

Research Paper

Exploring indicators of economic resilience in South African towns and cities

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Abstract

The consideration of economic resilience is growing in prominence among policymakers in the Global South. The ability of towns and cities to prevent, absorb, and adapt to economic disturbances, as well as catalyse long-term structural transformation, is anchored in a context of social, economic, and environmental pressures. A lack of economic resilience of South African towns and cities may affect the stability of economic growth and output over the short- and long-term, and thus sustained socio-economic development and wellbeing improvement. Vulnerability to disturbances may also negatively impact national economic convergence objectives. The aim of this paper is to explore indicators of economic resilience in the South African context, with the objective of analysing the performance of cities and towns and delineate potential interventions toward mitigating potential vulnerabilities. A mixed-method research approach is applied to analyse numerous variables associated with the identified indicators and review relevant development policy. The findings indicate that there are significant differences in performance in the indicators across South African municipalities and urban and rural areas. Relevant here are variables such as the Tress Index, capital and labour productivity, and the Human Development Index. There is a need to prioritise policy interventions specific to fostering economic resilience, with reference to the spatial interventions delineated in the National Spatial Development Framework.

Keywords

Economic resilience; South African towns and cities; mixed-method approach; regional convergence.

1. Introduction

The concept of economic resilience is gaining prominence among spatial planners and policymakers in the Global South, where towns and cities face increased pressure to prevent, absorb, and adapt to economic disturbances while ensuring long-term economic output growth (Dzigbede et al., 2022). In developing countries, including South Africa, the stability of economic growth and output – essential for sustained socio-economic development and improvement in wellbeing – depends on mitigating the vulnerability of municipalities to short- and long-term economic shocks and disturbances (Arreza, 2024). A lack of economic resilience in towns and cities may negatively impact national economic convergence effects and progress toward creating an inclusive space economy (Oprisan et al., 2023). Efforts toward supporting economic resilience is in line with global objectives, with specific reference to Sustainable Development Goal 11 (SDG11) of the United Nations (UN), which seeks to “make cities and human settlements inclusive, safe, resilient and sustainable” (UN, 2024). However, fostering economic resilience in the context of the South African built environment is complicated by the continued legacy of apartheid spatial planning, which has brought about spatial fragmentation, marginalisation, and inequality (Ramatlo, 2021). Said

challenges may exacerbate economic vulnerability and hinder broader spatial objectives of integrated and sustainable human settlements.

The aim of the paper is to provide an overview of economic resilience indicators and explore how differences in these indicators are spatially distributed across South African towns and cities. The objectives are the following:

1. Identify potential indicators of economic resilience.
2. Analyse performance of municipalities against these indicators to provide insight on their resilience.
3. Provide an overview of spatial policies that seek to foster economic resilience.

Current research is predominantly focussed on determining variables that influence economic resilience (Laubscher, 2017; Ngouhouo & Nchofoung, 2021; Van Aswegen & Retief, 2021; Duan et al., 2022; Joseph et al., 2024), which is utilised in this study to identify potential indicators in this regard (as per the research objectives). The contribution of this paper is providing initial indications of potential the economic resilience and vulnerability of certain towns and cities, reflected through municipal-level data, as well as insights into the positioning of urban and rural areas and related municipalities in this regard. Central hereto is comparing the relative performance of metropolitan and non-metropolitan areas in nine provinces to identify areas of prioritisation, both spatial and sectoral. Toward this end, the paper applies a mixed-method research approach that includes a quantitative analysis of secondary data, as well as a qualitative policy review. The structure of the paper is centred on a literature review, an overview of the research methodology, the findings and discussion, and the concluding section.

2. Literature review

The following section presents the literature review. The subsections are centred on an 'overview of economic resilience', 'economic resilience in South Africa', and a 'policy review'.

