

## Article

# Determinants of Human Development Index in South Africa: A Comparative Analysis of Different Time Periods

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**Abstract:** The Human Development Index is a useful measure of a country's overall prosperity and standard of living (HDI). The Human Development Index (HDI) provides data on the social and economic progress of a nation by accounting for variables such as life expectancy, education attainment, and per capita income. This research delves into the intricate correlation of a nation's historical background, policy framework, and advancements on the Human Development Index. The remarkable journey of South Africa, from apartheid to inclusive growth, is an important example. The study uses an average yearly growth rate to examine how changes in political ideologies, ongoing development initiatives, and historical contexts of inequality have shaped South Africa's HDI trajectory. By examining crucial turning points and policy influences, the study aims to reveal the complex relationship of factors affecting human development results. Despite improvement, challenges like unemployment and poverty continue. The study stresses the relevance of understanding historical context and policy changes in shaping HDI outcomes. Ultimately, the study emphasises the need of maintaining a long-term commitment to effective and inclusive human development policies. Understanding the complex relationship of factors influencing South Africa's HDI will help policymakers make better informed decisions that will lead to a more prosperous and fair society for all South Africans.

**Keywords:** apartheid; economic; FDI; HDI; growth



**Citation:** Ogujiuba, K.; Maponya, L.; Stiegler, N. Determinants of Human Development Index in South Africa: A Comparative Analysis of Different Time Periods. *World* **2024**, *5*, 527–550. <https://doi.org/10.3390/world5030027>

Academic Editor: Ortwin Renn

Received: 1 May 2024

Revised: 3 June 2024

Accepted: 5 June 2024

Published: 3 July 2024



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## 1. Introduction

The Human Development Index (HDI) stands as a cornerstone indicator for assessing a nation's overall standard of living and well-being. HDI, therefore, encompasses key factors such as life expectancy, education levels, and income per capita, which provides an overview of social and economic development [1]. However, more than just these headline indicators influence the HDI's trajectory in a specific setting. Underlying the indicator lies a complex web of socioeconomic factors that have a substantial impact on a country's human development trajectory. Amartya Sen's capability approach to development [2], which highlights individual freedoms and possibilities, provides a useful foundation that for understanding this complexity. South Africa's unique historical trajectory provides a compelling case study for analysing the complex relationship. The country's transition from apartheid to inclusive development represents a crucial change with major implications for its human development path. The impact of structural inequality continues to throw a long shadow, despite continued attempts to achieve socioeconomic growth and a society with greater equality. This historical background, alongside the current development efforts, highlights the critical need to understand the various elements that influence South Africa's HDI outcomes. Previous studies like [3] have shown that the HDI is an important tool; however, this might not completely represent the issues that nations experience when moving from systems of oppression.

South Africa's case requires a closer examination of how historical legacies, governmental decisions, and developing socioeconomic dynamics interact and affect the country's HDI trajectory. The study seeks to address this gap by employing a quantitative approach, analysing data from credible sources such as the SARB, World Bank, and UNDP to look at national trends in South Africa's HDI as well as its components (education, health, and income) during five presidential eras. An average annual growth rate formula was employed to analyse these trends. The research aims to highlight critical turning points, policy influences, and ongoing obstacles that have shaped South Africa's HDI trajectory by delving into the country's historical background of structural inequalities, current attempts towards socioeconomic development, along with the evolving political perspectives of its post-apartheid governments. Meanwhile, despite progress, challenges like inequality, unemployment and poverty still continue.

The significance of comprehending the historical context and policy changes in shaping HDI outcomes is emphasised by this study. In the end, the study highlights how important it is to continue making sustained commitments to inclusive and successful human development programmes. Comprehending the intricate interplay among variables impacting South Africa's Human Development Index (HDI) can facilitate more informed decision-making by policymakers, ultimately resulting in a prosperous and equitable society that benefits all South Africans.

#### *Literature Review*

The HDI, established in 1990 by Mahbub ul Haq then further developed by Amartya Sen, is a common measure used by the United Nations to analyse and rank nations' social and economic development [4]. Moreover, it includes indicators such as life expectancy, education levels, and standard of living, provides more perspective on the progress of a nation than relying just on economic indicators. This emphasis on human well-being and crucial areas like health and education is consistent with the research's objective of understanding the various factors that influence a country's growth trajectory. Ref. [5] proposed a method for determining weights, which considers fairness while avoiding personal bias. This method prioritises the factor that helps a country the most when its score rises. Interestingly, the study gave the greatest weight to life expectancy. This indicates that the study showed experiencing a healthy and long life as critical to human development. By focusing on life expectancy, the study emphasises the relevance of decent healthcare and living conditions in raising a country's HDI.

On the hand, a study by [6,7] found that higher GDP per capita could help a country's development. This is because higher income allows individuals to invest more in education and healthcare, therefore enhancing their overall quality of life. However, just because the economy is thriving does not mean that everyone benefits. Unequal wealth distribution can cause many people to fall behind. The aim is to ensure that economic growth leads to shared prosperity. Policies that encourage inclusive growth as well as opportunity for disadvantaged people are critical. This allows nations to increase their overall well-being while accomplishing sustainable development. Wu, et. al (2014) [8] further analysed the HDI rankings of 19 developed nations. They discovered the surprising disconnect that an effective ranking that measures how well resources are being used sometimes differed substantially from HDI rankings. This shows that HDI alone may not adequately reflect a country's development progress. The study emphasises the need to use a more comprehensive strategy that takes into account a broader variety of factors.

Meanwhile, Fadillah, and Setiartiti (2021) [9] also examined the factors affecting the Human Development Index in the Special Regional of Yogyakarta 2013–2018. Meanwhile, the analysis tools used in the study used the Panel Data Method with the Fixed Effect Model approach. This study indicates that the Gross Regional Domestic Product (GRDP) and government spending in the health sector positively and significantly affect the Human Development Index. A study by [10] explored four determinants of Human Development Index in several Buddhist countries from 2010 to 2014. The author used panel regression of

a random effect model. The result of the study showed that the four explanatory variables were proven to significantly affect the human development index in countries whose majority are Buddhists.

Roshaniza and Selvaratnam (2015) [11] further discussed the relationship between Growth Domestic Products (GDP), Human Development Index (HDI) and poverty rate in Malaysia from 1990 to 2012. The study employed the Johansen Cointegration Test method for the long term, as well as the Vector Error Correction Estimate. The results in this study show HDI and poverty rate have a relationship with GDP in the long term. HDI and GDP have a negative relationship in the long term, while poverty rate and GDP have a positive relationship with GDP. Ngwakwe (2020) [12], further examined measuring the interdependence between economic growth and human development in South Africa. The methodology that was employed was the vector auto-regression (VAR) as well as the Granger causality Wald tests. The study discovered that economic growth in South Africa depends on the achievement of human development factors, such as health or life expectancy, standard of living or GNI, and education.

## 2. Unpacking South Africa's HDI Trajectory: A Look at Influencing Variables

The trajectory and movement of the HDI in specific regions, such as South Africa, are impacted by a variety of factors that represent complex socioeconomic dynamics. South Africa's journey from apartheid to inclusive development makes a compelling case for studying the complex relationship between HDI as well as human development determinants. The country's history of entrenched inequality, combined with continuous attempts for socioeconomic growth, highlights the crucial need to understand the various determinants that influence HDI results.

Previous research has investigated the relationship between policy and HDI, but there may be a gap in the knowledge about how these variables play out in a post-apartheid setting. This study aims to close this gap by using a quantitative approach and analysing data from trustworthy sources like the South African Reserve Bank (SARB), World Bank, and UNDP Data Centre. These organisations are well-known sources of economic, demographic, and development information. The variables to be used in this study are the following economic indicators: HDI, Consumer Price Index (CPI), Unemployment (UNE), Gross Domestic Products (GDP) and Foreign Direct Investment (FDI); the demographic indicators are: Population rate (POP), Gini Index (GINI) and Fertility Rate (FERT); and the variables for the policy framework are Information Communication and Technology (ICT) and Trade (TRA).

Data were carefully obtained from their respective websites to ensure accuracy. In addition, data definitions were thoroughly examined to ensure a clear comprehension of the information being analysed. While data limitations, like missing data points, may occur, an average annual growth rate formula was employed for each variable during the five presidential eras. This method allows for the investigation of trends and possible connections between leadership styles, policy choices, and South Africa's overall HDI trajectory.

