri-food value chains, and vocational training. In parallel, urban regions such as Tanger-Tétouan-Al Hoceima and Marrakech-Safi would benefit from policies supporting industrial innovation, logistics, and sustainable urban development.

The third cluster, which includes Casablanca-Settat and Rabat-Salé-Kénitra, concentrates the country's economic and administrative power. These regions require strategic interventions aimed at mitigating socio-spatial fragmentation, reducing intra-regional inequalities, and improving interregional solidarity mechanisms. Territorial equity funds, fiscal equalisation schemes, and interregional cooperation frameworks could help balance development outcomes while preserving the dynamism of these metropolitan areas.

4.3. Directions for future research

The results presented in this article open several avenues for further research. A first priority involves applying the typological framework developed here to other middle-income countries facing comparable challenges of territorial fragmentation, decentralisation, and uneven development. The relevance of regional disparities in countries such as Tunisia, Egypt, or Jordan remains underexplored in regional science. A comparative application of the PCA–HCA methodology would allow researchers to test the external validity of the Moroccan typology while enriching the empirical base of place-based development approaches in the Global South.
Second, the inclusion of dynamic and longitudinal data could enhance the robustness of future analyses. The present study provides a static picture of regional disparities, anchored in the most recent socio-economic indicators available. However, a diachronic perspective would help identify the persistence or evolution of territorial inequalities, and would clarify whether regions converge, diverge, or remain trapped in structural disadvantages over time. Such work could build on insights from Capello & Nijkamp (2019), who have emphasised the cumulative mechanisms that often reinforce regional asymmetries.
A third direction involves the integration of institutional and governance-related variables into typological analyses. While the present study has focused on socio-economic indicators, several authors have demonstrated that institutional capacity, political stability, and administrative decentralisation exert significant influence on regional trajectories (Rodríguez-Pose, A., & Vidal-Bover). Future research could assess the extent to which institutional asymmetries contribute to the divergence of development paths between regions, particularly in states where devolution has produced fragmented governance architectures.
Lastly, further methodological innovation could deepen the typological exercise. The use of spatial econometric techniques, multilevel modelling, or composite vulnerability indices could yield richer interpretations of intra-national inequalities. Replication of this study across subnational scales—such as provinces or municipalities—would also allow more precise identification of development traps, as discussed in Diemer (2022), and provide policy actors with a finer-grained diagnostic for intervention.

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