



The trajectories of urbanisation in Southern Africa: A comparative analysis

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ABSTRACT

Urbanisation is a worldwide phenomenon, yet its patterns vary significantly from one region to another. While the rate is slowing down in the Global North, the opposite is happening in parts of the Global South. This paper assesses the trajectory of urbanisation in Southern Africa over the last 40 years. This is one of the fastest urbanising regions of the world. It analyses four themes: cities' growth rates, size distribution, built-up areas and urban density. Several findings suggest that urbanisation has become slightly more manageable since the turn of the century. There has been a gradual decline in the urban population growth rate, the number of cities is increasing more slowly than before, and the urban footprint is expanding more slowly. South Africa and Zimbabwe exemplify these trends. Other findings give greater cause for concern and warrant more government attention. Growth is unevenly distributed across the size spectrum, with the largest cities growing much faster than smaller cities. In addition, the highest urban densities are in the poorest countries, suggesting that density takes the form of overcrowded informal settlements rather than liveable and productive places. The DRC and Mozambique exemplify these challenges.

1. Introduction

Urbanisation is a worldwide phenomenon though marked differences exist both within and between countries in the Global North and Global South. The rate of urbanisation tends to be relatively slow in the Global North and much faster in the Global South, although this obscures considerable diversity within both regions (Dodman et al., 2017; Zhang, 2016). More research is required to interrogate the detailed dynamics of urbanisation in different regions and countries because of the far-reaching implications for public spending, infrastructure development, urban planning and design (Baeumlner et al., 2021; Güneralp et al., 2017; Jiang et al., 2021; Mawenda et al., 2020; Organisation for Economic Co-operation and Development/European Commission [OECD/EC], 2020). More contextual and locally responsive policies are vital if the urbanisation process is to be guided and managed sustainably and inclusively. The need for contextual and locally responsive approaches has prompted several studies at global and regional levels (Chakraborty, Dadashpoor, et al., 2022; Güneralp et al., 2020; He et al., 2019; Novotný et al., 2022; Xu et al., 2019, 2020). Yet, systematic analyses of urbanisation trends in some parts of the world are still limited (Güneralp et al., 2020). Africa is a clear example (Xu et al., 2019). The

current study addresses this gap by comparing urbanisation trajectories across Southern Africa.

Much of the literature and public discussion of urbanisation in Africa has been characterised by excessive generalisation, abstract theorising and ahistorical analysis. Oversimplified and sensational claims often encourage governments to try to stem rural-urban migration or to steer it away from large cities. They seek to do this by skewing decisions on public spending and settlement planning towards smaller towns and new cities. Yet, this can have very deleterious consequences for essential investment in existing cities. For example, the former leader of South Africa's main opposition party recently claimed that urban migration is out of control and that the solution is to construct a series of new cities (Maimane, 2022). In fact, the current rate of urbanisation in South Africa is slower than in most other African countries, so the case for new cities is weaker than elsewhere. Other misperceptions about the rate and character of African urbanisation stem from serious data limitations (Potts, 2018). Comparative research on basic urbanisation trends and patterns has suffered from weaknesses and inconsistencies in urban demographic information (Fox et al., 2018; Potts, 2016; Turok, 2018). The Global Human Settlements Urban Centre Database was recently released after an unprecedented collaborative effort involving leading

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international organisations. It provides an invaluable opportunity to reassess urbanisation dynamics across Southern Africa over the last four decades.

This paper uses this novel dataset to analyse the nature and scale of urbanisation in Southern Africa. It addresses four main questions. What is the growth rate of cities in this region? What is the size distribution of cities? What is their rate of outward expansion? What are the trends in urban density? These questions relate to fundamental themes linked to the physical form or character of urbanisation, including population growth and its relationship to the built-up area. The main advantage of this dataset is its consistent approach to measuring urbanisation. This makes reliable comparison of cities in different countries possible, something which was extremely difficult before. The paper's original contribution focuses on trends and patterns among mainland countries in the Southern African Development Community (SADC) region. This is a somewhat neglected territory in urban research, perhaps because urbanisation has hitherto been seen as slower than in West and East Africa (United Nations, Department of Economic, Social Affairs, & Population, 2019). The dynamics of city growth are a vital input to resource allocation decisions that seek to promote positive urban outcomes and limit detrimental effects (Jiang et al., 2021).

The first question identified above considers whether the growth rate of cities in SADC is accelerating or slowing down, an issue of obvious importance. Africa is sometimes reported to have primate cities that are too big and secondary cities that are too small (Güneralp et al., 2017). Accordingly, the second question analyses whether SADC countries have skewed city-size distributions. The paper also assesses how these city-size distributions have changed over time and whether growth has occurred more rapidly in large, medium or small cities.

The third question of cities' built-up area (or physical footprint) is vital for environmental reasons and affects the cost of providing reticulated public services. The conventional wisdom is that African cities are expanding outwards rapidly because they comprise mostly single-storey informal settlements. Using the urban extent and cities' built-up area (BUA), we assess whether the evidence supports this in SADC. We also analyse whether the rate of outward expansion is accelerating or slowing down. Density is a closely related issue and potentially a positive force for sustainable urban development. The fourth question examines the most and least dense cities and trends over time.

The paper is structured as follows: after the introductory section, the paper reviews the literature linked to the four themes identified above. A specific focus is on global and regional urbanisation trends and outcomes. The discussion is framed by the concept of compact urban development to provide analytical coherence. The following section explains the data and methods used. This is preceded by the presentation of findings, discussion, and the conclusion.

2. Conceptual framework – the compact city

Compact urban development has been widely portrayed as a solution to the drawbacks of haphazard urban sprawl (Dieleman & Wegener, 2004; Nadeem et al., 2021; Neuman, 2005). Compact cities facilitate the concentration of services, higher residential densities, mixed land uses, and sustainable travel patterns (walking, cycling and public transport) while discouraging dependency on private cars and the associated road building (Mahriyar & Rho, 2014; Shum & Watanabe, 2017). The concept also promotes the integration of land use and infrastructure (especially transport) to achieve a more coherent and sustainable urban form (Nadeem et al., 2021). The benefits include improved accessibility, lower energy consumption, reduced travel needs, and lower greenhouse gas emissions (Angel et al., 2021; Shum & Watanabe, 2017). Urban consolidation also supports land preservation and the protection of ecological systems and biodiversity. For example, in Hong Kong (one of the world's densest cities), 67% of the land has been set aside as a natural landscape (Shum & Watanabe, 2017). More than half of this is reserved for recreational purposes (national parks). Consequently, Hong

Kong's population occupies only 7–8% of the land area.

Population density is one of the main attributes of compact urban development. In recent years the economic advantages have attracted more attention than the environmental and social benefits of urban concentration (Potts, 2016; Turok, 2020). Density is considered an important aspect of smart growth and resilient cities and a bedrock of urban settlements that are vibrant and productive (Scheba et al., 2021). Understanding how densification occurs at the city level can help inform policies to promote more efficient, inclusive and sustainable urbanisation. Density can take different forms and be measured at different scales, including the block, neighbourhood, district and city (Turok, 2020). In simple terms, population density refers to the level of concentration of people in a given area. This is influenced by factors such as household size, disposable income, and the size and cost of property.

We use the compact city concept as a way of thinking about the physical expansion of African cities. Many cities are struggling to keep pace with, and respond effectively to, high rates of population growth. This is why unplanned, irregular settlements on the urban fringe have become among the greatest challenges facing city governments. They simply cannot provide sufficient infrastructure, sanitation, energy and functional residential environments to accommodate urban growth. Densification is a possible solution, as it restrains the extent of bulk infrastructure required and reduces the cost of everyday service delivery (Visagie & Turok, 2020). Densification also promotes positive externalities associated with the concentration of firms and households in an area, including various synergies and efficiencies that boost economic development (Turok, 2016). Seamless connectivity and accessibility need to accompany density to realise these benefits. This depends on investment in physical structures (such as roads and public transport systems) and solid, multi-storey buildings to give households adequate living space and to avoid overcrowding at ground floor level – 'liveability' for short.

Although densification may appear to be positive in rapidly urbanising cities, it may also cause serious traffic congestion, air pollution, contagion and service breakdowns where critical thresholds are exceeded, space for circulation is limited, and infrastructure capacity is constrained (Scheba et al., 2021; Visagie & Turok, 2020). In addition, higher property values may displace low-income groups to peripheral areas thereby widening inequalities. These negative effects may not be the direct result of densification per se, but the failure of regulatory institutions to guide urban development effectively and inadequate investment in supporting infrastructure and buildings (Turok, 2020). Thus, an appropriate city governance framework is essential to limit the negative externalities of densification and to ensure that the process is functional and productive.

3. Review of related literature

3.1. The growth rate of cities and their size distribution

Globally, the rate of urbanisation is very diverse – it is much faster and more challenging in some regions and countries than in others. Despite the highest urban growth rates in the world, driven by both natural increase and rural-urban migration, approximately 70% of Africa's urban population lives in unplanned settlements (Baeumler et al., 2021; Zhang, 2016). Urbanisation levels across Africa's sub-regions are approximately 60% in Southern Africa, 50% in Northern Africa, between 40 and 48% in Central and West Africa, and 27% in East Africa (Baeumler et al., 2021; Bocquier & Mukandila, 2011). African countries experiencing the most intense urbanisation include Nigeria, Ethiopia, and the DRC. The latter appeared to have the highest annual urban population growth rate (3.8%) between 2001 and 2019 (Jiang et al., 2021). Moreover, the high rates of urbanisation in sub-Saharan Africa are associated with low per capita income (Baeumler et al., 2021), exemplified by the DRC. Furthermore, population growth in most cities is outpacing urban investment and appears lower than the

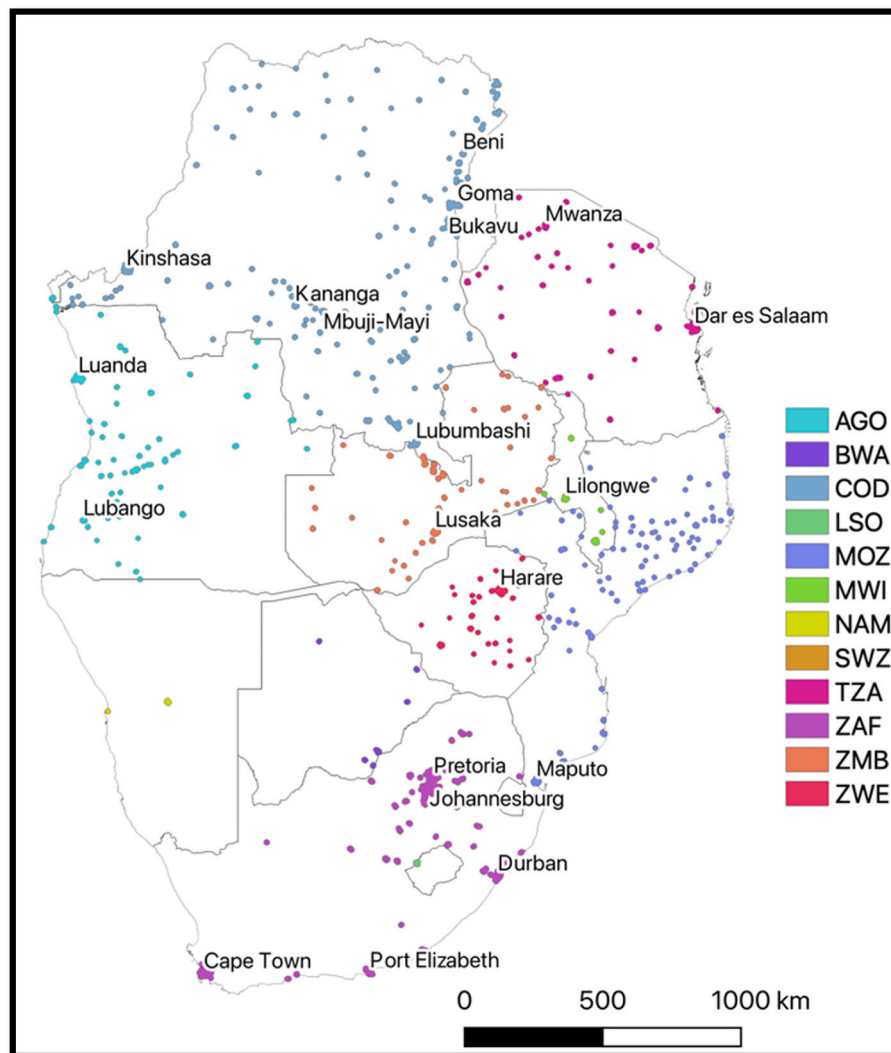


Fig. 1. Distribution of cities under analysis.

expansion of urban land (Baeumler et al., 2021; Jiang et al., 2021).