Table 1 shows the growth rate of all the variables in South Africa from 1990 to 2021 calculated using Excel. Figure 1 visually represents these data (which is computed from EViews 12). Table 2, meanwhile, offers a comparative analysis of growth rates. Over the past few years, HDI growth rate has fluctuated. It reached its peak (0.011%) in 2011 during the presidency of Cyril Ramaphosa. This rise could be caused by various factors like improved access to healthcare as well as a decline in HIV/AIDS deaths, as stated in the United Nation Development Program report [13]. Conversely, HDI was at its lowest by (−0.014%) in 2021, during the presidency of Cyril Ramaphosa. The highest GDP growth rate was 4.4% in 2000 during the presidency of Thabo Mbeki. Mbeki (2016) [14] cited that South Africa witnessed a period of political stability, which created favourable environment for economic growth. However, for GDP the most economic decrease was −7.2% in 2020 during the presidency of Cyril Ramaphosa. Moreover, CPI in 2004 was the lowest by −6.4%

during the presidency of Thabo Mbeki, while was the highest by 3.9% in 2008 during that same era. According to [15], during this period worldwide oil prices skyrocketed, increasing the cost of energy and transport in South Africa. FDI was at its peak by 4.4% in 2007 during the presidency of Thabo Mbeki. However, in 2021 it was the lowest by  $-7.2\%$  during the presidency of Cyril Ramaphosa. Additionally, FDI in South Africa fell sharply, dropping by 61% to USD 5.4 billion from USD 13.9 billion in 2020 [16].

**Table 1.** Growth Rates of South African variables.

| YEARS | HDI    | GDP  | CPI   | FDI  | UNE   | GINI | POP  | FERT  | ICT   | TRA     |
|-------|--------|------|-------|------|-------|------|------|-------|-------|---------|
| 1990  | -      | -    | -     | -    | -     | -    | -    | -     | -     | -       |
| 1991  | 0.006  | -3.1 | 1.01  | -    | -0.04 | 2.5  | 2.59 | -4.43 | 179.9 | 12.37   |
| 1992  | 0.005  | -4.2 | -1.46 | -3.1 | -0.19 | 2.35 | 2.08 | -4.61 | 192.3 | 37.22   |
| 1993  | 0.006  | -0.9 | -4.16 | -4.2 | -0.14 | 2.18 | 1.83 | -4.86 | 117.2 | -36.60  |
| 1994  | 0.006  | 1.1  | -0.78 | -0.9 | -0.08 | 2.17 | 1.75 | -3.59 | 174.1 | -44.55  |
| 1995  | 0.003  | 1.0  | -0.26 | 1.1  | -0.12 | 2.15 | 1.66 | -3.73 | 24.4  | 43.50   |
| 1996  | -0.005 | 2.1  | -1.33 | 1.0  | -0.03 | 2.17 | 1.54 | -3.9  | 93.9  | -13.41  |
| 1997  | -0.005 | 0.5  | 1.24  | 2.1  | -0.02 | 2.2  | 1.4  | -4.03 | 78.1  | -6.31   |
| 1998  | -0.007 | -1.6 | -1.72 | 0.5  | -0.15 | 2.18 | 1.25 | -4.2  | 41.6  | 143.24  |
| 1999  | -0.006 | 0.3  | -1.7  | -1.6 | -0.15 | 2.15 | 1.12 | -1.84 | 29.9  | 33.46   |
| 2000  | -0.005 | 2.1  | 0.16  | 0.3  | -0.05 | 2.08 | 0.97 | -1.88 | 18.7  | 36.59   |
| 2001  | -0.004 | 0.4  | 0.36  | 2.1  | -0.13 | 2.1  | 0.89 | -1.88 | 5.7   | 12.67   |
| 2002  | 0.004  | 0.2  | 3.79  | 0.4  | -0.07 | 2.09 | 0.91 | -1.95 | 4.4   | -46.90  |
| 2003  | -0.004 | 1.5  | -3.82 | 0.2  | -0.15 | 2.08 | 0.93 | -1.99 | 20.2  | -104.62 |
| 2004  | 0.001  | 3.4  | -6.37 | 1.5  | -0.12 | 1.99 | 0.94 | 0.11  | -11.1 | 62.16   |
| 2005  | 0.002  | 4.1  | 2.75  | 3.4  | -0.11 | 1.9  | 0.95 | 0.08  | 1.6   | 1112.49 |
| 2006  | 0.005  | 4.4  | 1.18  | 4.1  | -0.09 | 1.8  | 0.97 | 0.11  | 6.0   | -25.00  |
| 2007  | 0.007  | 4.0  | 2.93  | 4.4  | -0.03 | 1.68 | 1.02 | 0.08  | 4.5   | -20.19  |
| 2008  | 0.009  | 1.8  | 3.9   | 4.0  | 1.00  | 1.51 | 1.14 | 0.11  | 18.6  | -293.51 |
| 2009  | 0.012  | -2.9 | -2.86 | 1.8  | 2.67  | 1.52 | 1.2  | -0.57 | 140.0 | 109.13  |
| 2010  | 0.010  | 1.5  | -3.13 | -2.9 | -1.76 | 1.51 | 1.2  | -0.57 | 41.5  | -19.61  |
| 2011  | 0.011  | 1.6  | 0.91  | 1.5  | 0.37  | 1.47 | 1.27 | -0.58 | 20.7  | -184.13 |
| 2012  | 0.010  | 0.8  | 0.73  | 1.6  | 0.25  | 1.41 | 1.34 | -0.58 | 13.4  | 84.94   |
| 2013  | 0.008  | 0.9  | 0.06  | 0.8  | 0.57  | 1.48 | 1.37 | -0.58 | 5.4   | -14.70  |
| 2014  | 0.008  | -0.1 | 0.35  | 0.9  | 0.26  | 1.46 | 1.59 | -1.06 | 6.0   | -11.96  |
| 2015  | 0.004  | -0.2 | -1.59 | -0.1 | 1.15  | 1.35 | 2.1  | -1.07 | 4.0   | -146.54 |
| 2016  | 0.003  | -0.8 | 2.03  | -0.2 | -0.03 | 1.4  | 0.98 | -1.12 | 4.0   | 129.45  |
| 2017  | 0.001  | -0.3 | -1.39 | -0.8 | 0.23  | 1.38 | 0.39 | -1.09 | 11.1  | -55.24  |
| 2018  | 0.006  | 0.0  | -0.67 | -0.3 | 1.32  | 1.23 | 1.23 | -1.11 | 11.7  | 38.85   |
| 2019  | 0.010  | -1.2 | -0.4  | 0.0  | -1.2  | 1.3  | 1.3  | -0.87 | 0.9   | 685.91  |
| 2020  | -0.009 | -7.2 | -0.91 | -1.2 | 4.43  | 1.23 | 1.23 | -0.88 | 2.8   | 55.24   |
| 2021  | -0.014 | 3.6  | 1.4   | -7.2 | 1.04  | 1.23 | 1.23 | -0.89 | 16.29 | 6.1696  |

Source: Author(s) computation from Excel.

UNE was at its peak by 4.43% in 2020 during the presidency of Thabo Mbeki and it was the lowest by  $-1.76\%$  in 2010 during the same era. GINI was at its highest by 2.5% in 1991 during the presidency of FW De Klerk, and this discrimination resulted in significant inequalities and poverty amongst black South Africans. It was the lowest by  $-1.35\%$  in 2015 during the presidency of Jacob Zuma. POP was at its peak by 2.59% in 1991 during the presidency of FW De Klerk and it dropped to its lowest by  $-0.39\%$  in 2017 during the presidency of Jacob Zuma. FERT was at its highest by 0.11% in 2004, 2006 and 2008, respectively, during the presidency of Thabo Mbeki; according to the World Health Organization report [17], the fertility rate was high, averaging 2.9 children born of a woman during that era. FERT reached its lowest by  $-4.86\%$  in 1993 during the presidency of FW De Klerk. TRA scored its highest by 1112.49% in 2005 during the presidency Thabo Mbeki, TRA was the lowest by  $-292.6\%$  in 2008 during the presidency of Thabo Mbeki. South Africa's trade fell dramatically in 2008, with total exports as well as imports falling by 18% and 20.5%, respectively [18]. Lastly, ICT was at its highest at 192.3%

in 1992 during the presidency of FW De Klerk. South Africa gained access to international technological markets and knowledge with the easing of sanctions and the opening of the economy, resulting in a spike in technology creation and use [19]. However, these extreme fluctuations in TRA and ICT makes it challenging to establish definitive causal relationships between these factors and HDI.