2.1. Overview of economic resilience

From a systems perspective, economic resilience relates to the capacity of production systems to catalyse structural and functional changes in response to economic shocks and their impact (Sutton & Arku, 2022). This adaptive capacity, which includes continuous transformation, evolves over time to enable long-term economic resilience to dynamic and multifaceted shocks and disturbances. Trippi et al. (2023) underline the need for transformative resilience in which economic crises are leveraged to place production systems on new, more sustainable, and inclusive growth paths. This transcends the resist and recovery aspects of economic resilience and presents shocks as opportunities for transformation over time (Trippi et al., 2023). In addition to resistance (reduced impact of shocks) and recovery (returning to pre-shock outcomes), Mayor and Ramos (2020) identify reorientation (identify alternative growth paths), and renewal (innovation to strengthen resilience going forward) as two additional dimensions of economic resilience. This is indicative of the dynamic nature of economic resilience – one that evolves with time and in response to different shocks. This illustrates the requirement for responses to economic shocks to be multi-dimensional for regions to maintain optimal function (Sutton et al., 2023).

2.2. Economic resilience in South Africa

Table 1 provides an overview of the select current research on economic resilience with reference to South Africa, and identifies determining factors that may influence said resilience. The latter is in line with the research objectives of this paper.

Table 1. Overview and factors in economic resilience. Source: Author (2024).

Source	Overview	Important factors
Van Aswegen & Retief (2021)	Role of economic structure on economic resilience in South African regions; balance between adaptation and adaptability; sectoral diversification may support economic resilience; policy should support sectoral competitive advantage of regions on a national level.	Competitive advantage; economic diversity.
Duan et al. (2022)	Role of industrial structure and foreign direct investment (FDI) in economic resilience; robustness of industrial ecosystems, supply chain connections, and exchange rate volatility influences responses to economic shocks; policy consideration of green energy investment to support resilience.	Industrial structure.
Joseph et al. (2024)	Economic resilience index for comparative analysis; South Africa economic resilience changes over time.	Economic diversity; institutional strength.
Laubscher (2017)	Province-scale economic resilience in South Africa; diverse factors in economic resilience; focus on Western Cape province.	Economic diversity; industrial structure; competitive advantage.
Ngouhouo & Nchofoung (2021)	South Africa is economically resilient in comparison to other Sub-Saharan African countries, while performance varies over time; identifies the role of institutions, employment creation, and human development in supporting economic resilience; economic diversification needs to be supported through the reinvestment of natural resource revenue in other sectors.	Human development; economic diversity.

Accordingly, as indicated in Table 1, factors that may influence economic resilience include economies having a competitive advantage, its economic and sectoral diversity, industrial structure, institutions, and extent of human development. These inform the indicators to be utilised in the quantitative analysis.

2.3. Policy review

The National Spatial Development Framework (NSDF), promulgated in 2022, is the highest-level spatial planning instrument in South Africa and delineates the country's spatial development vision and objectives. Central objectives include addressing socio-economic disparities and the promotion of sustainable and inclusive development (DALRRD, 2022). The NSDF integrates all sectors and stakeholders in the development process and seeks to coordinate resource allocation in this regard. The NSDF places the built environment central to the achievement of economic resilience through highlighting the need to create polycentric systems of nodes, which is "a functionally integrated system of settlements/nodes of varying size that co-exist and collaborate in mutually beneficial ways, and in doing so, enhance the resilience of the system and its constituent parts" (DALRRD, 2022:18). The centrality of resilience in the NSDF is also indicated through the following objectives delineated in the policy:

- Maintaining biodiversity and natural ecosystems “for global, national and local resilience” (DALRRD, 2022:82).
- Create more compact settlement footprints, enabled by “development forms and patterns, housing types, building materials and construction methods, and transport and service networks”, to reduce the impact of climate change (DALRRD, 2022:87).
- Improved “resilience of rural areas through diversification” and ensuring their reduced dependence on single economic sectors (DALRRD, 2022:91).
- Economic diversification is dependent on “the availability of viable, real economic opportunities” sourced from the primary, secondary, and tertiary sectors (DALRRD, 2022:96).
- Physical infrastructure is required “to enhance the development prospects, and strengthen the resilience of” metropolitan growth centres and rural nodes (DALRRD, 2022:136).
- The capacity for regional adaptation “to ensure greater resilience of livelihoods” is linked to economic diversification and agri-innovation (DALRRD, 2022:178).