The distribution of growth has been highly skewed across geographic regions and the cities' size spectrum. East Asia and the Pacific region has 17 megacities (over 10 million people) including the world's largest, Tokyo. Yet, small and medium-sized cities account for the majority of urban dwellers (Baeumler et al., 2021). In contrast, Africa has seven megacities (Cairo, Kinshasa, Lagos, Accra, Johannesburg–Pretoria, Khartoum, and Nairobi) and two more (Luanda and Dar es Salaam) are expected to join the list around 2032 (Güneralp et al., 2017). At the same time, there are vast numbers of small cities. Despite the rapid growth of African urban areas, most countries appear to be characterised by a high degree of urban primacy (Güneralp et al., 2017). This is typified by Mozambique, with 76% of its urban population living in the largest 13 urban areas (Andersen et al., 2015). The present study focuses on the SADC region, where urbanisation has not been studied as closely as in other places.

3.2. Urban footprints and density

Rapid urbanisation has transformed urban footprints and densities in many parts of the world. Compared with the Global North, cities in the Global South appear to be experiencing more outward than inward expansion (Chakraborty, Maity, et al., 2022). The percentage increase of

cities' land area (urban extent) between 1975 and 2015 was highest in the Middle East and North Africa (400%), followed by Sub-Saharan Africa and South Asia (300%), with Europe at only 40% (Dijkstra et al., 2020). The rapid outward expansion of cities in some of these territories meant the proliferation of unplanned/informal settlements (Mawenda et al., 2020; Rogerson, 2016; van Noorloos & Kloosterboer, 2018). Countries such as Nigeria, Egypt, the DRC, and Ethiopia have experienced extensive urban land expansion (Jiang et al., 2021). This has been associated with environmental degradation and associated problems that hamper the prospects for lasting economic growth and development (Gambe, 2019; Turok, 2016).

Urban density varies widely within and across regions. Between 1985 and 2015, urban density tended to decline in cities in the Global North while increasing sharply in the Global South, especially in sub-Saharan Africa (Chakraborty, Maity, et al., 2022). Urban population densities in African cities tend to be lower than in South Asia, the Middle East and North Africa (Lall et al., 2017; Wang & Kintrea, 2021). Such densities have been growing in Africa without commensurate economic densification (Lall et al., 2017). Urban densities also tend to be higher in low-income than in middle- or high-income countries (Dijkstra et al., 2020). The highest urban densities are commonly found in the poorest countries, associated with crowded informal settlements and poor living conditions. This is why it is vital to prepare for future urban growth

Table 1
City population in SADC, 1975–2015.

Country	City Population (1975)	City Population (1990)	City Population (2000)	City Population (2015)	Percentage Increase & CAGR (1975–2015)	Absolute Population Increase (2014–2015)
Tanzania	1,472,942	3,493,582 (5.9%)	5,858,806 (5.3%)	12,222,253 (5.0%)	730 (5.4%)	584,697
Zambia	1,177,642	3,143,453 (6.8%)	4,758,021 (4.2%)	8,413,381 (3.9%)	614 (5.0%)	313,706
Angola	2,656,755	5,425,980 (4.9%)	8,315,010 (4.4%)	16,926,205 (4.9%)	537 (4.7%)	783,370
Namibia	73,060	142,074 (4.5%)	222,563 (4.6%)	427,470 (4.4%)	485 (4.5%)	18,201
Mozambique	2,683,102	4,229,894 (3.1%)	6,858,743 (5.0%)	12,718,601 (4.2%)	374 (4.0%)	512,985
Malawi	472,516	837,775 (3.9%)	1,063,101 (2.4%)	2,029,327 (4.4%)	330 (3.7%)	85,608
DRC	10,315,244	15,780,087 (2.9%)	22,252,742 (3.5%)	37,198,775 (3.5%)	261 (3.3%)	1,252,632
South Africa	7,137,229	13,115,958 (4.1%)	18,301,626 (3.4%)	25,300,568 (2.2%)	255 (3.2%)	540,363
Zimbabwe	1,915,611	3,409,646 (3.9%)	4,197,988 (2.1%)	5,486,955 (1.8%)	186 (2.7%)	97,080
Lesotho ^a	110,804	166,006 (2.7%)	199,653 (1.9%)	245,878 (1.4%)	122 (2.0%)	3390
Botswana	0	102,210 (–)	463,620 (16.3%)	648,363 (2.3%)	–	14,336
Swaziland	0	0 (–)	0 (–)	115,935 (–)	–	–
SADC	28,014,904	50,031,320 (3.9%)	72,491,873 (3.8%)	121,733,711 (3.5%)	335 (3.7%)	4,134,947
Region						

Notes: Figures in brackets represent CAGR - the compound annual growth rate for the years preceding. For example, 5.9% is the CAGR for Tanzania for the period 1975–1990.

^a Represents analysis based on a single city captured in the database.

more carefully than hitherto by investing in advance in infrastructure and buildings.

4. Data and methods

We follow the Degree of Urbanisation (DoU) approach (Dijkstra et al., 2020) to analyse urban trends in the SADC region. The data source is the Global Human Settlements Urban Centre Database 2015 [GHS-UCDB 2015 R2019 V1.2] (Florczyk, Corbane, et al., 2019) which is available for four points in time: 1975, 1990, 2000 and 2015. The detailed methodology behind the database is explained in Florczyk et al. (2019b, p. 7–15). The database consists of population and built-up area information derived from census and satellite imagery which has been transformed into grid cells of the same size (1 sq. km) to facilitate international comparisons (Dijkstra et al., 2021; OECD/EC, 2020). This was difficult in the past because of differences in the way urban areas were defined and measured (Dijkstra et al., 2020; Heinrigs, 2020; OECD/EC, 2020).

The DoU approach defines settlements according to the contiguity of their constituent built-up 1 sq. km grid cells. A city is an area made up of contiguous 1 sq. km built-up urban grid cells that each has a minimum density of 1500 people per grid cell and a combined total population of at least 50,000 inhabitants. Towns and semi-dense areas have a minimum of 300 people per sq. km and a total population of at least 5000 inhabitants. Rural areas consist of grids outside urban clusters and with a total population below 5000 (see Dijkstra et al., 2020; OECD/EC, 2020). The main benefits of the approach are: (i) the definition of settlements is independent of administrative boundaries, (ii) the approach provides a definition that goes beyond population size to include density and the level of physical development – i.e. the extent of built-up areas, (iii) it uses a population-based method of defining cities rather than built-up areas alone, and (iv) using a single population size and density threshold in the definition of settlements produces a classification that is not only plausible but also makes comparability across nations possible (Dijkstra et al., 2020).

The DoU also has some limitations (Dijkstra et al., 2020). First, under-detection of built-up areas causes under-estimation of population density in the affected cells, while over-detection of built-up areas can result in an erroneous allocation of people into these cells. Second, measurement errors may arise in the process of allocating people to built-up areas. For instance, some persons might be wrongly allocated to non-residential buildings. A related issue is where the population is unevenly distributed within a census tract but is allocated in a uniform manner across the entire built-up area of the tract. Third, the DoU

approach relies on available census data, so any inaccuracies inherent in population census data are reproduced.

Fourth, the contiguity aspect of the grid cells can be overly restrictive and split up a functional city area into different settlements. This happens in countries with sprawling urban populations, such as Zimbabwe and South Africa, where some major cities are divided into different settlements. This can occur where there is a stretch of vacant land separating suburbs from the core city. For example, Harare and Mabvuku (in Zimbabwe) are presented as separate cities yet Mabvuku is arguably a dense suburb of Harare. Despite these drawbacks, the DoU approach makes an invaluable contribution to studying urbanisation by standardising definitions and improving international comparability.

The present paper focuses on 531 cities in 12 countries in the SADC mainland region (Fig. 1) as identified in the Global Human Settlements Urban Centre Database 2015 [DRC (160), Mozambique (90), South Africa (77), Angola (58), Zambia (49), Tanzania (44), Zimbabwe (33), Malawi (8), Botswana (7), Namibia (2), Swaziland (2), and Lesotho (1)]. We extracted population, built-up area (BUA), and land area data and examined it using trend analysis and descriptive statistics. Our main interest was in tracing population growth, cities' size distribution, BUA, and BUA density trends at city, country and regional levels. To compare our findings with the existing literature, we disaggregated the 531 cities into three categories: small cities with a population ranging from 50,000–250,000; medium-sized cities (250,001–1,000,000), and large cities (over 1,000,000).

We calculated the built-up area (BUA) density (hereafter referred to as urban density) by dividing the city's population by the built-up area. We calculated saturation by dividing the city's BUA by the total land area/urban extent. Saturation measures the proportion of the built-up area in a city relative to open/undeveloped space. Thus, it ranges from 0 to 1, and a figure below 0.5 means the proportion of BUA in the city is lower than the proportion of open space (Angel et al., 2021). There are many ways of measuring urban primacy (Short & Pinet-Peralta, 2009). We calculate it by dividing the largest city's population by the second-largest population. We consider a value of 2 and above as evidence of urban primacy.¹

5. Findings

The findings are presented in line with the main themes mentioned

¹ Only a few of the largest cities have been identified by name to avoid clutter as cities are located close to each other.

above, i.e. the growth rate of cities, the size distribution, built-up area and urban density. Space limitations mean that some of the statistical evidence is presented in appendices.

5.1. The growth rate of cities

The main research question addressed here is whether the growth rate of cities in the region is generally accelerating or slowing down. This has been a contentious issue in the literature and is of considerable political and social significance. We also analysed whether the number of cities in the region has been increasing at a faster or slower rate than previously. A major finding is that urbanisation in the region shows very divergent trends: it is very challenging in some countries but more manageable in others.

Considering the region as a whole, the annual growth rate of the urban population declined slightly from 3.9% between 1975 and 1990 to 3.5% in the 2000s, as shown in Table 1. This is still high by global standards and the absolute numbers of people involved are considerable. Turning to the rate of increase in the number of cities in SADC, this is generally slowing down (Appendix A). The compound annual growth rate (CAGR) of the number of cities declined from 3.8% between 1975 and 1990 to 2.4% after the turn of the millennium. Over the last 40 years, the number of cities increased at an annual rate of 3.2%.

The largest percentage increases in city population between 1975 and 2015 were in Tanzania, Zambia, and Angola. During the same period, the annual urban population growth rates in Tanzania, Zambia, Angola, Namibia, and Mozambique were higher than the regional average (3.7%). Although the DRC and South Africa had urban population growth rates below the regional average, their absolute population increases between 2014 and 2015 were among the highest in the region (final column of Table 1), indicating the scale of the challenge of accommodating this population in decent conditions. The DRC leads the list followed by Angola, Tanzania, South Africa, and Mozambique.