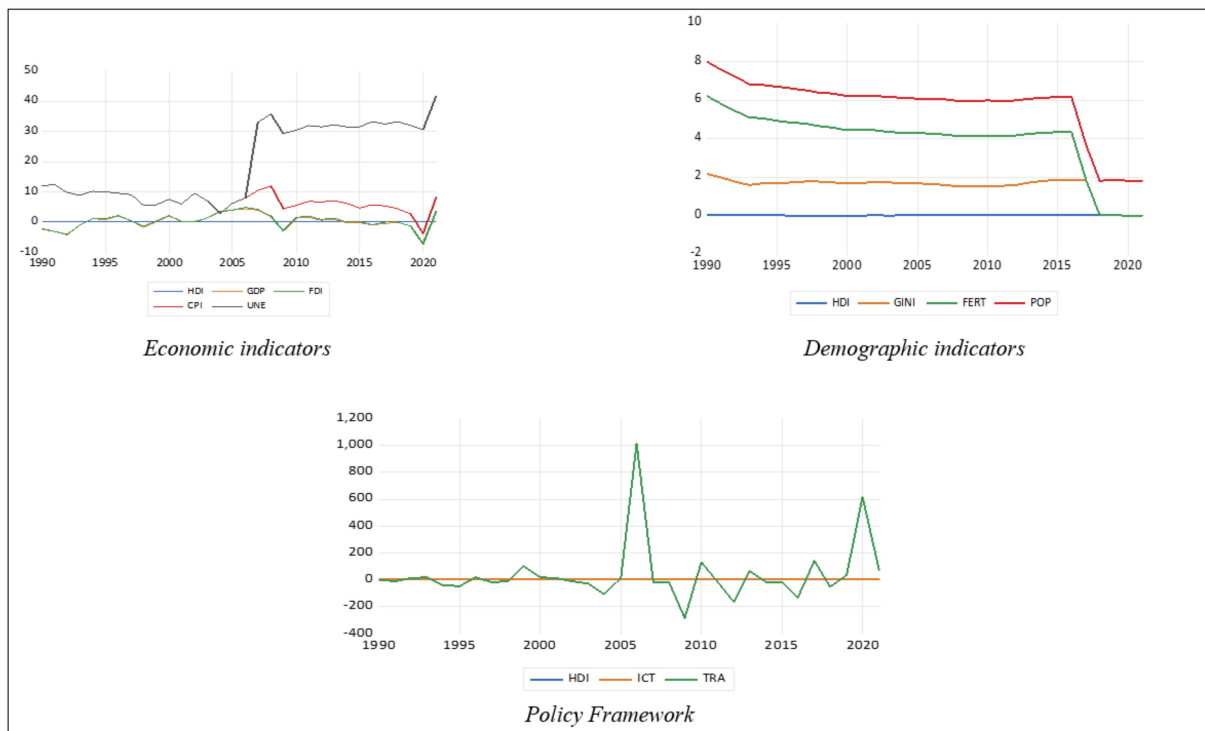


Figure 1. Growth Rate Graphs. Source: Author’s computation from EViews 12.

Table 2. Comparative analysis of growth rates (1991–2021).

| Indicator | Highest Growth Rate (Year, President) | Lowest Growth Rate (Year, President) |
|-----------|---------------------------------------|--------------------------------------|
| HDI       | 0.011% (2011, Ramaphosa)              | −0.014% (2021, Ramaphosa)            |
| GDP       | 4.4% (2000, Mbeki)                    | −7.2% (2020, Ramaphosa)              |
| CPI       | −6.4% (2004, Mbeki)                   | 3.9% (2008, Mbeki)                   |
| FDI       | 4.4% (2007, Mbeki)                    | −7.2% (2021, Ramaphosa)              |
| UNE       | 4.43% (2020, Mbeki)                   | −1.76% (2010, Mbeki)                 |
| GINI      | 2.5% (1991, De Klerk)                 | −1.35% (2015, Zuma)                  |
| POP       | 2.59% (1991, De Klerk)                | −0.39% (2017, Zuma)                  |
| FERT      | 0.11% (2004, 2006, 2008, Mbeki)       | −4.86% (1993, De Klerk)              |
| TRA       | 1112.49% (2005, Mbeki)                | −292.6% (2008, Mbeki)                |
| ICT       | 192.3% (1992, De Klerk)               | −11.1% (2004, Mbeki)                 |

Source: Author(s) computation from Excel.

### 3. Stylised Facts [Presidential Eras in South Africa]

#### 3.1. 1990–1994

##### 3.1.1. Economic Indicators

South Africa’s HDI increased partially during the apartheid era, rising from 0.577 in 1990 to 0.601 in 1994 [20]. However, the HDI in 1994 remained much lower than the



global average of 0.679. Dempster (2023) [21] cited that this was due to apartheid's huge inequities in South Africa, with the black majority population having significantly fewer opportunities and resources than the white minority population. During the apartheid era, the High-Index Composite Index was used primarily due to increases in life expectancy, while education and per capita income levels for the black majority population remained low, resulting in a significantly lower overall HDI when compared to the global average.

During the period 1990–1994, South Africa's GDP fell by 0.3% on average per year [22]. Several factors were involved in this situation. One key aspect was the implementation of international sanctions on South Africa due to its apartheid practices, which had a significant adverse effect on the economy [21]. Furthermore, political instability during the country's democratic transition added to economic uncertainty and a deterioration in economic performance. High unemployment, particularly among the black community, lowered aggregate demand and had a negative influence on GDP growth.

FDI inflows in South Africa were extremely low during the apartheid era. South Africa received only USD 1.2 billion in FDI inflows in 1990 [23]. One key aspect was the imposition of international sanctions on South Africa because of its apartheid policies, which had significant adverse effects on the economy. Foreign investment was also discouraged by the country's political instability as it moved to democracy. According to [21], FDI inflows to South Africa began to rise in the early 1990s as the government moved to deconstruct apartheid and prepare for democratic elections. South Africa received USD 2.4 billion in foreign direct investment in 1994. However, in comparison to other emerging countries, this was still comparatively modest.

From 1990 to 1994, the CPI in South Africa rose by an average of 15.4% per year during the apartheid era [24]. Political instability during the country's transition to democracy also led to uncertainty and inflation. Furthermore, as the country prepared for democratic elections in the early 1990s, the economy began to grow. This raised demand for goods and services, which increased inflation. The Apartheid era's high inflation rates eroded the purchasing power of households and businesses, making economic growth difficult.

During the apartheid era (1990–1994), South Africa's unemployment rate was 17% in 1990 [22] and unemployment rate has risen to 26% since 1994. World Bank (2023) [22] stated that one key issue was that international sanctions imposed on South Africa because of its apartheid practices had a considerable negative impact on the economy, resulting in job losses. Political insecurity throughout the country's transition to democracy exacerbated economic uncertainty and employment losses. Moreover, during this time, inflation was strong, reducing the purchasing power of both households and businesses. Rodman (1994) [25] stated that the South African economy grew slowly, reducing employment creation. Unemployment was especially high among black people. In 1994, the black South African unemployment rate was 35%, while the white South African unemployment rate was 10%.

### 3.1.2. Demographic Indicators

The GINI index in South Africa was very high during the apartheid era. In 1990, the GINI in South Africa was 0.64. This meant that the top 10% of earners in South Africa earned 64% of the country's income [26]. Moreover, the GINI in South Africa declined slightly during the apartheid era, from 0.64 in 1990 to 0.63 in 1994 [27]. However, this decline was very small, and the GINI remained very high. The high GINI during the apartheid era was due to the apartheid system, which discriminated against black South Africans in all aspects of life, including employment and education. According to [28], this discrimination led to high levels of poverty and inequality among black South Africans. During the apartheid era (1990–1994), South Africa's population kept expanding. During this time, the population increased at a rate of almost 2.5% annually [29]. High birth rates and a drop in death rates were the primary contributors to this growth. According to [30], the country's infrastructure and resources were put under pressure due to the rapid population expansion. Due to the black majority population's lack of access to opportunities

as well as basic amenities, the apartheid system also made poverty and inequality a bigger issue.

### 3.1.3. Policy Framework

ICT in South Africa was characterised by restricted access, expensive prices, and unequal distribution during the apartheid era 1990–1994. The majority of South Africans, especially black South Africans, lacked access to ICT [31]. Black South Africans had limited access to ICT because of a number of discriminatory regulations that the apartheid regime put in place. For instance, educational institutes that provided ICT training frequently barred admission to black South Africans. ICT was extremely expensive during the apartheid era, making it unavailable to the majority of South Africans. According to [32], during the era, South Africa's ICT distribution was incredibly unequal. ICT resources were primarily located in white urban regions. Rural black communities had very little access to ICT. Moreover, during the apartheid era, South Africa's ICT infrastructure was underdeveloped. ICT service deployment and maintenance became challenging and costly as a result. Despite the difficulties, the ICT industry made some promising advancements during the apartheid era.

In South Africa, trade fell from 1990 to 1994 due to apartheid. There were multiple reasons causing this matter. South Africa found it challenging to conduct business with other nations because of the international sanctions placed on it because of its apartheid policies [33]. Foreign trade was hampered at the time by the political instability in the country as it made the transition to democracy. Ref. [21] stated that the apartheid era's dismal economic performance made South Africa less appealing to foreign trading partners. During the apartheid era, the value of South Africa's exports and imports somewhat decreased. Nevertheless, the decline was not severe, and South Africa continued to be a significant trading country. Trade with other nations was challenging due to the nation's status as a pariah state. Even after apartheid ended, it took a long time for South Africa to regain its reputation and gain favour as a trading partner with other nations.

## 3.2. 1994–1999

### 3.2.1. Economic Indicators

From 1994 until 1999, Nelson Mandela served as president of South Africa. South Africa's HDI rose over this time, rising from 0.69 to 0.71 [34]. Dempster (2023) [21] cited that the government expenditure on education was one of the contributing factors. Multiple initiatives have been implemented by Mandela's administration to increase education access for all South Africans, regardless of race or social and financial status, which are stated in the South African Schools Act 84 of 1996. This includes increasing the number of schools, hiring more teachers, and offering low-income kids a free education. The government's investment in healthcare was another element that contributed to the HDI rise in South Africa. Furthermore, the government implemented multiple initiatives to increase individuals' access to healthcare in South Africa, including the expansion of the public healthcare system and the provision of free treatment to the underprivileged.