Accordingly, the NSDF has the potential to guide economic resilience interventions in South African towns and cities, with the latter informed by potential vulnerability that negate the adaptive capacity of economies.

3. Research methodology

This paper applies a mixed-method research approach to (i) provide an overview of economic resilience indicators and (ii) explore how differences in these indicators are spatially distributed across South African towns and cities. The quantitative approach includes the analysis of secondary data in the form of four indicators delineated based on the factors that influence economic resilience as identified in Table 1. These are the Human Development Index (HDI), Labour Productivity (2015 base), Capital Productivity (2015 base), and the Tress Index. Said indicators measure the extent of economic diversification, quality of life, competitive advantages, and productivity. The Quantec EasyData database was utilised to access the secondary data related to the various indicators for 205 non-metropolitan (local) municipalities and eight metropolitan municipalities in South Africa. These represent respective rural and urban contexts relevant to the paper. To measure comparative performance, data for the year 2022 was utilised. The policy review, which constitutes the qualitative component of the methodology, is centred on the NSDF. This document informs spatial development in South Africa. The analysis delineates the respective policy components and their role in supporting economic resilience in towns and cities. Artificial Intelligence (AI) software (i.e. ChatGPT from OpenAI) was utilised to provide an initial scoping of relevant publications. This select information was verified and expanded upon by the author within the delineated parameters of the study and analysis.

4. Findings and discussion

The topics of the findings and discussion section include the ‘regional overview of indicator performance’, ‘comparative analysis of urban and rural regions’, and ‘policy review’.