The slowing rate of growth is evident in countries facing quite different conditions, including Tanzania, Zambia, South Africa, and Zimbabwe. Slowdowns of varying degrees are also apparent in several other SADC countries with smaller populations, although the continual increase in the number of cities in these countries needs to be taken seriously.

Meanwhile, the growth rate of the urban population in Malawi increased sharply after 2000, recovering from a slowdown in the 1990s. The urban growth trajectory of Angola, Namibia, and Mozambique has been more complicated. The DRC's urban trajectory between 1975 and 2015 is quite distinctive with a steadily increasing growth rate. South Africa's pattern is the opposite in that there was a steady decline in the rate of urban growth over time. This has something to do with the country's relatively high level of urbanisation at the outset. Beyond this broad finding, the rate of increase of the urban population varied greatly across countries (Table 1).

These findings differ from the existing literature. Using the UN's World Urbanisation Prospects (WUP 2010) data, Bocquier and Mukandila (2011) stated that the level of urbanisation in Malawi and the DRC would remain fairly low by 2050. However, if their recent trajectories persist, Malawi and the DRC are poised for continuous growth – rapid in the former and gradual in the latter (Table 1). The discrepancies are indicative of the limitations of the UN dataset, which is derived from population registers, census, sample surveys and other estimates (Bocquier & Mukandila, 2011). This is less reliable than the new dataset used here.

Turning to consider individual cities, Lubumbashi experienced the fastest increase in population between 1975 and 2015 of all the large cities, at a remarkable compound annual growth rate of over 8 per cent. This was followed by Dar es Salaam and Lusaka (Table 2). South Africa's four largest cities have experienced quite strong growth over the 1975–2015 period, although the rate has slowed considerably since the millennium.

Starting from a low base, Luanda has grown particularly rapidly, with an exceptional CAGR of 23.7% for 1990–2000 and 19.2% for 2000–2015. Luanda also had the highest absolute increase in population (1,092,403) between 2014 and 2015 of all cities. This was 3.5 times higher than second-placed Dar es Salaam (306,925). Luanda's rapid growth has been driven by rural-urban migration and natural increase. Industrial development in the 1950s attracted migrants seeking job opportunities and better living conditions (Viegas, 2016). Urbanisation then accelerated during the civil war as Luanda received Angolan migrants returning home from nearby countries and domestic migrants from other parts of the country seeking a safe haven (Viegas, 2016). The city's land area expanded rapidly and the periphery was occupied by partially planned and unplanned *musseques* (peri-urban developments). The high urban growth rates across SADC show that there is no scope for complacency given the challenges involved in accommodating this scale of growth in dignified living and working conditions. The increase in the absolute population numbers shown in Tables 1 and 2 is very telling.

5.2. The size distribution of cities

We examined four questions under this theme: is the size distribution skewed in 2015? Is most growth occurring in large or secondary cities? Are African cities characterised by urban primacy? And is this increasing or decreasing over time? Two main findings emerged: (i) the distribution of growth across the size spectrum is highly skewed – the growth rate of most large cities has accelerated while the growth rate of other cities has slowed; and (ii) urban primacy is evident in most SADC countries and is increasing slightly because large cities are growing faster than other cities.

The analysis revealed that 85.3% of cities in SADC are in the small category, while medium-sized cities make up 12.2% and large cities 2.4% (Appendix B). The size distribution does not differ greatly across countries. All cities in Botswana are classified as small, while more than 90% of those in Mozambique and Zimbabwe are in this category. The distribution of the urban population across the city categories is quite different. Thus, just over a third of urban residents (38%) in SADC live in small cities compared to 37% in large cities (Fig. 2). This contradicts the findings of earlier studies which suggested that Africa's urban population was skewed towards small and medium-sized cities (Dodman et al., 2017), and that population growth was more pronounced in small and medium-sized cities (Baeumlner et al., 2021; Güneralp et al., 2017). In SADC, the picture is different. After slowing down in the 1990s, large cities grew faster than other cities between 2000 and 2015. This divergence is a notable change from earlier periods and warrants further investigation. Over the three successive periods, the average annual growth rates of the population in large cities were 6.9%, 2.8%, and 4.7%, as shown in Fig. 2.

The growth patterns (disaggregated according to city size) in most countries are quite distinctive (Appendix C). For example, urban population growth in the DRC was pronounced in the large and medium-sized cities, while in South Africa most growth was in the large and small cities. Population growth rates also varied greatly between individual cities (Appendix D [Tables D1–D3]). The fastest growing large cities (throughout the period) in SADC were Lubumbashi, Luanda, Dar es Salaam, and Lusaka. Yet, in terms of absolute population increase, Johannesburg was dominant in the periods 1975–1990 and 1990–2000, before being overtaken by Luanda and Dar es Salaam after 2000. Cabinda and Luena were the fastest growing medium-sized cities while UÅge was one of the slowest. No clear pattern can be discerned among small cities. However, the highest growth rates were experienced by cities in this category. This is not surprising because it is easier for small cities to grow quickly than for large cities because they start from a low base.

There is clear evidence of urban primacy in six of the 11 countries under analysis. Urban primacy is not strong in Botswana, Malawi, South Africa, DRC, and Swaziland, although there is a hint of it in South Africa

Table 2
Population of largest cities in SADC, 1975–2015.

City	Population (1975)	Population (1990)	Population (2000)	Population (2015)	Percentage Increase & CAGR (1975–2015)	Absolute Population Increase (2014–2015)
Lubumbashi (DRC)	99,462	337,994 (8.5%)	753,144 (8.3%)	2,245,427 (7.6%)	2158 (8.1%)	157,713
Dar es Salaam (TZA)	465,627	1,208,633 (6.6%)	2,201,817 (6.2%)	5,345,515 (6.1%)	1048 (6.3%)	306,925
Lusaka (ZMB)	271,478	727,540 (6.8%)	1,189,244 (5.0%)	2,381,621 (4.7%)	777 (5.6%)	107,750
Pretoria (ZAF)	333,730	651,341 (4.6%)	955,061 (3.9%)	1,473,571 (2.9%)	342 (3.8%)	41,993
Johannesburg (ZAF)	1,600,849	3,025,150 (4.3%)	4,345,203 (3.7%)	6,516,134 (2.7%)	307 (3.6%)	173,670
Mbuji-Mayi (DRC)	744,692	1,316,330 (3.9%)	1,908,318 (3.8%)	3,024,105 (3.1%)	306 (3.6%)	91,409
Beni (DRC)	374,339	662,850 (3.9%)	944,596 (3.6%)	1,505,135 (3.2%)	302 (3.5%)	46,029
Cape Town (ZAF)	978,215	1,767,886 (4.0%)	2,460,811 (3.4%)	3,511,853 (2.4%)	259 (3.2%)	82,287
Harare (ZWE)	765,398	1,322,061 (3.7%)	1,573,937 (1.8%)	1,934,205 (1.4%)	153 (2.3%)	26,396
Maputo (MOZ)	979,303	1,237,819 (1.6%)	1,656,325 (3.0%)	2,428,912 (2.6%)	148 (2.3%)	61,208
Durban (ZAF)	1,448,358	2,096,098 (2.5%)	2,512,900 (1.8%)	2,867,062 (0.9%)	98 (1.7%)	25,091
Kinshasa (DRC)	3,325,277	4,241,545 (1.6%)	4,921,631 (1.5%)	5,622,520 (0.9%)	69 (1.3%)	49,685
Luanda (Ago)	0 ^a	58,126 (-)	488,037 (23.7%)	6,786,991 (19.2%)	–	1,092,403

Notes: Figures in brackets represent CAGR, the compound annual growth rate for the years preceding. For example, 8.5% is the CAGR for Lubumbashi between 1975 and 1990.

^a The GHSUCD figure of 1777 for the population of Luanda in 1975 is not plausible. Thus, it was replaced with a zero and treated as non-existent to prevent distorting the national and city-level averages.

and Malawi. High primacy rates are evident in Angola, where Luanda's population is more than 8 times the size of the second largest city, Lubango. The largest cities in Namibia and Tanzania are also more than 5 times the size of the second largest cities (Appendix E). Urban primacy has gradually increased in most countries in recent decades, especially Tanzania, Zambia, and Zimbabwe. Although urban primacy in Angola decreased from 1975 to 2000, a rapid increase was experienced between 2000 and 2015. There was also a gradual decrease in urban primacy in Namibia and the DRC. Further research is required to explain these contrasting patterns.

5.3. The urban footprint

The key question here is whether the rate of outward expansion of cities in SADC is accelerating or slowing down. This was examined using two variables – the city's land area/urban extent and the built-up area. We also assessed how outward urban expansion influenced saturation levels.

The main finding is that the rate of expansion of SADC's urban footprint has been declining. The urban extent increased sharply (by an annual average of 3.9%) between 1975 and 1990 but subsequently slowed slightly to 3.6% in the 1990s and then to 2.1% between 2000 and 2015 (Table 3). The average annual growth rate of the urban extent in SADC between 2000 and 2015 was lower than in Africa as a whole, which was 5.9% per annum from 2001 to 2019 (Jiang et al., 2021). Unfortunately, the latter study was restricted to a small sample comprising only 20 cities and towns that were randomly selected.

The countries with the largest expansion in cities' land area over the whole period 1975–2015 are Zambia (1,060%), followed by Tanzania (617%), Angola (595%), and Malawi (444%). South Africa experienced the least expansion (154%), although this still amounted to an increase from 2586 sq. km in 1975 to 6580 sq. km in 2015. Zambia had the fastest growth in its urban extent with a CAGR of 6.3% between 1975 and 2015

whereas South Africa had the slowest (2.4%). The variation can be explained partly by differences in the base figures. Table 3 shows that Zambia had a much smaller urban land area (103 sq. km) than South Africa (2586 sq. km) in 1975, so it was bound to grow faster. The rate of increase of the built-up area (BUA) of cities is also slowing down. The countries with the largest expansion in the BUA over the study period 1975–2015 are Angola (657%), Zimbabwe (211%) and Malawi (206%).² South Africa experienced the smallest expansion of the BUA (80.4%). The broad correspondence between the findings using the two data sources is reassuring.

The saturation level of cities has been gradually declining over the last 40 years because the rate of outward expansion has exceeded the increase in the built-up area. The average saturation level in SADC dropped from 0.58 in 1975 to 0.37 in 2015. This trend was similar across most countries. In South Africa, the saturation level declined from 0.62 to 0.44, in Mozambique the decline was from 0.42 to 0.33, and in Malawi from 0.41 to 0.23. While the trends in the latter countries were intermittent, the decline was gradual in the former. For consistency, saturation values for the years 2000 and 2015 were utilised in the analysis of trends for the countries in SADC.³ Angola, Malawi, and Tanzania had the largest decline in saturation levels between 2000 and 2015 while South Africa and Namibia had the smallest. The implication is that urban sprawl has been more pronounced in Angola, Malawi, and Tanzania than in South Africa and Namibia. However, this general finding does not apply to every city in these countries.

Unsurprisingly, the saturation picture was much more variable at the city level. Three distinct patterns were apparent: (i) cities with declining

² Lesotho was omitted in this analysis because only one city is included in the dataset.

³ The saturation values for 1975 and 1990 were disregarded due to inconsistencies that produced unreliable figures for countries such as Angola, Tanzania, and Zambia (see Table 3).