According to the [22], South Africa's GDP increased on average by 3% annually. The economy increased at an average rate of just 1.5% annually during the apartheid era; thus, this was a huge improvement. The growth during the Mandela administration, meanwhile, was not dispersed equally. The country's income was split between the richest 10% of the population, who received more than 60% of it, and the lowest 50%, who received less than 10% [22]. The government tried to encourage economic change, but the inequality remained. The growth of the economy during that period was influenced by a variety of different factors. UNCTAD (2023) [35] stated that the end of international isolation was one of the factors. South Africa was able to rejoin the global economy and attract international investment when apartheid ended. The government's emphasis on infrastructure development was another element. Moreover, the government made significant investments in power plants, bridges, and roads, which contributed to improving the business environment in

the nation [21]. However, the economy faced substantial challenges under the Mandela administration. The worldwide economic recession in the late 1990s was one challenge. The high prevalence of HIV/AIDS, which had a detrimental effect on the workforce, was another issue.

FDI in South Africa expanded significantly, rising from R1.2 billion in 1994 to R4.2 billion in 1999 [32]; furthermore, this indicated a 28% average annual growth rate. According to [36], firstly, a significant barrier to foreign investment was eliminated with the end of apartheid and the installation of a democratic government in South Africa. Secondly, Mandela's administration implemented several policies to entice foreign investment, including tax reductions and regulatory reform. Thirdly, South Africa's economy had significant growth in the 1990s, which increased its appeal to foreign investors. Moreover, the South African economy benefited from the rise in FDI in several ways. It increased economic growth, created jobs, and contributed to infrastructure development. The majority of the FDI went to South Africa's relatively well-established mining, financial services, and telecommunications industries. Due to this, the most vulnerable South Africans did not gain as much from the rise in FDI as they would have.

The CPI fell sharply, from 11.7% in 1994 to 6.6% in 1999 [37]. Several factors contributed to this drop in inflation. Throughout Mandela's administration, the South African Reserve Bank (SARB) maintained tight controls on monetary policy and raised interest rates to combat inflation. To reduce the budget deficit, the South African government put fiscal restrictions in place, such as lowering spending and raising taxes. The government also took action to boost economic competition, which assisted in keeping costs low [21]. Moreover, it is important to understand that the decline in inflation were not without expense. A sluggish pace of economic growth and a rise in unemployment were the results of the restrictive monetary policy and fiscal restraint measures.

From 25.2% in 1994 to 23.8% in 1999, the UNE in South Africa decreased slightly but remained high [37]. The effects of apartheid, the world recession in the early 1990s, and the government's preference for social reconciliation above economic growth were some of the causes of this. The Reconstruction and Development Programme (RDP), which included investments in social and infrastructure initiatives, was one of several measures that Mandela's administration put into place to combat unemployment [38]. Moreover, unemployment remained a significant issue; however, these initiatives were not entirely successful. Young people and women experienced unusually high unemployment rates. In comparison to the rest of the nation, the unemployment rate in the former homelands was much higher. The worldwide recession and the Asian financial crisis both contributed to an increase in unemployment in the late 1990s.

### 3.2.2. Demographic Indicators

During 1994–1999, the GINI in South Africa rose; according to [39], the GINI index rose from 0.59 in 1994 to 0.63 in 1999, as stated in the study by the University of Bayreuth. This increase in inequality could have several factors. One explanation is that some South Africans, though not all, saw new economic prospects because of the country's transition from apartheid to democracy. White people, as well as those with higher levels of education, were frequently the beneficiaries of this transition because they were already better off [40]. Inequality increased for several reasons, one of which is that the government's social policies have not always been successful in reducing inequality and poverty. For instance, the government's policies on affirmation programmes were implemented to assist black South Africans who had suffered from apartheid-era disadvantage programmes, which came under criticism for being ineffective and benefiting a tiny percentage of black people at the expense of the majority.

South Africa's POP increased from 40.3 million in 1994 to 44.8 million in 1999; this represents a 1.1% annual growth rate [41]. In comparison with previous periods, the population growth rate was quite slow throughout this period. This was due to a variety of issues. Fertility declined from 6.2 children per woman in 1994 to 5.5 children per woman



in 1999 [42]. Moreover, the average life expectancy increased from 56.2 years in 1994 to 58.3 years in 1999. Emigration has resulted in a net outflow of people. The rate of population growth was also unequally distributed across the country. The provinces with the highest growth rates were Gauteng and KwaZulu-Natal, which are the most populated. The Northern Cape and Free State provinces, which had fewer people, had the slowest growth rates [43]. South Africa's population growth during Nelson Mandela's presidency had a variety of implications for the growth of the nation. On the one hand, it raised the need for resources such as housing, education, and healthcare. On the other hand, it created a new generation of employees capable of contributing to the country's economy.

### 3.2.3. Policy Framework

South Africa's ICT sector experienced significant growth and development, and several factors contributed to this remarkable expansion [44]. The end of apartheid and the transition to democracy opened new prospects for economic and social development, as well as the rapid global expansion of internet and mobile telecommunications technologies. Moreover, the government's pledge to use ICT to improve South Africans' lives and improve economic growth. The implementation of the White Paper on Telecommunications Policy in 1996 was one of government's main successes in the ICT sector. The statement presented a vision for a competitive and open telecommunications market, which was important in attracting investment and promoting sector growth. In 1998, the Universal Service and Access Agency of South Africa (USAASA) was established, which was a significant development. USAASA oversees promoting universal access to telecommunications services and has been instrumental in connecting rural and underserved populations. Burger (2004) [45] cited that during that period the number of South Africans using ICT increased significantly. For example, the number of mobile phone subscribers grew from slightly more than one million in 1994 to more than ten million by 1999. In addition, the number of internet users increased from a few thousand in 1994 to over 500,000 by 2005. The growth of ICT in South Africa helped to create jobs, boost economic growth, and improve the delivery of public services. It also helped to connect South Africans to the global economy and to each other.

Nelson Mandela's presidency marked a period of significant shifts in South African trade. The newly elected government was determined to open the economy and grow trade with the rest of the globe [46]. This was seen as an important aspect of the country's Reconstruction and Development Programme (RDP), which attempted to overcome the legacy of apartheid and improve the lives of all South Africans. According to [47], one of the first actions taken was to lower taxes on imported commodities. This made it easier and cheaper for South African enterprises to obtain inputs from abroad, and it rendered South African goods more competitive in foreign markets. The government also struck several trade agreements with other countries, including the United States. The United States, the European Union, and the Southern African Development Community (SADC) were all involved. These agreements provided South African enterprises with access to new markets and aided in the reduction in trade barriers. As a result of these reforms, South African trade expanded dramatically during the 1990s. Between 1994 and 1999, exports climbed by more than 100%, while imports increased by more than 50% [48].

## 3.3. 1999–2008

### 3.3.1. Economic Indicators

South Africa's HDI grew from 0.601 in 1999 to 0.684 in 2008 because of significant improvements in per capita income, education, and life expectancy [42]. Furthermore, with several causes for this development, the South African economy grew on average at a rate of 4.2% annually. Many South Africans' lives were better because of the boom in the economy, which also produced more jobs and higher earnings. According to [24], investment in social services rose, and the government increased spending on social services like healthcare and education. Many South Africans saw improvements in their quality of life because of

this investment. Moreover, access to social services was increased, including water and sanitation. According to Department of Trade, Industry and Competition (2023) [49], many South Africans' well-being and health have improved because of the expansion of access. It is crucial to remember that there were difficulties throughout that period. The HIV/AIDS pandemic had a catastrophic effect on many South Africans, and the nation continued to experience high levels of poverty and inequality. The HDI did, however, show a generally upward trend during the Mbeki administration.

In South Africa, CPI averaged 6.1% from 1999 to 2008. During the same period, the global average CPI was 3.8% [22]. During this time the global oil prices spiked significantly, raising the cost of energy as well as transport in South Africa. Food costs rose dramatically during this period because of a variety of circumstances, including droughts and floods [15]. Furthermore, wages in South Africa increased dramatically during this period, contributing to demand-pull inflation. Moreover, the South African government implemented several steps to try to reduce inflation, including interest rate hikes and price controls. These initiatives, however, were ineffective, and the CPI remained high throughout that time. High inflation can have a number of negative effects on an economy, including lowering purchasing power, discouraging investment, as well as making it difficult for firms to prepare for the future.

FDI inflows to South Africa surged significantly; South Africa received USD 2.3 billion in FDI in 1999. South Africa's FDI inflows had grown to USD 14.8 billion by 2008 [50]. The South African economy was largely stable, making it more appealing to foreign investors. The country had completed its democratic transition, and the political environment was largely stable. The government undertook a few economic reforms, such as tariff reductions and the privatisation of state-owned firms, which made the country more appealing to foreign investors [51]. Furthermore, the global economy was thriving, which contributed to an increase in FDI inflows to South Africa. FDI inflows to South Africa were notably solid in the mining, manufacturing, as well as financial services sectors. UNDP (2009) [52] indicated that it is important to remember that the surge in FDI was not without its critics. Some critics contended that the government was too concentrated on soliciting foreign investment and not enough on improving the home economy. Moreover, others contended that the increased FDI was causing job losses in certain areas of the economy [53]. Despite these complaints, the growth in FDI is widely regarded as a beneficial development. FDI can help to create jobs, stimulate economic growth, transfer technology and skills.