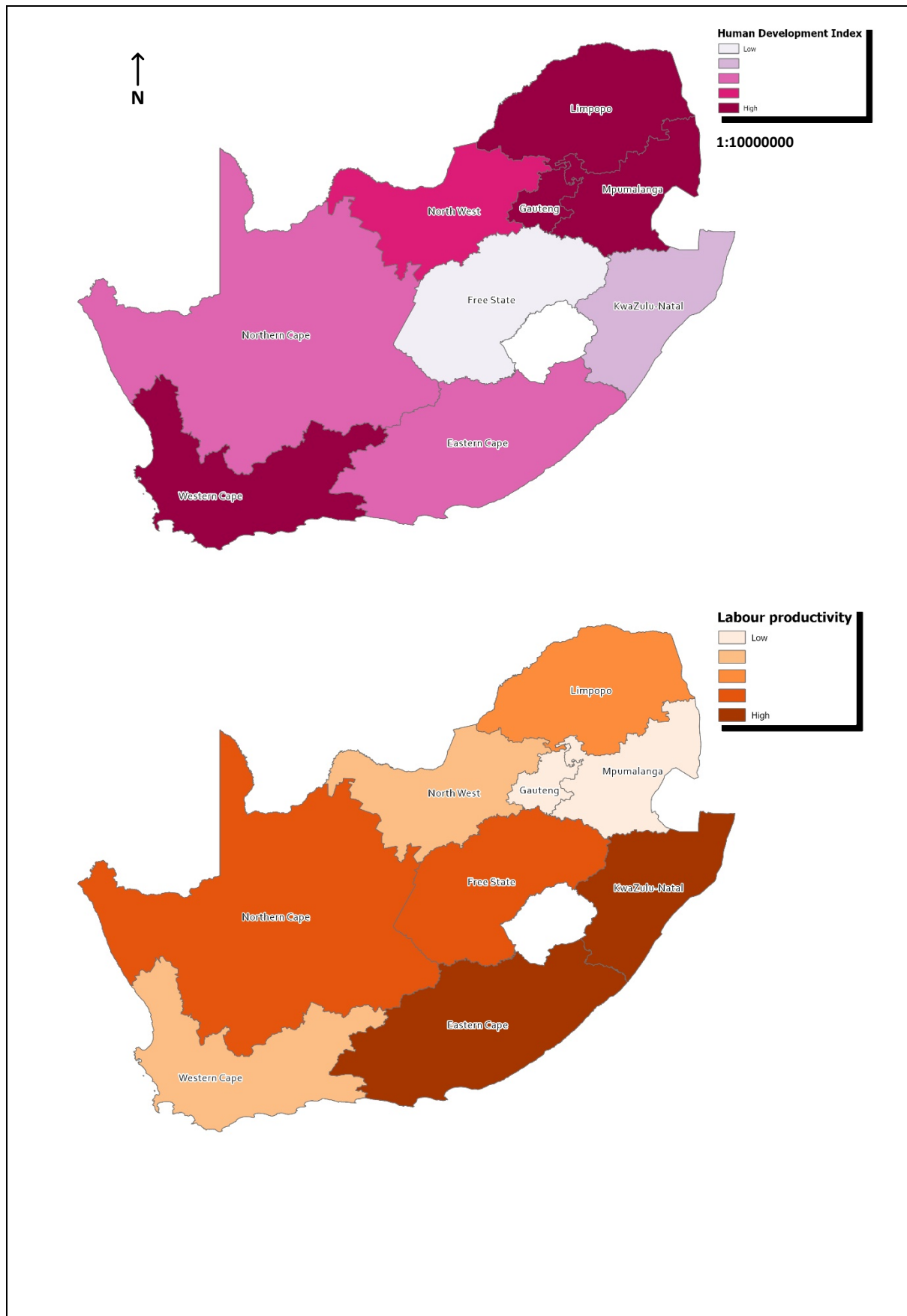
4.1. Regional overview of indicator performance

The following section provides a regional overview of municipal performance for the delineated indicators. Toward this end, Table 2 indicates the percentage of municipalities in each province that perform higher than the national average in the four indicators.

Table 2. Municipal performance per province. Source: Quantec EasyData (2024).

Province	HDI	Labour Productivity (2015 base)	Capital Productivity (2015 base)	Tress Index
1. Western Cape	100,00%	72,00%	96,00%	100,00%
2. Eastern Cape	42,42%	96,15%	38,46%	100,00%
3. Northern Cape	46,15%	88,46%	84,62%	100,00%
4. Free State	5,26%	89,47%	73,68%	100,00%
5. KwaZulu-Natal	9,09%	93,18%	63,64%	93,18%
6. North West Province	66,67%	72,22%	83,33%	100,00%
7. Gauteng	100,00%	33,33%	55,56%	44,44%
8. Mpumalanga	100,00%	29,41%	41,18%	100,00%
9. Limpopo	100,00%	72,73%	31,82%	100,00%

Figure 1 illustrates the spatial distribution of related performance on a provincial level.