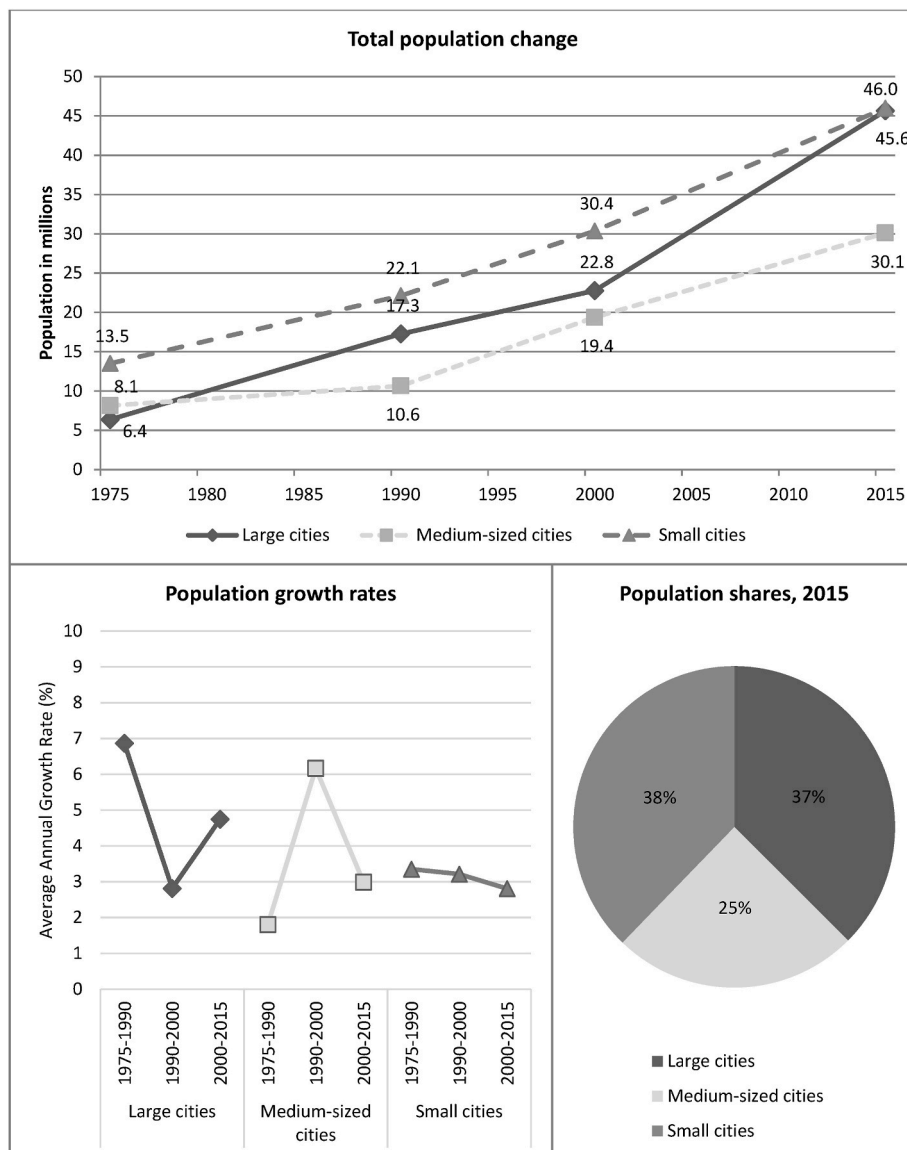


Fig. 2. Population growth in SADC by city size, 1975–2015. Source: Global Human Settlements Urban Centre Database 2015, own estimates.

saturation levels, (ii) cities with unstable saturation levels, and (iii) cities with increasing levels between 1975 and 2000 but a decrease thereafter. Johannesburg, Dar es Salaam, Cape Town, Lubumbashi, Pretoria, and Luanda had declining saturation levels (Table 3). Saturation levels in the first five of these cities decreased gradually from 1975 to 2015 while in Luanda the decrease was between 2000 and 2015. Lusaka, Harare, and Beni had unstable trends though the overall effect was a decline in saturation. Despite an increase from 1975 to 2000, saturation levels in Kinshasa, Mbuji-Mayi, Durban, and Maputo declined by 2015. Lusaka and Lubumbashi had the largest decline in saturation levels between 1975 and 2015. If the analysis is limited to the 2000s, then Luanda, Lubumbashi, Dar es Salaam, and Maputo replace the former cities. This suggests that urban sprawl has been more pronounced in Lusaka, Lubumbashi, Luanda, Dar es Salaam, and Maputo than in the other large cities. The precise reasons for this require further research.

5.4. Urban density

The focus here is on density patterns and trends across SADC cities. Urban density has both positive and negative effects, depending on how it is structured. The main finding is that the highest urban densities are in the poorest countries. This suggests that density takes the form of crowded informal settlements dominated by makeshift single-storey structures, rather than liveable and productive places, i.e. areas made up of solid houses and multi-storey buildings (blocks of flats) with decent public infrastructure and open spaces.

Large cities in SADC have lower average densities than other cities (Fig. 3). Yet, they have been densifying faster than smaller cities, though slower than medium-sized cities throughout the last 40 years (Fig. 3 and Appendix A). After a slowdown in the rate of densification in the 1990s, urban density in large and medium cities accelerated after 2000 (Fig. 3).

Table 3
The urban extent, built-up area and saturation analysis in SADC.

Country	1975	1990	2000	2015	Percentage Increase & CAGR (1975–2015)
Total cities' land area/urban extent (sq. km)					
Zambia	103	667 (13.3%)	873 (2.7%)	1195 (2.1%)	1060 (6.3%)
Tanzania	250	652 (6.6%)	1178 (6.1%)	1792 (2.8%)	617 (5.0%)
Angola	270	487 (4.0%)	1208 (9.5%)	1877 (3.0%)	595 (5.0%)
Malawi	69	108 (3.0%)	201 (6.4%)	375 (4.2%)	444 (4.3%)
Zimbabwe	252	573 (5.6%)	716 (2.3%)	966 (2.0%)	283 (3.4%)
DRC	1141	1563 (2.1%)	2102 (3.0%)	3183 (2.8%)	179 (2.6%)
Mozambique	449	629 (2.3%)	890 (3.5%)	1253 (2.3%)	179 (2.6%)
South Africa	2586	4274 (3.4%)	5491 (2.5%)	6580 (1.2%)	154 (2.4%)
Botswana	0	61 (–)	146 (9.1%)	197 (2.0%)	–
Lesotho*	0	48 (–)	65 (3.1%)	75 (1.0%)	–
Namibia	0	36 (–)	68 (6.6%)	88 (1.7%)	–
Swaziland	0	0 (–)	0 (–)	37 (–)	–
SADC Region	5120	9098 (3.9%)	12,938 (3.6%)	17,618 (2.1%)	244 (3.1%)
Built-up area (sq. km)					
Angola	109.25	541.84 (11.3%)	719.25 (2.9%)	827.22 (0.9%)	657 (5.2%)
Lesotho*	6.20	17.03 (7.0%)	26.62 (4.6%)	28.13 (0.4%)	354 (3.9%)
Zimbabwe	95.32	176.91 (4.2%)	268.91 (4.3%)	295.96 (0.6%)	211 (2.9%)
Malawi	28.05	36.58 (1.8%)	71.05 (6.9%)	85.75 (1.3%)	206 (2.8%)
DRC	420.92	571.09 (2.1%)	789.44 (3.3%)	952.44 (1.3%)	126 (2.1%)
Namibia	5.91	7.52 (1.6%)	11.14 (4.0%)	13.23 (1.2%)	124 (2.0%)
Mozambique	187.06	287.90 (2.9%)	373.14 (2.6%)	411.95 (0.7%)	120 (2.0%)
Tanzania	283.61	350.86 (1.4%)	487.39 (3.3%)	542.51 (0.7%)	91 (1.6%)
Zambia	208.11	267.77 (1.7%)	349.60 (2.7%)	385.14 (0.6%)	85 (1.6%)
South Africa	1603.69	2242.45 (2.3%)	2713.40 (1.9%)	2893.77 (0.4%)	80 (1.5%)
Botswana	0.00	27.71 (–)	79.66 (11.1%)	87.33 (0.6%)	–
Swaziland	0.00	0.00 (–)	0.00 (–)	10.90 (–)	–
SADC Region	2948.13	4527.65 (2.9%)	5889.60 (2.7%)	6534.34 (0.7%)	122 (2.0%)
Saturation (country level)					
Angola	0.40	1.11 ^a	0.60	0.44	9 (0.2%)
DRC	0.37	0.37	0.38	0.30	–19 (–0.5%)
Zimbabwe	0.38	0.31	0.38	0.31	–19 (–0.5%)
Mozambique	0.42	0.46	0.42	0.33	–21 (–0.6%)
South Africa	0.62	0.52	0.49	0.44	–29 (–0.9%)
Malawi	0.41	0.34	0.35	0.23	–44 (–1.4%)
Tanzania	1.13 ^a	0.54	0.41	0.30	–73 (–3.2%)
Zambia	2.02 ^a	0.40	0.40	0.32	–84 (–4.5%)
Botswana	–	0.70	0.55	0.44	–
Lesotho*	–	0.35	0.41	0.38	–
Namibia	–	0.21	0.16	0.15	–
Swaziland	–	–	–	0.29	–
SADC Region	0.58	0.50	0.46	0.37	–36 (–1.1%)
Saturation (city level^b)					
Luanda	–	–	0.90	0.60	–
Johannesburg	0.71	0.59	0.57	0.55	–23 (–0.6%)
Kinshasa	0.34	0.35	0.39	0.37	7 (0.2%)
Dar es Salaam	1.48 ^a	0.76	0.55	0.40	–73 (–3.2%)
Cape Town	0.80	0.61	0.58	0.56	–30 (–0.9%)
Mbuji-Mayi	0.37	0.41	0.46	0.40	9 (0.2%)
Durban	0.43	0.44	0.46	0.44	2 (0.04%)
Maputo	0.56	0.63	0.65	0.54	–4.0 (–0.1%)
Lusaka	0.99	0.46	0.47	0.40	–60 (–2.3%)
Lubumbashi	0.92	0.83	0.70	0.50	–46 (–1.5%)
Harare	0.56	0.39	0.48	0.40	–28 (–0.8%)
Beni	0.32	0.29	0.33	0.31	–1 (–0.03%)
Pretoria	1.06 ^a	0.60	0.55	0.50	–53 (–1.9%)

Notes: *Represents analysis based on a single city captured in the database.

^a Represents outliers resulting from the built-up area captured in the database being larger than the total cities' land area/urban extent.

^b Saturation analysis is only presented for large cities.

Average urban densities in most SADC countries increased significantly between 1975 and 2015, as shown in the last four columns of Table 4. Tanzania, Zambia, Namibia, and Mozambique densified the most, with urban density increasing sharply by more than 115% over this period. Urban density in South Africa almost doubled, while Malawi and the DRC had moderate increases of about 40–60%. In contrast,

urban density declined by 16% in Angola and 8% in Zimbabwe.

Density trends varied widely between different countries. Urban density increased in 11 of the 12 countries in the 2000s, eight countries in the 1990s, but only seven between 1975 and 1990. Countries with declining densities between 1975 and 2000 (Malawi, Angola, and Zimbabwe) were clearly consuming a disproportionate amount of

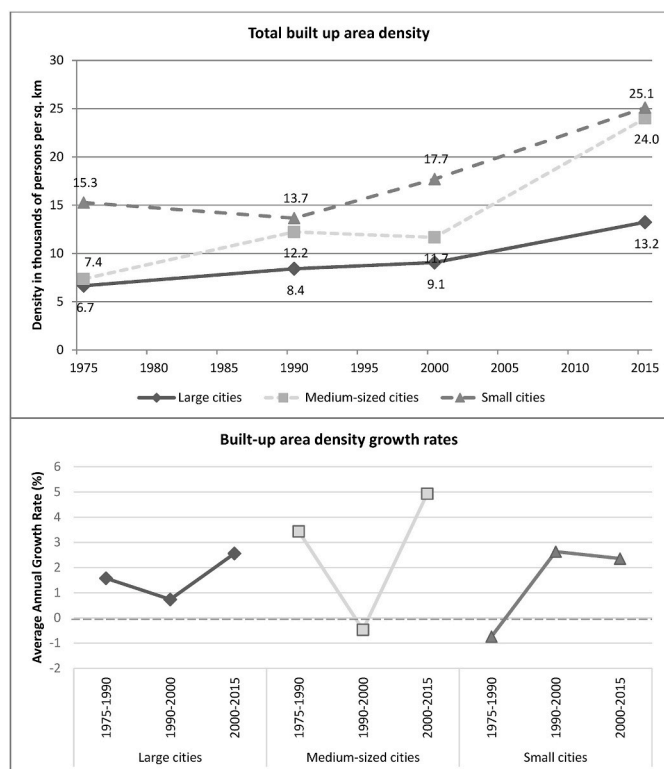


Fig. 3. Summary of change in the built-up area density in SADC, 1975–2015. Source: Global Human Settlements Urban Centre Database 2015, own estimates.

undeveloped land as their populations were growing (columns 2 and 3 of Table 4). There was a step change after 2000 as every single country appeared to contain their urban expansion more than before. Zimbabwe is the only country to have experienced a continuous decline in urban density from 1975 to 2000 before the trend reversed. The density trend has fluctuated very widely over time in Angola, first declining and then increasing strongly. Malawi also experienced marked changes over this period. These variations make it hard to generalise about urban density trends across SADC.