During the Thabo Mbeki administration (1999–2008), South Africa's GDP increased at an annual rate of 4.1% [24]. This was a major improvement over apartheid-era economic performance, and it had one of the greatest growth rates in the world at the time. Several reasons contributed to the country's significant economic growth. Taylor (2014) [54] opines that South Africa experienced a period of political stability, which generated a favourable atmosphere for economic growth.

### 3.3.2. Demographic Indicators

South Africa's POP increased considerably; the population increased from 44.8 million in 1999 to 50.7 million in 2008, a 1.3% annual growth rate [55]. There are various primary drivers of population growth during this period. According to [56], fertility rate remained high, averaging 2.9 children per woman. South African mortality rates fell over this period as healthcare and other socioeconomic variables improved. During this time, South Africa witnessed a net inflow of migrants, primarily from neighbouring African countries. Moreover, it is vital to note that South Africa's population growth rate has slowed in recent years. Net migration has also dropped since the fertility rate has decreased. The country of South Africa is expected to have 65 million people by 2030 and 80 million by 2050 as a result [28]. South Africa's GINI fell significantly, from 0.63 in 1999 to 0.61 in 2008 [26]. However, the drop was minor, and the GINI stayed quite high. Aron et. al (2009) [57] cited several programmes aimed at reducing income disparities, such as the Black Economic Empowerment (BEE) initiative and the Expanded Public Works Programme

(EPWP). However, these strategies were ineffective in terms of lowering inequality. One factor is that apartheid left a legacy of extreme inequality that was difficult to remove. Additionally, [58] indicates that the government did not do enough to address the core causes of inequality, such as the black majority population's lack of access to good education and work opportunities. Furthermore, it is worth mentioning that economists disagree regarding the effectiveness of the BEE and EPWP programmes in reducing inequality. Some economists believe these programmes have been beneficial in lowering inequality, while others believe they have had little influence.

### 3.3.3. Policy Framework

ICT advanced fast in South Africa; this was due to a variety of circumstances. According to [45], the government spent extensively on ICT, particularly in education and infrastructure. This investment aided in increasing access to ICT for all South Africans. The government liberalised the telecoms industry, resulting in increased competition as well as lower costs for ICT services. Moreover, this made ICT more affordable for South Africans. Mobile phones were immensely popular in South Africa. This was due to a variety of reasons, including lower prices and better network coverage. Mobile phones have made information and communication technology (ICT) more accessible and affordable to South Africans, particularly in rural regions. As a result of these causes, ICT penetration rates in South Africa expanded dramatically. Only 2% of South Africans had an internet connection in 1999. This percentage had risen to 30% by 2008 [59]. The development of ICT in South Africa had several beneficial consequences. ICT has aided in the advancement of education, healthcare, and economic progress. Furthermore, Mkhathshwa-Ngwenya (2016) [60] indicates that ICT also contributed to the empowerment and the voice of South Africans. It is worth noting that the expansion of ICT in South Africa was not without hurdles. The digital divide, or the gap between people who have and do not have access to ICT, was one concern. The digital divide was especially visible in South Africa, where a huge majority of the population was impoverished and lacked access to essentials like power and water. Another issue was a lack of ICT skills and knowledge. Trade in South Africa rose dramatically; South African exports went up from R165 billion in 1999 to R612 billion in 2008. South African imports surged in value from R194 billion in 1999 to R780 billion in 2008 [61]. During Thabo Mbeki's presidency, the South African economy grew at an annual rate of 4.2% on average.

According to Department of Communications SA (2008) [62], the South African government has pursued a variety of trade liberalisation policies. Tariffs and other trade obstacles were reduced as part of these initiatives. Trade liberalisation made it simpler for South African businesses to sell goods and services to other countries. Moreover, the South African government made significant investments in infrastructure. This investment strengthened the country's transport and logistics systems, allowing South African businesses to deal with other countries more easily. It is crucial to emphasise that the expansion in trade during Thabo Mbeki's presidency was not without difficulties. Furthermore, during this time, South Africa's trade imbalance (the difference between the value of imports and exports) worsened. South Africa's TRA declined significantly in 2008, with overall imports and exports falling by 18% and 20.5%, respectively [18]. The decrease can be attributable to several internal and external causes. This decreased domestic demand, resulting in lower imports. The global financial crisis of 2008 sparked a massive recession in major economies, including those of South Africa's trading partners, such as the United States and Europe [16]. Moreover, South Africa's economy was already slowing in 2008 due to high interest rates and rising inflation. As a result, worldwide demand for South African exports fell. South Africa is a significant exporter of commodities such as minerals and metals. The price of commodities dropped dramatically in 2008 because of the worldwide recession, severely reducing South Africa's export revenues. This was due to a variety of circumstances, notably the fact that South Africa imports a significant amount of energy and raw materials, both of which are frequently expensive [63]. Despite these obstacles, the

expansion in trade during Thabo Mbeki's presidency had several good consequences for the South African economy.

### 3.4. 2009–2018

#### 3.4.1. Economic Indicators

South Africa's HDI grew, rising from 0.601 in 1999 to 0.678 in 2008 [48]. Several types of causes contributed to this growth; the South African economy increased at a 5% annual rate. This economic expansion resulted in job creation and higher earnings, which enhanced the lives of many South Africans. According to [64], the government expanded spending on social services like education and healthcare. This greater spending resulted in higher life expectancy and education levels. The government also made strides in improving access to basic amenities like water and electricity. Moreover, this greater access to essential services contributed to the rise of the HDI, many South Africans' education levels stayed low as well, and the country's total HDI remained below the worldwide average. It is also worth noting that there were several difficulties, such as high levels of inequality, unemployment, and corruption.

The CPI in South Africa grew from 5.9% in 1999 to 10.3% in 2008, with a variety of causes contributing to this advancement [24]. The worldwide food crisis of 2007–2008 caused food prices in South Africa to skyrocket. The global financial crisis of 2008 also had a detrimental influence on the South African economy, causing the rand's value to fall and the price of imported commodities to rise [65]. Domestic issues such as rising wages and high energy prices also contributed to inflation during this period. Moreover, the rise in the CPI had a severe impact on families, particularly low-income households. It lowered households' purchasing power and made it harder for them to afford essentials. South Africa's GDP rose at an annual rate of 3.25% [66]; this was higher than Africa's overall GDP growth rate of 2.7% per year during this period. However, GDP growth in South Africa was uneven. During the first half of Jacob Zuma's presidency in 1999–2004, the economy grew at a quicker rate, averaging 4.3% each year. GDP growth dropped to 2.2% per year in the second half of his term in 2005–2008 [67].

South Africa's UNE fell in 1999, with the unemployment rate at 26%; furthermore, the unemployment rate had dropped to 23% by 2008 [68]. A variety of reasons contributed to the fall in unemployment. The South African economy grew at an annual pace of 4.5% on average; this economic expansion resulted in the creation of jobs. According to [69], the South African government implemented several job creation initiatives, including the Expanded Public Works Programme and the Small Business Development Agency. The South African government invested in education and skills training, which increased the competitiveness of South African workers in the labour market [70]. Unemployment is especially prevalent among South African youth and black South Africans. In 2023, the youth unemployment rate was 46%, while the black South African unemployment rate was 38% [24]. The South African government has put in place a number of programs to combat unemployment, but the problem remains serious.

FDI in South Africa increased significantly; in 1999 FDI inflows to South Africa were USD 2.4 billion. By 2008, FDI inflows to South Africa had increased to USD 13.1 billion [32]. This increase in FDI was due to several factors. South Africa experienced a period of political stability, which made it more attractive to foreign investors. The South African economy grew at an average rate of 4.5% per year, which created new opportunities for foreign investment [46]. Moreover, the South African government implemented a number of policies to attract foreign investment, such as tax breaks and investment incentives. Inflows of foreign direct investment into South Africa were concentrated in a few sectors, notably mining, finance, and manufacturing. Foreign direct investment also played an important part in the construction of South Africa's infrastructure, such as roads, trains, and ports. South Africa's FDI inflows fell from USD 13.8 billion in 2007 to USD 13.1 billion in 2008 [22]. FDI inflows to South Africa, on the other hand, began to rebound in the years following the global financial crisis.

### 3.4.2. Demographic Indicators

South Africa's GINI increased significantly, rising from 0.62 in 1999 to 0.64 in 2008 [26]. A variety of causes contributed to the rise in income inequality. The wealthiest 10% of South African earnings profited the most from the growth of the economy, while the bottom 50% saw little to no benefit. The government was marred by corruption scandals, which diverted resources away from critical public services and into the enrichment of small elite. Dempster (2023) [21] posits that the unemployment rate remained high, particularly among black people. As a result, many South Africans were unable to participate in the country's economic prosperity.