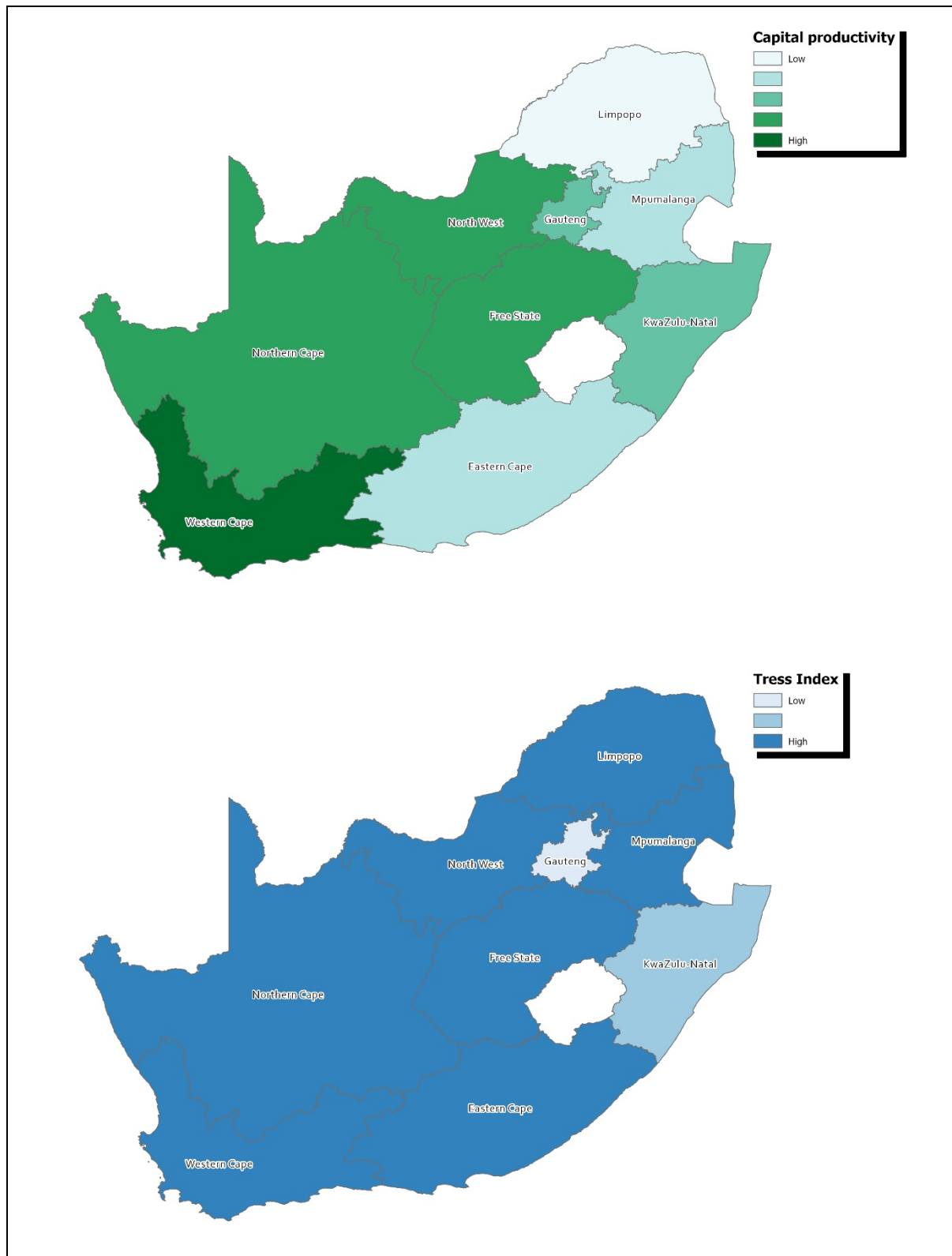


Figure 1. Spatial distribution of performance among indicators. Source: Author (2024).

As indicated in Table 2 and Figure 1, there are significant differences among the municipalities in the various provinces with regard to performance in the four indicators. With regard to HDI, in four provinces 100,00% of municipalities perform higher than the national average, including Western Cape, Gauteng,