At the individual city level, small and medium-sized cities had higher urban densities than large cities (Appendix F). This trend emanates from the differences in density figures in the base year. Density was already higher in small than large cities in 1975 (Fig. 3). Although they have

been densifying faster than smaller cities, large cities’ density levels have remained comparatively lower. The interplay of the built-up area and population trends in cities also explain higher densities in small cities. High population growth rates in large cities have been associated with a pronounced expansion of the built-up areas. This is in contrast to small cities, whose population growth was accompanied by little or no expansion of built-up areas. This is why small cities with the highest urban densities are those with a built-up area below 1 sq. km. Such cities constitute 35.2% of SADC cities. Interestingly, 72.2% of the cities in Mozambique, 49% in Zambia, and 48.5% in Zimbabwe are in this category. This helps to explain why 9 out of 10 cities with the highest urban densities in SADC are found in these countries (Appendix F). This phenomenon of very small dense settlements warrants further research, as many of them may constitute satellite townships or dormitory areas emerging on available land outside existing cities. Others are emerging mining settlements and growth centres that have experienced increasing population with little expansion of their built-up areas. This is typical of some small cities in Zimbabwe.

Cities in middle-income countries tend to have lower densities than cities in low-income countries, suggesting an inverse relationship between average incomes and urban density. Thus, South Africa has the highest per capita income in SADC and the lowest average urban density at 8743 people per sq. km (Table 4). In contrast, the DRC has one of the lowest per capita incomes in SADC and an exceptionally high urban density of 39,056 people per sq. km. Mozambique also has very low average incomes and an urban density of 30,874 people per sq. km. This is clearly a challenge in terms of funding the investment required to unleash the multiple benefits of density and to manage the downsides of overcrowding and congestion. The apparent relationship between average incomes and urban densities seems to be reinforced by the distribution of densities at the city level. Cities in the low-income DRC dominate the density ranking of large and medium-sized cities, while low-income Mozambican, Zambian, and Zimbabwean cities top the ranking of small cities (Appendix F). In contrast, South African cities have the lowest densities across the size spectrum.

Densification trends in SADC can be understood as a mixture of both formal and informal. Formal densification tends to be more functional (in maintaining connectivity and accessibility) and is associated with economic benefits or positive externalities emanating from the concentration of firms and households (Turok, 2020). Cities in middle-income countries in SADC feature more of this type of densification, which is why their densities are comparatively lower. In contrast, informal densification, typical of unplanned settlements, leads to overcrowding because the concentration of firms and households exceeds the capacity of the available urban infrastructure and public space. The consequential effects include traffic congestion, air pollution and

Table 4 Ratio of land consumption to population growth in SADC.

COUNTRY	Ratio of Land Consumption Rate to Population Growth Rate			Built-up Area Density (population per km ² of built-up area)			
	1975–1990	1990–2000	2000–2015	1975	1990	2000	2015
DRC	0.71	0.94	0.36	24,506	27,632	28,188	39,056
Namibia	0.36	0.87	0.26	12,354	18,895	19,983	32,312
Mozambique	0.95	0.53	0.16	14,344	14,692	18,381	30,874
Malawi	0.46	2.85	0.29	16,843	22,904	14,963	23,665
Tanzania	0.24	0.63	0.14	5194	9957	12,021	22,529
Zambia	0.25	0.64	0.17	5659	11,739	13,610	21,845
Angola	2.31	0.66	0.19	24,319	10,014	11,561	20,461
Zimbabwe	1.07	2.03	0.36	20,096	19,274	15,611	18,540
Swaziland	–	–	–	–	–	–	10,641
South Africa	0.55	0.57	0.20	4451	5849	6745	8743
Lesotho*	2.55	2.45	0.26	17,874	9750	7501	8740
Botswana	–	1.30	0.27	–	6698	5820	7425
SADC Region	0.74	0.70	0.20	9503	11,013	12,308	18,630

Note: *Represents analysis based on a single city captured in the database.

overloaded infrastructure. These effects are not the result of densification per se, but the failure of regulatory institutions and inadequate investment in supporting infrastructure (Turok, 2020). Overcrowding characterises the densification taking place in low-income SADC countries and most small cities with a built-up area less than 1 sq. km and very high built-up area densities. Most of these small cities appear to be unplanned or partially planned and their densification is largely informal.

The cities in SADC that have densified most over the 1975–2015 period are Luanda, Lubumbashi, Dar es Salaam, and Lusaka (large cities), Cabinda and Luena (medium-sized cities), and Panguila (a small city). Four of these cities are in Angola and the others are in the DRC, Tanzania, and Zambia (Appendix D [Tables D.4 – D.6]). This supports the suggestion that the densest, most crowded cities are in the poorest countries. Elsewhere, a process of gradual de-densification is evident in some medium-sized and small cities in the region. The reasons for this warrant further investigation. It could reflect the outward expansion of these settlements and/or the migration of some of their residents towards larger cities, thereby adding to the pressure on their land, housing and infrastructure systems.

6. Conclusion

It is important to improve our understanding of the heterogeneity of urbanisation trends within and between countries, especially in Africa, given the challenges associated with rapid urbanisation. The paper examined the broad trajectory of urbanisation in Southern Africa over the last 40 years. Five main findings have emerged. First, the rate of urbanisation has been very diverse across the region – much faster and more challenging in some countries than in others. Second, the distribution of growth has been highly skewed across the size spectrum – large cities have grown rapidly over time, both in absolute terms and relative to smaller cities. Third, urban primacy is evident in most SADC countries and has been increasing over time. Fourth, the rate of expansion of SADC's urban footprint has been declining and urban densities have been rising. Fifth, the highest urban densities are in the poorest countries, suggesting that density takes the form of crowded informal settlements rather than well-functioning places.

The varied nature of urbanisation can be discerned at global, regional and city levels. Analysing the Global Human Settlements Urban Centre Database 2015, Dijkstra et al. (2020) noted that, globally, small cities experienced a reduction in densities over the past 40 years. However, SADC presents a different picture - urban densities increased across the size spectrum. The percentage increase of cities' land area was also lower in SADC (244%) than in the Middle East and North Africa (400%) and Sub-Saharan Africa and South Asia (300%) (Dijkstra et al., 2020). This suggests that urban sprawl was generally lower in SADC than in these other regions. Earlier studies noted that small and medium-sized cities are the fastest-growing in Africa (Baumler et al., 2021; Güneralp et al., 2017). Yet, large cities seem to be the fastest-growing urban centres in SADC. These discrepancies may have something to do with different scales of analysis and different data sources, but they also appear to be attributable to different urbanisation dynamics in different places. This is clear from the very divergent urbanisation trends within SADC.

Different urbanisation trends are also related to the levels of urbanisation at the outset. Countries with low levels of urbanisation in the

base year experienced the fastest growth. For example, Malawi, DRC, Tanzania, Zambia, and Zimbabwe still had relatively low levels of urbanisation at the turn of the century. Yet, urbanisation was already high (57%) in South Africa (Bocquier & Mukandila, 2011). This explains the acceleration of urban population growth rates in the former and the gradual slowdown in the latter. It is also linked to higher rates of densification in some cities (Lubumbashi, Dar es Salaam, and Lusaka) than in South African cities. This is not a sufficient explanation for the differences in urbanisation between Angola and South Africa. Both countries had high levels of urbanisation around the turn of the century. Yet, the rate of urban growth was higher and faster in Angola than in South Africa. Angola also had some of the most rapidly densifying cities in the region. Such differences in urbanisation may have more to do with income levels and political stability. Overall, the findings of this paper challenge simplistic and over-generalised characterisations of urbanisation trends in Africa.

The increasing rate of growth of large cities, coincident with stronger urban primacy, needs to be taken seriously by researchers and policy-makers. Most large cities in poor countries struggle to provide adequate housing, jobs and basic services for residents. Accelerating growth means mounting pressure on central and local governments to cater for the surging population. Yet, most of the governments concerned cannot afford to provide these facilities, which contributes to social discontent and civil unrest. There is also evidence that urban primacy is linked with excessive concentration of political power and administrative authority in Africa's capital cities (Bekker & Therborn, 2012). Almost all these cities emerged as political creations under colonialism, so they have no particular economic advantages and have struggled to develop strong economies. Their institutions provide important conduits to political influence, material wealth and privilege among elites. Concentrated power and authority are also open to abuse and can lead to the misappropriation and misallocation of public resources. A more dispersed pattern of demographic and political development might be more democratic, economically balanced and sustainable all-round.

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CRedit author statement

Tazviona Richman Gambe: Conceptualisation, Methodology, Investigation, Formal Analysis, Writing – Original Draft, Writing – Review & Editing.

Ivan Turok: Supervision, Conceptualisation, Methodology, Investigation, Formal Analysis, Writing – Review & Editing.

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Declaration of interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. The size distribution of cities in SADC, 1975–2015

Category	1975	1990	2000	2015	Percentage Increase & CAGR (1975–2015)
Number of cities					
Large	3	9 (7.6%)	9 (0%)	13 (2.5%)	333 (3.7%)
Medium-sized	16	28 (3.8%)	45 (4.9%)	65 (2.5%)	306 (3.6%)
Small	131	225 (3.7%)	317 (3.5%)	453 (2.4%)	246 (3.2%)
SADC Region	150	262 (3.8%)	371 (3.5%)	531 (2.4%)	254 (3.2%)
Built-up area					
Large	958.01	2050.67 (5.2%)	2513.96 (2.1%)	3448.75 (2.1%)	260 (3.3%)
Medium-sized	1106.04	871.05 (–1.6%)	1660.75 (6.7%)	1254.19 (–1.9%)	13 (0.3%)
Small	884.08	1621.05 (4.1%)	1714.89 (0.6%)	1831.40 (0.4%)	107 (1.8%)
SADC Region	2948.13	4542.77 (2.9%)	5889.60 (2.6%)	6534.33 (0.7%)	122 (2.0%)
Population					
Large	6,374,484	17,257,249 (6.9%)	22,770,186 (2.8%)	45,643,052 (4.7%)	616 (5.0%)
Medium-sized	8,143,425	10,646,143 (1.8%)	19,367,501 (6.2%)	30,105,031 (3.0%)	270 (3.3%)
Small	13,496,995	22,127,928 (3.4%)	30,354,186 (3.2%)	45,985,628 (2.8%)	241 (3.1%)
SADC Region	28,014,904	50,031,320 (3.9%)	72,491,873 (3.8%)	121,733,711 (3.5%)	335 (3.7%)
Built-up area density					
Large	6654	8415 (1.6%)	9058 (0.7%)	13,235 (2.6%)	99 (1.7%)
Medium-sized	7363	12,222 (3.4%)	11,662 (–0.5%)	24,004 (4.9%)	226 (3.0%)
Small	15,267	13,650 (–0.7%)	17,700 (2.6%)	25,110 (2.4%)	65 (1.3%)
SADC Region	9503	11,013 (1.0%)	12,308 (1.1%)	18,630 (2.8%)	96 (1.7%)

Notes: Built-up area (BUA) density is calculated as population divided by the built-up area.