South Africa's POP increased from 44.8 million in 1996 to 50 million in 2008. This indicates an annual growth rate of 1.1% on average [24]. The nation's population growth rate fell during due to a variety of issues. Moreover, in South Africa, the fertility rate fell from 3.2 children per woman in 1996 to 2.6 children per woman in 2008. A variety of reasons contributed to the result, women's education and career prospects have been expanded, as has their access to contraception. Furthermore, South African life expectancy grew from 58.8 years in 1996 to 62.5 years in 2008. According to [71], several factors contributed to this, including improved healthcare and the availability of antiretroviral medications for HIV/AIDS patients. Despite a slowing in population growth, South Africa's population grew. This was due to both natural rise (births minus deaths) and net migration (people entering South Africa minus people leaving South Africa).

### 3.4.3. Policy Framework

South Africa's ICT sector experienced substantial growth and development throughout Jacob Zuma's term as Deputy President in 1999–2005 as well as President in 2009–2018. Statistics South Africa (2022) [31] indicates that a number of variables fuelled its further development. During this period, the South African government made major expenditures on ICT infrastructure and services. For example, in 2004, the government implemented the Universal Service and Access Obligation (USAO), which aimed to provide all South Africans with access to essential telecommunications services. Moreover, the country's government also deregulated the ICT sector in order to foster competition and innovation. For example, in 1997, the government dissolved Telkom, the state-owned telecommunications corporation. During this time, there was an increase in demand for ICT services from both enterprises and consumers [72]. This was due to a variety of factors, including the increased popularity of mobile phones and the rise of the internet. As a result of these circumstances, South Africa's ICT sector expanded substantially. South Africa's internet user base grew from 1.2 million in 2000 to 11.7 million in 2008. South Africa's mobile phone user base expanded from 4.3 million in 2000 to 30.2 million in 2008 [22].

South African trade increased greatly; the overall value of South Africa's trade rose from R377 billion in 1999 to R1.4 trillion in 2008 (World Bank, 2023) [22]. During this time, the South African economy flourished rapidly, increasing demand for both imports and exports. During this time, the South African government introduced a variety of trade liberalisation policies, making it simpler for South African businesses to deal with other countries [46]. The country's government invested extensively in infrastructure during this period, which boosted the country's ability to trade with other countries. The country's trade with China grew at a particularly rapid pace. South African–China commerce climbed from R12 billion in 1999 to R122 billion in 2008 [22]. Furthermore, during this time, [73] stated that China grew to become South Africa's major trading partner. It is worth noting that South Africa's trade imbalance rose during this time. South Africa's trade imbalance rose from R67 billion in 1999 to R245 billion in 2008.

## 3.5. 2009 to Present

### 3.5.1. Economic Indicators

South Africa's HDI rose from 0.636 in 2008 to 0.696 in 2022 under the leadership of Cyril Ramaphosa [74] This rise can be attributed to a variety of things; South African life



expectancy has risen from 54.5 years in 2008 to 63.9 years in 2022. Furthermore, this rise can be attributed to a variety of factors, including increased access to healthcare and a decrease in HIV/AIDS fatalities. South Africa's educational standards have greatly increased since 2008. According to [74]'s report, the net enrolment rate for primary education has risen from 94.2% in 2008 to 98.4% in 2022. Secondary education net enrolment has increased from 76.5% in 2008 to 86.7% in 2022. The country's per capita income rose from USD 5020 in 2008 to USD 6350 in 2022. This rise is attributed to a variety of variables, including economic growth and a decrease in poverty rates: Human Development Report 2022–2023: Building Our Future in a Transcendental World, Oxford University Press. However, it is also crucial to remember that South Africa's HDI remains relatively low, and the country is categorised as having medium human development. Despite improvements, there are still significant barriers to increasing human development in South Africa. The Crime Statistics Quarterly Report has cited that poverty and inequality are widespread in South Africa, limiting human development. South Africa has a high crime rate, which makes it difficult for people to attain their full potential. South Africa has a high unemployment rate, which can lead to poverty and societal exclusion [75].

The CPI in South Africa rose significantly and was 10.6% in 2008. CPI had risen to 7.5% by 2022 [24]. Many reasons contributed to the increase in the CPI, the 2008 global economic crisis had a substantial influence on the South African economy, resulting in job losses and rising commodity and service costs [75]. Furthermore, the South African economy has struggled with low growth and rising unemployment. As a result, prices for products and services have risen. Higher wages, higher energy prices, or greater input costs can all contribute to this. It is also worth noting that the rise in CPI was not limited to South Africa. In recent years, CPI has risen in several other countries as well. This is attributable to a variety of global factors, including the COVID-19 pandemic and the conflict in Ukraine.

South Africa received USD 3.9 billion in FDI in 2009 and FDI inflows to South Africa had climbed to USD 10.7 billion by 2022 [32]. This surge in FDI inflows can be attributed to a variety of factors. Ramaphosa's government undertook a variety of economic reforms, including modernising the regulatory environment as well as investing in infrastructure, making South Africa more appealing to international investors. South Africa had a period of political stability, which made it a more appealing destination for international investment. The global economy expanded rapidly, increasing demand for South African goods, and attracting international investment [52]. However, in 2021, South Africa experienced a sharp decrease in foreign direct investment (FDI), falling by 61% to USD 5.4 billion from USD 13.9 billion in 2020 [32]. An amalgamation of both internal and external factors can be a cause for this drop. The political climate in South Africa in 2021 was characterised by concerns about corruption and governance, regular cabinet reshuffles, and policy uncertainty and volatility [76]. Furthermore, potential investors become risk averse because of this. With high unemployment and slow economic growth in 2022 following the COVID-19 epidemic, the South African economy was already struggling. This reduced investor confidence even more. According to [77], South Africa's infrastructure limitations, particularly among the energy and logistics domains, continued to create hurdles for companies and impeded the attraction of investment.

South Africa's GDP increased at an annual pace of 1.7% on average, during the same period, the worldwide average GDP growth rate was 3.0% per year [22]. South Africa's GDP growth rate, on the other hand, was higher than that of other African countries. South Africa's GDP expanded faster than Kenya's (1.4% per year), Nigeria's (1.3% per year), and Angola's (0.2% per year) [22]. It is worth noting that South Africa's GDP growth rate has been variable. The 2008–2009 global financial crisis had a substantial negative influence on the South African economy, resulting in a recession in 2009 [78]. Moreover, the COVID-19 pandemic also caused a recession in the South African economy in 2020. Despite the unpredictability of South Africa's GDP growth rate, the country's economy has risen overall. This is due to a combination of circumstances. Since Cyril Ramaphosa's appointment,

the South African government has made significant investments in infrastructure. This investment has contributed to increased economic activity and employment growth. South Africa liberalised its trade policies. This has simplified the export of South African goods and services to other countries cited in the [22] report. The South African government has taken initiatives to enhance the business environment. This has made it easier for companies in South Africa to establish and operate.

South Africa's POP is falling due to a variety of challenges; South Africa's unemployment rate has remained high. During this period, the official unemployment rate averaged to 27.3% [24]. Thus, nearly one in every three South Africans was unemployed. There are several reasons behind South Africa's high unemployment rate. Ref. [21] cited that the South African economy has risen modestly in recent years, which has hindered employment creation. Most South Africans lack the skills required for well-paying professions. Moreover, South Africa's high crime rate discourages investment and employment creation. According to [79], corruption redirects resources away from productive activity and into the hands of corrupt individuals, stifling growth in the economy and employment creation.

### 3.5.2. Demographic Indicators

South Africa's GINI fell significantly, from 0.63 in 2008 to 0.62 in 2022 [26]. However, this decrease was minor, and the GINI remained quite high. It should be noted that the GINI is a set measure of inequality. It does not account for the dynamics of inequality, like the fact that people might move between the income categories cited in a report over time [24]. However, the GINI is still a widely used measure of inequality, and it provides a good overview of a country's income distribution. There are several reasons why South Africa's GINI has remained high. Apartheid established a profoundly unequal society, and the country's high GINI reflects the effects of apartheid. Moreover, South Africa's UNE is significant, which leads to income disparity. Many South Africans lack the necessary skills to obtain jobs that pay well. South Africa's POP has declined in recent years; the annual population growth rate averaged 1.1%. This was a decrease of 1.5% each year over the previous decade [24]. South Africa's fertility rate has been falling in recent years. This is due to a variety of causes, including increasing access to education and contraception for women, as well as growing living costs. South Africa's life expectancy has risen in recent years. This can be attributed to a variety of causes, including improved healthcare and diet. South Africa has lost more people than it is gaining. This is due to a variety of circumstances, including economic hardship and criminal activity. South Africa's population growth rate is dropping, which has several ramifications for the country [21]. For example, it implies that fewer people will be employed in the future. This could result in skill deficits and slow economic growth. It also implies that there will be fewer people to care for the elderly in the future. This may place a further burden on government resources. The South African government is conscious of the ramifications of the decreasing population growth and is taking steps to alleviate them. For instance, to ensure that the workforce has the necessary skills for the future, the government makes investments in education and skill training. To increase life expectancy, the government is also investing in healthcare and nutrition.