Mpumalanga, and Limpopo. This is followed by 66,67% in North West Province, 46,15% in the Northern Cape, and 42,42% in the Eastern Cape. KwaZulu-Natal (9,09%) and the Free State (5,26%) have the lowest percentage of municipalities that perform higher than the national average in the HDI. In terms of labour productivity, the highest percentage of municipalities that exceed the national average in terms of performance are the Eastern Cape (96,15%), KwaZulu-Natal (93,18%), Free State (89,47%), and the Northern Cape (88,46%). Gauteng and Mpumalanga are the two provinces with the least amount of municipalities that exceed the national average, with 33,33% and 29,41% respectively. In terms of capital productivity, the Western Cape (96,00%), the Northern Cape (84,62%), and the North West Province (83,33%) have the highest percentage of municipalities that exceed the national average performance. This is contrasted to Limpopo (31,82%), Mpumalanga (41,18%), and Gauteng (55,56%), who have the least amount of municipalities in this regard. In terms of the tress index, all municipalities in seven provinces have a higher concentration of economic activity compared to the national average. In KwaZulu-Natal, 93,18% of municipalities have a higher tress index than the national average, while 44,44% of municipalities in Gauteng exceed this national average.

4.2. Comparative analysis of urban and rural regions

The following section provides a comparison of the average performance of urban and rural areas in the four delineated indicators, which is summarised in Table 3.

Table 3. Metropolitan and non-metropolitan performance. Source: Quantec EasyData (2024).

Indicator	Metropolitan	Non-metropolitan
1. HDI	0,71	0,67
2. Labour Productivity (2015 base)	106,95	112,69
3. Capital Productivity (2015 base)	96,74	98,75
4. Tress Index	74,46	79,34

As indicated in Table 3, there are differences between metropolitan and non-metropolitan in the four delineated indicators. Metropolitan municipalities (0,71) have on average higher HDI in comparison with non-metropolitan municipalities (0,67). This may be indicative of regional disparities in quality of life and the social, economic, and environmental outcomes associated with the index, including health, education, and basic service delivery. In addition, this may indicate economic inequality, with urban areas characterised by more employment and higher income opportunities. The latter may constitute push and pull factors that influence migration and urbanisation trends between regions, which further exacerbates inequality (Gumede, 2021). Increased HDI may also catalyse increased domestic investment in said regions. Disparities in HDI between regions may also be due to disparities in education and health investment (Ngwakwe, 2020) – influencing broader socio-economic outcomes. Said disparities are due to structural inequality catalysed by historical and current public policy (Ogujiuba et al., 2024). The latter interventions need to prioritise improved education, health outcomes, and income distribution. Human development inequality is spatially reflected (also in Table 3) due to more inclusive development policy in urban areas, contrasted to rural areas being ensnared in cycles of low economic growth and opportunities (Ogujiuba et al., 2024).

Furthermore, Table 3 indicates that non-metropolitan municipalities (112,69) have higher labour productivity (2015 base) compared to metropolitan municipalities (106,95). This is also reflected in capital productivity (2015 base), with metropolitan municipalities scoring 96,74 in comparison with 98,75 in non-metropolitan municipalities. This may indicate the more productive use of labour and capital in rural areas, which is potentially centred on economies comprised of higher productivity sectors. This may include activities related to agriculture, mining, and energy. Cognisant of their comparatively lower HDI performance, high productivity in rural areas may not result on high employment or income. However, said productivity may also indicate opportunities for innovation and technology integration in non-metropolitan municipalities (Moyo et al., 2024). Higher productivity in rural areas may also be attributed to their adaptive capacity in a milieu of limited resource availability (Zhou & Gumbo, 2021). This is despite challenges related to infrastructure and access to markets. Phiri and Mbaleki (2022) state that increased public investment, with specific reference to education and health, may catalyse improved productivity. However, while rural areas (as per Table 3) illustrate higher productivity, the lack of targeted fiscal interventions limits potential growth and exacerbates the disconnect between productivity and employment (Phiri and Mbaleki (2022).