-Figures in brackets represent CAGR, the compound annual growth rate for the years preceding. For example, 7.6% is the CAGR for large cities between 1975 and 1990.

Appendix B. Classification of cities according to population size, 2015

Country		Large Cities	Medium-sized Cities	Small Cities	Total
Angola	Number	1	14	43	58
	Row (%)	1.7%	24.1%	74.1%	100%
Botswana	Number	0	0	7	7
	Row (%)	–	–	100%	100%
DRC	Number	4	22	134	160
	Row (%)	2.5%	13.8%	83.8%	100%
Lesotho*	Number	0	0	1	1
	Row (%)	–	–	100%	100%
Malawi	Number	0	3	5	8
	Row (%)	–	37.5%	62.5%	100%
Mozambique	Number	1	5	84	90
	Row (%)	1.1%	5.6%	93.3%	100%
Namibia	Number	0	1	2	2
	Row (%)	–	50%	50%	100%
South Africa	Number	4	7	66	77
	Row (%)	5.2%	9.1%	85.7%	100%
Swaziland	Number	0	0	2	2
	Row (%)	–	–	100%	100%
Tanzania	Number	1	6	37	44
	Row (%)	2.3%	13.6%	84.1%	100%
Zambia	Number	1	5	43	49
	Row (%)	2%	10.2%	87.8%	100%
Zimbabwe	Number	1	2	30	33
	Row (%)	3%	6.1%	90.9%	100%
SADC Region	Number	13	65	453	531
	Row (%)	2.4%	12.2%	85.3%	100%

Notes: *Represents analysis based on a single city captured in the database.

Appendix C. Country-level size distribution of cities in SADC, 1975–2015

Country	City Size	BUA (1975)	BUA (1990)	BUA (2000)	BUA (2015)	POP (1975)	POP (1990)	POP (2000)	POP (2015)	BUA Density (1975)	BUA Density (1990)	BUA Density (2000)	BUA Density (2015)
Angola	Large	0.00	9.73 (-)	0.00 (-100%)	463.67 (-)	0	1,041,726 (-)	0 (-100%)	6,786,991 (-)	-	107,113 (-)	-	14,637 (-)
	Medium-sized	12.91	46.44 (8.9%)	625.01 (29.7%)	263.91 (-5.6%)	1,210,004	1,147,280 (-0.4%)	5,260,826 (16.4%)	5,724,184 (0.6%)	93,706	24,706 (-8.5%)	8,417 (-10.2%)	21,690 (6.5%)
	Small	96.33	485.68 (11.4%)	94.25 (-15.1%)	99.64 (0.4%)	1,446,750	3,236,973 (5.5%)	3,054,184 (-0.6%)	4,415,029 (2.5%)	15,018	6,665 (-5.3%)	32,406 (17.1%)	44,308 (2.1%)
Botswana	Large	-	-	-	-	-	-	-	-	-	-	-	-
	Medium-sized	-	-	-	-	-	-	-	-	-	-	-	-
	Small	0.00	42.83 (-)	79.66 (6.4%)	87.33 (0.6%)	0	286,865 (-)	463,620 (4.9%)	648,363 (2.1%)	-	6,698 (-)	5,820 (-1.4%)	7,425 (1.6%)
DRC	Large	103.69	160.27 (2.9%)	189.85 (1.7%)	340.15 (4.0%)	3,325,277	5,557,876 (3.5%)	6,829,949 (2.1%)	12,397,188 (4.1%)	32,070	34,679 (0.5%)	35,976 (0.4%)	36,446 (0.1%)
	Medium-sized	49.31	215.62 (10.3%)	293.68 (3.1%)	269.55 (-0.6%)	1,735,882	3,935,971 (5.6%)	6,379,932 (4.9%)	10,659,056 (3.5%)	35,207	18,254 (-4.3%)	21,724 (1.8%)	39,544 (4.1%)
	Small	267.93	195.19 (-2.1%)	305.91 (4.6%)	342.74 (0.8%)	5,254,085	6,286,240 (1.2%)	9,042,861 (3.7%)	14,142,531 (3.0%)	19,610	32,205 (-4.7%)	29,561 (-0.9%)	41,263 (2.2%)
Lesotho	Large	-	-	-	-	-	-	-	-	-	-	-	-
	Medium-sized	-	-	-	-	-	-	-	-	-	-	-	-
	Small	6.20	17.03 (7.0%)	26.62 (4.6%)	28.13 (0.4%)	110,804	166,006 (2.7%)	199,653 (1.9%)	245,878 (1.4%)	17,874	9,750 (-4.0%)	7,501 (-2.6%)	8,740 (1.0%)
Malawi	Large	-	-	-	-	-	-	-	-	-	-	-	-
	Medium-sized	0.00	27.94 (-)	64.04 (8.7%)	71.91 (0.8%)	0	547,368 (-)	930,251 (5.4%)	1,596,811 (3.7%)	-	19,594 (-)	14,526 (-2.9%)	22,207 (2.9%)
	Small	28.05	8.64 (-7.5%)	7.01 (-2.1%)	13.85 (4.6%)	472,516	290,407 (-3.2%)	132,850 (-7.5%)	432,516 (8.2%)	16,843	33,601 (8.6%)	18,959 (-5.6%)	31,239 (3.4%)
Mozambique	Large	0.00	180.87 (-)	216.58 (1.8%)	228.78 (0.4%)	0.00	1,237,819 (-)	1,656,325 (3.0%)	2,428,912 (2.6%)	-	6,844 (-)	7,648 (1.1%)	10,617 (2.2%)
	Medium-sized	148.43	10.81 (-16.0%)	35.49 (12.6%)	63.91 (4.0%)	1,296,818	326,715 (-8.8%)	696,175 (7.9%)	1,979,594 (7.2%)	8,737	30,212 (8.6%)	19,614 (-4.2%)	30,973 (3.1%)
	Small	38.63	96.21 (6.3%)	121.07 (2.3%)	119.26 (-0.1%)	1,386,284	2,665,360 (4.5%)	4,506,243 (5.4%)	8,310,095 (4.2%)	35,886	27,703 (-1.7%)	37,221 (3.0%)	69,680 (4.3%)
Namibia	Large	-	-	-	-	-	-	-	-	-	-	-	-
	Medium-sized	0.00	0.00 (-)	0.00 (-)	13.10 (-)	0	0 (-)	0 (-)	365,942 (-)	-	-	-	27,940 (-)
	Small	5.91	7.52 (1.6%)	11.14 (4.0%)	0.13 (-25.6%)	73,060	142,074 (4.5%)	222,563 (4.6%)	61,528 (-8.2%)	12,354	18,895 (2.9%)	19,983 (0.6%)	464,882 (23.3%)
South Africa	Large	854.32	1,388.50 (3.3%)	1,558.83 (1.3%)	1,834.14 (5.6%)	3,049,207	6,889,134 (0.9%)	9,318,914 (4.0%)	14,368,621 (2.9%)	3,569	4,962 (2.9%)	5,978 (1.9%)	7,834 (1.8%)
	Medium-sized	555.50	397.18 (-2.2%)	461.99 (1.5%)	283.31 (-3.2%)	1,897,059	2,174,276 (0.9%)	3,226,080 (4.0%)	3,613,234 (0.8%)	3,415	5,474 (3.2%)	6,983 (2.5%)	12,754 (4.1%)
	Small	193.87	456.77 (5.9%)	692.59 (4.3%)	776.32 (0.8%)	2,190,963	4,052,548 (4.2%)	5,756,632 (3.6%)	7,318,713 (1.6%)	11,301	8,872 (-1.6%)	8,312 (-0.7%)	9,427 (0.8%)
Swaziland	Large	-	-	-	-	-	-	-	-	-	-	-	-
	Medium-sized	-	-	-	-	-	-	-	-	-	-	-	-
	Small	0.00	0.00 (-)	0.00 (-)	10.90 (-)	0	0 (-)	0 (-)	115,935 (-)	-	-	-	10,641 (-)
Tanzania	Large	0.00	183.86 (-)	250.95 (3.2%)	263.49 (0.3%)	0	1,208,633 (-)	2,201,817 (6.2%)	5,345,515 (6.1%)	-	6,574 (-)	8,774 (2.9%)	20,287 (5.7%)
	Medium-sized	183.86	16.96 (-14.7%)	58.92 (13.3%)	133.23 (5.6%)	465,627	535,001 (0.9%)	1,164,657 (8.1%)	3,229,160 (7.0%)	2,533	31,554 (18.3%)	19,767 (-4.6%)	24,237 (1.4%)
	Small	99.75	150.04 (2.8%)	177.52 (1.7%)	145.79 (-1.3%)	1,007,314	1,749,948 (3.8%)	2,492,332 (3.6%)	3,647,578 (2.6%)	10,098	11,663 (1.0%)	14,040 (1.9%)	25,020 (3.9%)
Zambia	Large	0.00	0.00 (-)	109.30 (-)	122.81 (0.8%)	0	0 (-)	1,189,244 (-)	2,381,621 (4.7%)	-	-	10,881 (-)	19,393 (3.9%)
	Medium-sized	76.30	128.52 (3.5%)	84.91 (-4.1%)	115.80 (2.1%)	271,478	988,718 (9.0%)	666,217 (-3.9%)	1,822,715 (6.9%)	3,558	7,693 (5.3%)	7,846 (0.2%)	15,740 (4.8%)
	Small	131.80	139.25 (0.4%)	155.39 (1.1%)	146.53 (-0.4%)	906,164	2,154,735 (5.9%)	2,902,561 (3.0%)	4,209,046 (2.5%)	6,875	15,473 (5.6%)	18,679 (1.9%)	28,724 (2.9%)
Zimbabwe	Large	0.00	127.45 (-)	188.45 (4.0%)	195.71 (0.3%)	0	1,322,061 (-)	1,573,937 (1.8%)	1,934,205 (1.4%)	-	10,373 (-)	8,352 (-2.1%)	9,883 (1.1%)
	Medium-sized	79.73	27.58 (-6.8%)	36.71 (2.9%)	39.48 (0.5%)	1,266,557	990,815 (-1.6%)	1,043,363 (0.5%)	1,114,334 (0.4%)	15,885	35,928 (5.6%)	28,420 (-2.3%)	28,228 (-0.05%)
	Small	15.59	21.88 (2.3%)	43.74 (7.2%)	60.78 (2.2%)	649,055	1,096,771 (3.6%)	1,580,688 (3.7%)	2,438,416 (2.9%)	41,626	50,130 (1.2%)	36,136 (-3.2%)	40,121 (0.7%)

Notes: -Summary statistics in red represent a single city. As an example, most countries in the analysis have only one city in the large cities category (with a population above 1,000,000).
 -Figures in brackets represent CAGR, the compound annual growth rate for the years preceding. For example, 8.9% is the CAGR for medium-sized cities in Angola between 1975 and 1990.