### 3.5.3. Policy Framework

South Africa's TRA expanded the overall value of trade in products and services rose from USD 228 billion in 2008 to USD 369 billion in 2022 [22]. This amounts to an annual growth rate of 4.5% on average. A variety of causes contributed to South Africa's trade expansion. Global trade expanded dramatically; South Africa, which is an export-oriented economy, benefited from this. In recent years, South Africa has diversified its trading relationships, lessening its reliance on traditional partners like the United Kingdom and the United States [46]. As a result, South African TRA has become more resilient to shocks in specific markets. In recent years, South Africa's manufacturing sector has expanded, generating more goods for export. This has helped to increase trade in South Africa; however, a variety of problems have impeded South Africa's trade growth. Moreover, the

global recession had a substantial negative influence on South African TRA, which dropped precipitously in 2009. According to [80], the COVID-19 pandemic also had an adverse effect on South African TRA, which fell in 2020. Load shedding, or the government's purposeful disconnection of energy, has also harmed South Africa's TRA by interrupting production and exports. Despite these obstacles, South African TRA is likely to expand in the next few years. This is due to a combination of circumstances. The African Continental Free Trade Agreement (ACFTA), a trade pact between 54 African countries, is anticipated to enhance trade between African countries, including South Africa. South Africa's digital economy is fast expanding, which is predicted to enhance trade in digital goods and services. The South African government is focusing on export promotion, which is projected to improve South African trade in the next few years.

South Africa's ICT sector expanded significantly; this was due to a variety of circumstances. During this time, the South African government made significant investments in information and communication technology. This investment helped in expanding broadband access, improving ICT service quality, and lowering ICT service costs [70]. During this time, the private sector made significant investments in ICT. This investment helped in the development of new ICT goods and services, as well as the expansion of the reach of ICT services. The need for ICT services expanded significantly. Moreover, this was due to a variety of factors, including the rise of the digital economy, the increased use of ICT in businesses, and the increased use of ICT by consumers. As a result of these reasons, South African ICT penetration expanded dramatically over this period. For example, from 11% in 2008 to 65% in 2022, the percentage of homes with an internet connection grew. Additionally, from 75% in 2008 to 95% in 2022, the percentage of enterprises with internet connections grew [22]. South Africa's ICT rise has had a variety of positive effects on the country's economy and society. For example, ICT has assisted in the creation of jobs, the acceleration of economic growth, and the enhancement of government service delivery. ICT has also aided in improving access to education and healthcare, as well as reducing social exclusion [70]. However, several problems remain to be overcome to ensure that ICT benefits all South Africans. For example, the cost of ICT services remains too expensive for some, and there is still a digital gap between urban and rural areas. In addition to the foregoing, the following are some additional significant developments in South African ICT during Cyril Ramaphosa's presidency: In 2013, the South African Connect broadband expansion programme was launched [81]. Moreover, this programme has contributed to the expansion of internet connectivity for millions of South Africans. The introduction of the Presidential Commission regarding the Fourth Industrial Revolution in 2018; this commission was tasked with recommending ways for South Africa to prepare for and benefit from the Fourth Industrial Revolution. In 2019, the Digital Development Agency was established. This organisation oversees driving South Africa's digital transformation. South Africa's ICT boom has the potential to revolutionise the country's economy and society. It is, however, critical to guarantee that all South Africans enjoy the benefits of ICT.

In conclusion, these administrations' approaches to human development strategy reflected their varied political views as well as South Africa's shifting socioeconomic background. While each president has made major contributions to South Africa's human development, the country still faces issues such as poverty, inequality, and unemployment. To address these problems, ongoing commitment to efficient and inclusive policies that prioritise human development will be required. HDI was fluctuating throughout 1990 and dropped in 1996 to negative HDI until 2001, then it rose to a positive HDI in 2002 but dropped again in 2003. In 2004 and until 2019, HDI has been fluctuating, until 2020, where it dropped to a negative HDI. A rise in the HDI, which combines indicators of health, education, and living standards, indicate that South Africans are becoming better. This could indicate an increase in life expectancy, educational achievement, income, and access to fundamental necessities. If rising HDI is accompanied by declining inequality, it indicates that historically disadvantaged populations are gradually catching up with respect to health, education, and living conditions. This helps to create a more fair and just society.

A more educated and healthier population may lead to a more productive workforce, thus boosting economic development and growth. This can result in greater opportunities for employment and higher living standards for everyone. A higher HDI can help South Africa's international standing by attracting foreign investment and establishing stronger business relationships. Furthermore, a greater HDI can assist in addressing socioeconomic inequities and reducing poverty within the country. Meanwhile, a drop HDI could lead to political instability, increased social unrest, and an increase in wealth disparities.

#### **4. Comparisons of Economic Indicators, Demographic Indicators and Policy Framework in Each Era**

##### *4.1. Economic Indicators*

According to [22], South Africa's GDP growth rate grew slowly and was unpredictable during the FW De Klerk apartheid era. During this time, the average annual growth in GDP was only 1.5%. Several factors contributed to this, including political instability, economic sanctions, and the government's apartheid practices [82]. During Nelson Mandela's administration, South Africa's economy started to recover following the end of apartheid. During Mandela's presidency, the average annual growth in GDP was 3.2%. This was due, in part, to the government's economic liberalisation and black economic empowerment efforts [83]. Under Thabo Mbeki's presidency, the South African economy improved. Over this period, the average annual growth in GDP was 4.1%. This was due in part to the government's sustained emphasis on economic liberalisation as well as infrastructural spending [84]. Furthermore, during Jacob Zuma's administration (2009–2018), economic growth stagnated. During this period, the average annual growth in GDP was only 1.8%. This was due to a variety of circumstances, including corruption scandals, political instability, and a worldwide economic recession [85]. Finally, under Cyril Ramaphosa's presidency (2018–present), the South African economy has begun to show indications of recovery. During this time, the average annual growth in GDP was 2.1%. This is due, in part, to the government's focus on economic reform and luring investment [28]. As a result, South Africa's growth in GDP has fluctuated dramatically during the last 30 years, varying from a high of 5.4% in 2007 under Thabo Mbeki's presidency to a low of –6.3% in 2020 under Cyril Ramaphosa's administration.

South Africa's CPI has fluctuated over the last three decades. Statistics South Africa (2023) [24] cited that under the apartheid era, the country had the highest CPI of 20.5% in 1994 from 12.3%, whereas under the Nelson Mandela presidency (1994–1998), the country experienced the lowest CPI of 20.5% in 1998 from 20.5% in 1994. CPI climbed from 5.7% in 1999 to 11.1% in 2008 during Thabo Mbeki's presidency (1999–2008). Furthermore, during Jacob Zuma's presidency, the CPI fell to 6.1% in 2018. Under Cyril Ramaphosa's presidency, the CPI was 5.8% in 2022. As a result, South Africa's CPI growth rate has varied greatly over the last 30 years, ranging from 20.5% during the FW de Klerk era to 5.7% in 1998 under Nelson Mandela's presidency.

According to [86], in the apartheid era, FDI in South Africa was heavily influenced by international sanctions and political instability. Moreover, the FDI inflows fell from USD 3.9 billion in 1990 to USD 1.4 billion in 1993. However, the political reforms undertaken by President F.W. de Klerk in 1990 resulted in a gradual increase in FDI inflows in 1994. The Nelson Mandela presidency and the election of Nelson Mandela as South Africa's first black president in 1994 heralded a new era for foreign direct investment in the country. The Mandela administration developed strategies to encourage international investment, such as the formation of the South African Investment Promotion Centre [87] and the construction of special economic zones (SEZs). FDI inflows increased as a result, rising from USD 1.8 billion in 1994 to USD 3.3 billion in 1998 [22]. During Thabo Mbeki's administration (1999–2008), the country experienced a period of continuous economic growth. In 2007, FDI inflows peaked at USD 11.4 billion. However, the 2008 global financial crisis resulted in a dramatic drop in FDI inflows, which plummeted to USD 2.3 billion in 2009 [32]. The Jacob Zuma presidency was characterised by political instability and economic insecurity, which



hampered FDI inflows. Moreover, during this time, FDI averaged USD 4.4 billion per year. The presidency of Cyril Ramaphosa and the election of Cyril Ramaphosa as president in 2018 has given South Africa renewed hope for FDI. Ramaphosa has promised to restructure the economy and enhance the business environment. As a result, FDI inflows have surged in recent years and reached USD 7.2 billion in 2022. As a result, South Africa's FDI growth rate has varied greatly over the last 30 years, ranging from USD 7.2 billion in 2022 during Cyril Ramaphosa to USD 2.3 billion in 2009 during Thabo Mbeki.

#### 4.2. Demographic Indicators

The GINI in South Africa was about 0.60 during the FW de Klerk government. Ref. [52] indicates that the richest 10% of the population held almost 60% of the country's wealth, while the lowest 50% controlled approximately 5%. Meanwhile, there was a small amount of progress towards eliminating inequality under Nelson Mandela. Moreover, the GINI Index has dropped marginally to around 0.59. Inequality, however, remained a serious issue in South Africa. Under Thabo Mbeki, the GINI Index continued to fall, reaching a low of 0.57 in 2006 [88]. However, inequality began to rise again at the end of Mbeki's presidency. The GINI grew substantially under Jacob Zuma, reaching a record high of 0.67 in 2015. This was due to a variety of issues, including corruption, cronyism, and nepotism, and a decrease in economic growth. Since Cyril Ramaphosa's election as president in 2018, the GINI started to fall again. In 2021, the GINI was 0.63. It remains to be seen, however, whether this reduction will be sustained in the long run.