Table 3 does, however, indicate that metropolitan municipalities have, on average, a lower tress index score (74,46) than non-metropolitan municipalities (79,34). This translates into the economies of rural regions being concentrated in fewer economic sectors, with specific reference to primary and secondary activities, whereas urban regions house a larger tertiary sector through the provision of services activities, including finance and trade (Meyer, 2020). Further to these findings, Marais et al. (2023) analyse the dependence of rural regions in South Africa on primary sectors, including mining activities, which increases their vulnerability to economic downturns. The latter is relevant in the case of mine closures, which destabilise local economies. According to Van Aswegen et al. (2020), diversification strategies are required in regions that display significant concentration and specialisation in a narrow array of economic activities. This may support economic resilience and mitigate the potential for economic stagnation. This forms part of the broader need for local governance and policy interventions in rural areas as emphasised by Marais and Nel (2024).

4.3. Policy review

Table 4 indicates the policy components inherent to the NSDF, which may be applied to mitigate vulnerabilities and support economic resilience in the context of the South African space economy.

Table 4. NSDF policy components. Source: Author (2024).

Policy component	Overview	Relevance to economic resilience
1. Sectoral diversification	More balanced economy by lowering dependence on primary sectors	Support resilience to downturns in specific sectors.
2. Infrastructure investment	Infrastructure investment to improve linkages between regions.	Economic resilience in rural areas.
3. Spatial integration and growth nodes	Promotes development of various growth nodes; more balanced regional development strategy.	Reduced dependence on a few metropolitan centres.
4. Human capital and social infrastructure	Investment in education and health infrastructure.	Adaptive human capital to support diversified regional economies and adapt to economic shocks.

5. Natural resources and sustainability	Sustainable resource use; green economy development.	Relationship between economic and environment resilience.
6. Governance and institutional support	Effective governance and stakeholder collaboration is central to related policy development and implementation.	Intra-government and sectoral alignment important in fostering economic resilience.
7. Inclusive development	Inclusive development policy and access to economic opportunities toward the reduction of spatial inequality.	Social resilience is dependent on inclusive development and policy.

Accordingly, as indicated in Table 4, the implementation of the policy components in the NSDF may reduce vulnerability to sector-specific downturn, strengthen economic resilience to rural areas, reduce dependence on a few metropolitan centres, enable adaptive human capital to support diversified regional economies and adapt to economic shocks, develop the nexus between economic and environmental resilience, align policies in different spheres and sectoral are central to achieving economic resilience, and insure inclusive development that supports economic – and societal – resilience.

5. Conclusion

This paper has sought to identify potential indicators of economic resilience, analyse performance of municipalities against these indicators to provide insight on their resilience, and provide an overview of spatial policies that seek to foster economic resilience. The findings indicate that there are inequalities in the performance of municipalities, as well in between urban and rural regions in terms of performance in the indicators of economic resilience. Municipalities in the Free State and KwaZulu-Natal (HDI), Mpumalanga and Gauteng (labour productivity), the Eastern Cape and Limpopo (capital productivity) are positioned among the lowest performing in the context of the indicators. Only Gauteng and KwaZulu-Natal have municipalities that are more economically diverse (Tress Index) than the national average. Furthermore, rural areas perform lower than their urban counterparts in the HDI and Tress Index, while positioned higher in both labour and capital productivity. While the former illustrates the potential vulnerability of these areas, economic productivity may be leveraged to foster improved outcomes in broader economic indicators, including economic resilience. The latter may be achieved through the implementation of the diverse policy components incorporated in the NSDF, including sectoral diversification, infrastructure provision and spatial integration, human capital development, and governance and institutional support. This needs to form part of a holistic approach toward mitigating vulnerability to economic shocks, while fostering equal spatial diffusion of resilience and adaptation. Said approach ought to consider the productivity of factors of production, structural change, intra- and inter-regional interactions, connecting infrastructure, and governance capacity. In light of these findings in this exploratory study, future research initiatives ought to incorporate additional indicators to expand on the potential scope of the analysis, as well as analyse their growth trends over time; incorporate the direct measurement of economic resilience during shocks and disturbances on a local level in South Africa; and incorporate a broader review of development policies over diverse planning scales.

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