APPENDIX D. CHANGES IN POPULATION AND DENSITY IN SADC CITIES

Table D.1
Ranking large cities according to population growth

Rank	City	1975–1990 CAGR	Popn (1990)	Absolute Increase	City	1990–2000 CAGR	Popn (2000)	Absolute Increase	City	2000–2015 CAGR	Popn (2015)	Absolute Increase
1	Lubumbashi (DRC)	8.5	337,994	238,532	Luanda (Ago)	23.7	488,037	429,911	Luanda (Ago)	19.2	6,786,991	6,298,954
2	Lusaka (ZMB)	6.8	727,540	456,062	Lubumbashi (DRC)	8.3	753,144	415,150	Lubumbashi (DRC)	7.6	2,245,427	1,492,282
3	Dar es Salaam (TZA)	6.6	1,208,633	743,005	Dar es Salaam (TZA)	6.2	2,201,817	993,185	Dar es Salaam (TZA)	6.1	5,345,515	3,143,697
4	Pretoria (ZAF)	4.6	651,341	317,611	Lusaka (ZMB)	5.0	1,189,244	461,703	Lusaka (ZMB)	4.7	2,381,621	1,192,377
5	Johannesburg (ZAF)	4.3	3,025,150	1,424,301	Pretoria (ZAF)	3.9	955,061	303,720	Beni (DRC)	3.2	1,505,135	560,539
6	Cape Town (ZAF)	4.0	1,767,886	789,671	Mbuji-Mayi (DRC)	3.8	1,908,318	591,987	Mbuji-Mayi (DRC)	3.1	3,024,105	1,115,788
7	Beni (DRC)	3.9	662,850	288,511	Johannesburg (ZAF)	3.7	4,345,203	1,320,053	Pretoria (ZAF)	2.9	1,473,571	518,510
8	Mbuji-Mayi (DRC)	3.9	1,316,330	571,638	Beni (DRC)	3.6	944,596	281,746	Johannesburg (ZAF)	2.7	6,516,134	2,170,931
9	Harare (ZWE)	3.7	1,322,061	556,663	Cape Town (ZAF)	3.4	2,460,811	692,925	Maputo (MOZ)	2.6	2,428,912	772,587
10	Durban (ZAF)	2.5	2,096,098	647,740	Maputo (MOZ)	3.0	1,656,325	418,506	Cape Town (ZAF)	2.4	3,511,853	1,051,042
11	Kinshasa (DRC)	1.6	4,241,545	916,268	Durban (ZAF)	1.8	2,512,900	416,802	Harare (ZWE)	1.4	1,934,205	360,267
12	Maputo (MOZ)	1.6	1,237,819	258,516	Harare (ZWE)	1.8	1,573,937	251,877	Kinshasa (DRC)	0.9	5,622,520	700,889
13	Luanda (Ago)	–	58,126	58,126	Kinshasa (DRC)	1.5	4,921,631	680,086	Durban (ZAF)	0.9	2,867,062	354,161

Note: The figure 1777 as the population of Luanda in 1975 was considered not plausible. Thus, it was replaced with a zero and treated as non-existent to prevent the swaying of national and city-level averages. This is why Luanda's CAGR for 1975–1990 is undefined.

Table D.2
Ranking medium-sized cities according to population growth

Rank	City	1975–1990 CAGR	Popn (1990)	Absolute Increase	City	1990–2000 CAGR	Popn (2000)	Absolute Increase	City	2000–2015 CAGR	Popn (2015)	Absolute Increase
Fastest growth												
1	Cabinda (AGO)	21.2	12,472	11,777	Cabinda (AGO)	19.1	71,326	58,854	Cabinda (AGO)	14.6	553,769	482,443
2	Luenta (AGO)	16.9	20,035	18,111	Luenta (AGO)	14.5	77,705	57,670	Mansa (ZMB)	12.7	313,758	261,484
3	Namibe (AGO)	13.5	34,536	29,371	Rubaya (DRC)	13.8	141,510	102,683	Luenta (AGO)	10.4	341,566	263,862
4	Lubango (AGO)	13.2	99,090	83,717	Ariwara (DRC)	11.2	174,602	114,161	Likasi (DRC)	7.7	394,558	264,166
5	Ondjiva (AGO)	12.2	52,840	43,433	Lubango (AGO)	11.0	282,620	183,530	Manono (DRC)	7.3	337,086	220,256
6	Rubaya (DRC)	9.2	38,827	28,491	Namibe (AGO)	11.0	97,734	63,198	Kalemie (DRC)	7.3	462,456	301,186
7	Kalemie (DRC)	8.5	75,574	53,353	Ondjiva (AGO)	9.8	134,578	81,738	Kamina (DRC)	7.2	401,809	259,238
8	Likasi (DRC)	8.4	58,162	40,880	Kilwa (DRC)	9.8	114,600	69,558	Kilwa (DRC)	7.1	318,896	204,297
9	Kamina (DRC)	7.8	74,637	50,570	Manono (DRC)	9.4	116,830	69,379	Namibe (AGO)	7.0	268,654	170,920
10	Manono (DRC)	7.7	47,452	31,913	Likasi (DRC)	8.4	130,392	72,230	Lubango (AGO)	6.8	762,020	479,399
Slowest growth												
1	Beira (MOZ)	0.2	326,715	9200	UÅge (AGO)	−1.8	864,976	−176,750	UÅge (AGO)	−5.4	376,760	−488,216
2	UÅge (AGO)	0.6	1,041,726	82,370	Bulawayo (ZWE)	−0.2	676,741	−11,738	Kuito (AGO)	−2.0	372,376	−134,294
3	Mahagi (DRC)	1.3	247,882	43,738	Beira (MOZ)	−0.2	321,204	−5511	Menongue (AGO)	−1.7	261,919	−77,671
4	Kahemba (DRC)	1.4	216,784	41,922	Mahagi (DRC)	0.0	247,766	−116	Huambo (AGO)	−0.4	574,072	−36,186
5	Kikwit (DRC)	1.8	322,695	75,184	Limbe (MWI)	0.9	254,706	22,462	Bulawayo (ZWE)	−0.1	665,971	−10,770
6	Mongbwalu (DRC)	2.0	284,871	72,675	Kahemba (DRC)	1.0	240,638	23,854	Beira (MOZ)	0.4	339,373	18,169
7	Nacala (MOZ)	2.1	128,269	34,784	Blantyre (MWI)	1.4	297,855	38,601	Kahemba (DRC)	0.4	255,345	14,708
8	Bulawayo (ZWE)	2.1	688,479	187,320	Kikwit (DRC)	1.5	372,906	50,210	Edendale (ZAF)	0.9	272,676	34,174
9	Kasama (ZMB)	2.2	144,066	40,531	Kuito (AGO)	1.6	506,670	75,970	Cubal (AGO)	0.9	256,799	32,839
10	Uvira (DRC)	2.3	253,626	74,287	Kasama (ZMB)	1.8	172,665	28,599	Lobito (AGO)	1.0	403,077	55,511

Table D.3
Ranking small cities according to population growth

Rank	City	1975–1990 CAGR	Popn (1990)	Absolute Increase	City	1990–2000 CAGR	Popn (2000)	Absolute Increase	City	2000–2015 CAGR	Popn (2015)	Absolute Increase
Fastest growth												
1	Chibemba (AGO)	106.6	9520	9520	N/A (1) (ZMB)	88.3	49,828	49,824	N/A (7) (ZMB)	74.0	56,587	56,573
2	Mucumbura (MOZ)	70.5	7591	7589	N/A (5) (MOZ)	85.0	29,556	29,553	Chicomba (AGO)	64.4	115,141	115,074
3	N/A (8) (MOZ)	56.9	40,661	40,613	Missale (MOZ)	82.3	43,989	43,984	Panguila (AGO)	32.1	64,781	63,780
4	Panguila (AGO)	46.2	46	46	Inhangoma (MOZ)	53.5	53,997	53,909	N/A (2) (ZWE)	15.6	64,037	56,724
5	N/A (1) (ZWE)	22.2	42,080	39,999	Panguila (AGO)	22.8	1001	955	Cazombo (AGO)	10.3	88,419	68,003
6	Entre Lagos (MOZ)	20.2	13,413	12,568	Lulimbi (AGO)	17.7	48,743	44,496	Insaca (Mecanelhas) (MOZ)	10.1	101,692	77,598
7	Ishasha (DRC)	18.9	21,231	19,654	N/A (2) (MOZ)	16.1	70,336	62,797	Z ³ bue (MOZ)	9.6	228,368	170,779
8	Bishasha (DRC)	17.9	62,333	57,048	Misisi (DRC)	13.7	58,602	50,017	Luau (AGO)	9.5	64,974	48,295
9	Cazombo (AGO)	17.1	5186	4698	N/A (3) (DRC)	10.1	56,572	43,289	Furancungo (MOZ)	9.1	95,769	69,873
10	Luau (AGO)	16.8	4386	3957	Ifakara (TZA)	9.8	61,383	46,266	N/A (7) (MOZ)	8.9	66,683	48,045
Slowest growth												
1	Mbanza-Ngungu (DRC)	-2.0	54,660	-19,639	N/A (4) (ZMB)	-100.0	0	-4	Negage (AGO)	-5.4	58,650	-76,496
2	N/A (8) (ZMB)	-1.7	138,697	-39,735	Kasongo-Lunda (DRC)	-2.7	48,736	-24,492	Caxito (AGO)	-4.1	52,180	-45,706
3	Kenge (DRC)	-1.7	134,651	-38,175	Triangle (ZWE)	-2.5	61,155	-28,253	N/A (8) (ZMB)	-4.1	52,612	-46,021
4	Mugema (MOZ)	-1.6	53,335	-14,860	N/A (8) (ZMB)	-2.2	98,633	-40,064	N'dalatando (AGO)	-3.7	141,826	-109,790
5	N/A (4) (MOZ)	-1.1	70,232	-12,368	Eliya (ZMB)	-1.6	48,882	-13,537	Kwilu-Ngongo (DRC)	-2.6	83,641	-40,133
6	Kisantu (DRC)	-0.7	85,951	-10,216	Idiofa (DRC)	-1.5	53,602	-13,867	Catabola (AGO)	-2.6	82,315	-39,192
7	Mataadi (DRC)	-0.7	197,897	-20,913	Numbi (DRC)	-1.5	45,080	-11,121	Chinguar (AGO)	-2.5	76,459	-34,707
8	Maganja (MOZ)	-0.4	75,240	-4820	Kwilu-Ngongo (DRC)	-1.3	123,774	-27,205	Camacupa (AGO)	-2.4	111,281	-49,321
9	Kinzao (DRC)	-0.3	157,930	-6294	Kanyabayonga (DRC)	-1.2	40,014	-7794	Andulo (AGO)	-2.3	192,099	-80,581
10	Moanda (DRC)	-0.3	86,237	-3437	Aru (DRC)	-1.0	146,356	-24,936	Chitembo (AGO)	-2.3	51,301	-20,994

Note: The top four cities in the table with the highest population growth rates are all very small cities that grew rapidly from a small base.
- N/A represents cities that are not identified by name in the database.

Table D.4
Ranking large cities according to changes in built-up area density

Rank	City	1975–1990 CAGR	BUA Density (1990)	City	1990–2000 CAGR	BUA Density (2000)	City	2000–2015 CAGR	BUA Density (2015)
1	Lubumbashi (DRC)	7.1	3669	Luanda (Ago)	21.5	1162	Luanda (Ago)	18.4	14,637
2	Dar es Salaam (TZA)	6.6	6574	Lubumbashi (DRC)	6.7	7002	Lubumbashi (DRC)	6.3	17,484
3	Lusaka (ZMB)	5.9	8387	Dar es Salaam (TZA)	2.9	8774	Dar es Salaam (TZA)	5.7	20,287
4	Johannesburg (ZAF)	3.3	3909	Lusaka (ZMB)	2.6	10,881	Lusaka (ZMB)	3.9	19,393
5	Cape Town (ZAF)	3.2	5105	Johannesburg (ZAF)	2.5	5014	Mbuji-Mayi (DRC)	3.0	55,810
6	Pretoria (ZAF)	3.1	3562	Cape Town (ZAF)	2.5	6512	Pretoria (ZAF)	2.8	6806
7	Beni (DRC)	2.9	67,205	Pretoria (ZAF)	2.4	4523	Johannesburg (ZAF)	2.5	7237
8	Mbuji-Mayi (DRC)	1.9	31,071	Mbuji-Mayi (DRC)	1.4	35,634	Cape Town (ZAF)	2.2	9048
9	Kinshasa (DRC)	0.8	35,975	Maputo (MOZ)	1.1	7648	Maputo (MOZ)	2.2	10,617
10	Harare (ZWE)	0.0	10,373	Durban (ZAF)	0.2	7995	Beni (DRC)	1.9	85,714
11	Durban (ZAF)	−0.1	7813	Kinshasa (DRC)	0.0	36,110	Harare (ZWE)	1.1	9883
12	Maputo (MOZ)	−0.1	6844	Beni (DRC)	−0.4	64,570	Kinshasa (DRC)	0.7	40,167
13	Luanda (Ago)	–	165	Harare (ZWE)	−2.1	8352	Durban (ZAF)	0.6	8711

Note: The figure 1777 as the population of Luanda in 1975 was considered not plausible. Thus, it was replaced with a zero and treated as non-existent to prevent the swaying of national and city-level averages. This is why Luanda's CAGR for 1975–1990 is undefined.

Table D.5
Ranking medium-sized cities according to changes in built-up area density

Rank	City	1975–1990 CAGR	BUA Density (1990)	City	1990–2000 CAGR	BUA Density (2000)	City	2000–2015 CAGR	BUA Density (2015)
Most densifying									
1	Cabinda (AGO)	21.2	709	Cabinda (AGO)	15.5	3008	Cabinda (AGO)	14.4	22,708
2	Luená (AGO)	16.6	1774	Luená (AGO)	11.5	5274	Mansa (ZMB)	12.3	31,176
3	Lubango (AGO)	11.7	3803	Lubango (AGO)	8.9	8900	Luená (AGO)	9.6	20,755
4	Ondjiva (AGO)	9.9	193,469	Namibe (AGO)	7.7	17,466	Kalemie (DRC)	7.0	44,911
5	Likasi (DRC)	8.0	2253	Likasi (DRC)	7.3	4577	Likasi (DRC)	6.9	12,420
6	Kilwa (DRC)	7.4	22,328	Mansa (ZMB)	7.0	5495	Namibe (AGO)	6.8	46,957
7	Kalemie (DRC)	7.1	8635	Kalemie (DRC)	6.6	16,304	Kamina (DRC)	6.8	47,310
8	Manono (DRC)	6.8	18,663	Lobito (AGO)	4.5	11,554	Kilwa (DRC)	6.7	89,392
9	Saurimo (AGO)	6.1	12,764	Kananga (DRC)	4.5	16,888	Lubango (AGO)	6.1	21,721
10	Kamina (DRC)	6.1	12,182	Kilwa (DRC)	4.2	33,666	Manono (DRC)	5.9	54,909
Least densifying									
1	Cubal (AGO)	−13.7	109,642	Lilongwe (MWI)	−5.1	10,666	UÁge (AGO)	−9.2	15,649
2	Chimoio (MOZ)	−5.7	32,877	UÁge (AGO)	−4.6	66,957	Rubaya (DRC)	−3.0	939,920
3	UÁge (AGO)	−4.9	107,113	Chimoio (MOZ)	−4.3	21,278	Kuito (AGO)	−2.4	18,383
4	Edendale (ZAF)	−4.1	22,729	Mongbwalu (DRC)	−4.1	276,720	Menongue (AGO)	−2.1	21,850
5	Mbeya (TZA)	−3.5	6440	Nakonde [ZMB]	−4.1	18,207	Mahagi (DRC)	−1.1	867,744
6	Chitungwiza (ZWE)	−3.0	17,792	Limbe (MWI)	−3.3	21,733	Cubal (AGO)	−1.1	85,376
7	Rubaya (DRC)	−2.8	1,872,191	Menongue (AGO)	−3.1	30,163	Huambo (AGO)	−0.9	17,648
8	Butondo (DRC)	−2.8	1,133,380	Ariwara (DRC)	−2.8	77,960	Butondo (DRC)	−0.3	855,909
9	Ariwara (DRC)	−2.7	103,672	Milange (MOZ)	−2.4	239,903	Bulawayo (ZWE)	−0.3	52,248
10	Beira (MOZ)	−2.6	30,212	Rubaya (DRC)	−2.3	1,483,681	Kikwit (DRC)	0.0	16,028

Table D.6
Ranking small cities according to changes in built-up area density

Rank	City	1975–1990 CAGR	BUA Density (1990)	City	1990–2000 CAGR	BUA Density (2000)	City	2000–2015 CAGR	BUA Density (2015)
Most densifying									
1	Panguila (AGO)	22.3	154	Panguila (AGO)	14.7	1202	Panguila (AGO)	17.8	14,008
2	Luuu (AGO)	16.6	1360	Luuu (AGO)	8.9	4876	Furancungo (MOZ)	8.4	443,035
3	Cazombo (AGO)	15.1	3006	Ifakara (TZA)	8.6	143,359	ZÁ ³ bue (MOZ)	7.8	4,094,740
4	Soyo (AGO)	12.6	9857	Cazombo (AGO)	8.5	10,211	N/A (7) (MOZ)	7.7	1,947,916
5	Jamba (AGO)	11.9	20,769	Soyo (AGO)	7.4	28,566	Cazombo (AGO)	7.3	29,185
6	Xangongo (AGO)	11.6	525,623	Chibemba (AGO)	7.3	16,806,813	Kolwezi (DRC)	7.1	6234
7	Quipungo (AGO)	10.7	253,515	M'banza Congo	7.1	14,755	Soyo (AGO)	7.1	79,722
8	Furancungo (MOZ)	9.0	69,659	Caconda (AGO)	6.3	41,677	N/A (9) (MOZ)	6.9	2,651,540
9	N/A (7) (MOZ)	8.8	269,867	Matala (AGO)	6.0	14,757	Tombua (AGO)	6.8	82,073
10	Kolwezi (DRC)	7.7	1125	Jamba (AGO)	5.9	49,317	Kasaji (DRC)	6.8	26,433
Least densifying									
1	Igunga (TZA)	-17.9	91,306	Mugema (MOZ)	-12.4	4,344,498	N/A (2) (ZWE)	-9.1	181,399
2	Khutsong (ZAF)	-15.6	85,705	N/A (2) (MOZ)	-10.9	395,250	Negage (AGO)	-7.5	16,355
3	Makanza (DRC)	-15.4	66,595	NamarrÁ ³ i (MOZ)	-9.7	1,888,692	Caxito (AGO)	-7.1	22,448
4	Botshabelo Rural (ZAF)	-14.6	18,978	Muxungue (MOZ)	-7.9	505,965	N/A (8) (ZMB)	-5.4	232,652
5	Botshabelo (ZAF)	-14.6	11,540	Paardekraal (ZAF)	-7.8	13,950	N'dalatando (AGO)	-5.0	22,553
6	Lobatse (BWA)	-14.0	20,129	Chalaua (MOZ)	-7.3	1,912,732	Catabola (AGO)	-4.9	116,777
7	Standerton (ZAF)	-13.3	15,484	Ruwa (ZWE)	-6.9	9397	Chalaua (MOZ)	-4.7	930,935
8	Maganja (MOZ)	-13.3	964,485	Mankweng (ZAF)	-6.5	4371	Bocoio (AGO)	-4.6	94,145
9	Muiane (MOZ)	-12.5	836,879	Lulimbi (DRC)	-5.5	111,201	Chinguar (AGO)	-4.6	135,523
10	Tarime (TZA)	-12.4	150,680	N/A (8) (ZMB)	-5.4	533,647	Andulo (AGO)	-4.1	36,275

Appendix E. Determining urban primacy in SADC

Country	LC/SLC Ratio (1975)	LC/SLC Ratio (1990)	LC/SLC Ratio (2000)	LC/SLC Ratio (2015)
Angola	3.8	2.4 (-3.1%)	1.4 (-5.1%)	8.9 (13.0%)
Botswana	1.2	1.6 (2.0%)	1.6 (-0.1%)	1.3 (-1.3%)
DRC	4.5	3.2 (-2.2%)	2.6 (-2.2%)	1.9 (-2.2%)
Malawi	1.1	1.1 (0.2%)	1.3 (1.3%)	1.8 (2.2%)
Mozambique	3.1	3.8 (1.4%)	4.4 (1.5%)	3.5 (-1.5%)
Namibia	8.7	7.3 (-1.2%)	6.7 (-0.9%)	5.9 (-0.8%)
South Africa	1.1	1.4 (1.8%)	1.7 (1.8%)	1.9 (0.5%)
Swaziland	1.2	1.1 (-0.7%)	1.1 (-0.5%)	1.1 (0.0%)
Tanzania	2.9	4.4 (2.8%)	5.4 (2.2%)	6.8 (1.6%)
Zambia	1.5	2.8 (4.1%)	3.3 (1.6%)	4.4 (1.9%)
Zimbabwe	1.5	1.9 (1.5%)	2.3 (1.9%)	2.9 (1.5%)

Note: LC = largest city and SLC = second largest city.

Figures in brackets represent CAGR, the compound annual growth rate for the years preceding. For example, -3.1% is the CAGR for Angola between 1975 and 1990.

Appendix F. BUA density rankings according to city size

Large cities			Medium-sized cities			Small cities		
Ranking	City	Density	Ranking	City	Density	Ranking	City	Density
1	Beni (DRC)	85,714	1	Rubaya (DRC)	939,920	1	N/A (ZMB)	81,210,827
2	Mbuji-Mayi (DRC)	55,810	2	Mahagi (DRC)	867,744	2	N/A (ZMB)	81,210,818
3	Kinshasa (DRC)	40,167	3	Butondo (DRC)	855,909	3	Inhangoma (MOZ)	56,590,706
4	Dar es Salaam (TZA)	20,287	4	Milange (MOZ)	420,169	4	Etatara (MOZ)	46,688,964
5	Lusaka (ZMB)	19,393	5	Ondjiva (AGO)	403,890	5	N/A (MOZ)	42,369,262
6	Lubumbashi (DRC)	17,484	6	Mongbwalu (DRC)	306,195	6	Chibemba (AGO)	23,641,284
7	Luanda (Ago)	14,637	7	Arusha (TZA)	188,627	7	N/A (ZMB)	22,643,699
8	Maputo (MOZ)	10,617	8	Kahemba (DRC)	144,364	8	N/A (ZWE)	13,039,998
9	Harare (ZWE)	9883	9	Bukavu (DRC)	100,718	9	Jerera (ZWE)	11,886,583

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(continued)

Large cities			Medium-sized cities			Small cities		
10	Cape Town (ZAF)	9048	10	Kilwa (DRC)	89,392	10	Missale (MOZ)	8,574,875
....								
11	Durban (ZAF)	8711	56	UÅge (AGO)	15,649	444	Polokwane (ZAF)	5387
12	Johannesburg (ZAF)	7237	57	Klipgat (ZAF)	13,796	445	Kroonstad (ZAF)	5361
13	Pretoria (ZAF)	6806	58	Lobito (AGO)	13,314	446	eGobhoza (ZAF)	5176
			59	Kilima Hewa (TZA)	12,822	447	Mankweng (ZAF)	5108
			60	Mbeya (TZA)	12,593	448	Centurion (ZAF)	4535
			61	Likasi (DRC)	12,420	449	KwaMhlanga (ZAF)	4307
			62	Ndola (ZMB)	11,065	450	Salubindza (ZAF)	3784
			63	Kitwe (ZMB)	10,980	451	eHlau-Hlau (ZAF)	3738
			64	Bloemfontein (ZAF)	10,642	452	Midrand (ZAF)	3709
			65	Port Elizabeth (ZAF)	5956	453	Gaborone (BWA)	3077

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