The apartheid era in South Africa was a time of immense political and social upheaval, which had a considerable impact on the country's population growth. During this time, the POP increased by 1.9% per year, which was lower than the overall average growth rate of 2.4% over the years [89]. Nelson Mandela's presidency, there was a time of tremendous hope and optimism as the country moved from a white minority government to a democracy. Moreover, during this time, the POP increased by 1.2% each year, which was significantly lower than the overall average growth rate. South Africa saw economic growth and stability during Thabo Mbeki's presidency, as the country adopted a series of economic reforms. During this period, the POP grew by 0.4% per year, the slowest rate of any of the time periods. South Africa's economy continued to decline during Jacob Zuma's administration, resulting in political scandals and corruption [25]. Moreover, during this time, the POP increased by 1.2% each year, which was somewhat faster than the overall average growth rate. South Africa witnessed economic recovery and reform throughout Cyril Ramaphosa's presidency, with the country implementing several economic transformations. During this period, the population grew by 0.4% per year, the slowest rate.

During the FW De Klerk era, South Africa's total FERT was anticipated to be 5.3 children per woman. This was an enormous drop from the 1980s FERT of 6.3 children per woman [90]. Fertility falls have been associated with a variety of factors, including rising urbanisation, higher education and access to contraception, and a growing knowledge of the risks of HIV/AIDS. Furthermore, fertility declined under Nelson Mandela's administration [91]. In 1998, the FERT was expected to be 4.1 children per woman. The ongoing existence of the same situations that led to the drop in fertility during the FW De Klerk era was attributed to this decline. During Thabo Mbeki's presidency, the FERT continued to fall. In 2008, the FERT was predicted to be 3.1 children per woman. The sustained effectiveness of family planning programmes, as well as increasing access to education and employment opportunities for women, have been highlighted as reasons for the reduction [92]. Meanwhile, there was an improvement during Jacob Zuma's administration. In 2018, the FERT was predicted to be 2.4 children per woman. The continued effectiveness of family planning programmes, increasing access to education and employment opportunities for women, and a drop in HIV/AIDS prevalence were all attributed to this decline. In 2023, the FERT is expected to be 2.2 children per woman. The sustained success of family planning programmes, increasing access to higher education and job opportunities for women, as well as a decrease in HIV/AIDS prevalence, are all contributing factors to this decline.



### 4.3. Policy Framework

According to the [93], FW De Klerk government took some initial initiatives to liberalise South Africa's telecommunications market, but growth was slow. The government was also sceptical about implementing ICT policies that could be considered to favour one race over another. Meanwhile, the Mandela administration prioritised ICT. The government issued the White Paper on Telecommunications in 1996, outlining a vision for a competitive as well as affordable telecommunications sector. The government also formed the Universal Service Agency (USA) to ensure that basic telecommunications services are available to all South Africans [94]. Furthermore, during the Mbeki administration continues to invest in ICT infrastructure and promote ICT use across all areas of society. The government established the National ICT Policy Framework in 2003 with the goal of making South Africa a global leader in the use of ICT. The government also launched the Broadband Initiative, which sought to offer all South Africans inexpensive broadband access. The Zuma presidency's record on ICT is more mixed. The government made some headway in increasing broadband access, but it also encountered obstacles in regulating the telecoms sector and encouraging government use of ICT. The Ramaphosa administration has pledged to make ICT a significant driver of economic growth. The government has published the National ICT Policy Green Paper, which sets a vision for South Africa's ICT future. The administration has also established the Presidential Digital Economy Task Force to supervise ICT policy execution [94].

The end of apartheid during FW de Klerk's presidency opened South Africa up to the world economy, resulting in expanded trade opportunities. In 1994, the country became a member of the General Agreement on Tariffs and Trade (GATT), indicating its commitment to global trade liberalisation [18]. Nelson Mandela's administration focused on encouraging economic and social development, with trade playing an important role. The government implemented initiatives to encourage foreign investment, diversify export markets, and promote regional integration. South Africa established the Southern African Development Community (SADC) in 1994, significantly improving its trading connections with its neighbours [95]. Thabo Mbeki's presidency prioritised trade liberalisation and economic growth. The government also adopted the African Growth and Opportunity Act (AGOA), which granted South African exports preferential access to the US market. South Africa also signed trade treaties with the European Union and Mercosur, broadening its market reach [96]. The economic problems faced by Jacob Zuma's administration were poor growth, significant unemployment, and trade imbalances. Nonetheless, the government pursued commercial expansion, striking new deals with China and India. In 2013, South Africa hosted the BRICS conference, further strengthening its relations with emerging economies [97]. The presidency of Cyril Ramaphosa has prioritised economic recovery and the creation of jobs, with trade playing a key role. The government has adopted reforms aimed at making conducting business easier, encouraging investment, and increasing exports. According to [98]'s report, South Africa is also actively involved in the African Continental Free Trade Area (AfCFTA) discussions, which are aimed at creating a single market for products and services across the continent.

### 4.4. Policy Differences

1989–1994: As South Africa's last apartheid president, de Klerk's policies were primarily aimed at eliminating the apartheid system and building a new constitutional order. He took a reactive strategy to human development, addressing the immediate needs of marginalised communities while contending with the legacy of racial discrimination and inequality. His key policies were as follows: first, the release of political prisoners and the unbanning of anti-apartheid organisations; second, negotiations with the African National Congress (ANC); and finally, the drafting and adoption of a new constitution enshrined democratic principles as well as equal rights [99].

1994–1999: Mandela's governance was characterised by a focus on reconciliation and reconstruction, as well as development. He prioritised correcting South Africa's

deep-seated social and economic inequities that had afflicted the country throughout apartheid [100]. The key policies were as follows: firstly, the Truth and Reconciliation Commission was established, then affirmative action programmes to promote racial equity were implemented, and finally, the Reconstruction and Development Programme (RDP) was established to address poverty and infrastructure needs.

1999–2008: Mbeki's approach to human development was characterised by an emphasis on economic growth and poverty alleviation. He saw economic empowerment as critical to eliminating social disparities and raising living standards [101]. His key policies included the following: first, the implementation of the New Partnership for Africa's Development (NEPAD) to encourage regional economic integration; second, the implementation of the Accelerated Shared Growth Initiative of South Africa (ASGISA) to boost economic growth and job creation; and third, the expansion of access to education and healthcare.

2009–2018: Zuma's governance was overshadowed by charges of corruption and state capture, which hindered his capacity to solve human development concerns effectively [102]. Despite these controversies, he implemented some noteworthy policies. The major policies were as follows: first, the National Development Plan (NDP) was introduced to set long-term economic and social development goals, followed by the expansion of social welfare programmes, like the Child Support Grant, and investment in infrastructure development projects.

2018–present: Ramaphosa's presidency has been focused on restoring public confidence, combating corruption, and reviving the economy [103]. In his approach to human development, he has emphasised inclusive economic growth and social justice. The major policies were as follows: first, the establishment of the Zondo Commission to investigate state capture; second, the implementation of the National Anti-Corruption Strategy; and finally, the establishment of the Black Economic Empowerment (BEE) programme to increase economic involvement of black South Africans.

## 5. Summary

Past studies have examined policy changes and their influence on HDI in many nations. However, there is a gap in knowledge concerning how these factors play out in a post-apartheid setting like South Africa. The study looks at the impact of leadership styles and policy decisions on South Africa's HDI trajectory during five presidential eras. While priorities and techniques have changed, the pursuit of a more fair and affluent society remains a guiding thread. Over time, the government's objectives shifted from apartheid dismantling to reconciliation, economic prosperity, and social welfare, reflecting the changing situations and the nation's developing requirements. The study aims to close this gap by using a quantitative approach, analysing data from reliable sources such as the SARB, World Bank, and UNDP to examine national trends in South Africa's HDI and its components during five presidential eras. The average annual growth rate formula was used to analyse these patterns. The approach allows for a thorough examination of South Africa's unique HDI journey while taking into consideration the social and historical backgrounds of post-apartheid progress.

Each president faced multiple challenges and succeeded to some extent. Mandela's attempts at reconciliation laid the groundwork for a harmonious transition; meanwhile, Mbeki's economic policies had mixed outcomes. Zuma's social programmes helped some, while corruption hindered growth during his presidency. Ramaphosa's reform efforts are still persisting, despite financial challenges and societal unrest. These five presidents' approaches to human development strategy reflected their varied political views as well as South Africa's shifting socioeconomic background. Meanwhile, though each president has made major contributions to South Africa's human development, the country still faces issues such as poverty, inequality, and unemployment. To address these problems, an ongoing commitment to efficient and inclusive policies that prioritise human development will be required.

Variables like TRA and ICT are clearly important factors of development. However, the high fluctuations in their growth rates make it challenging to establish clear causal relationships between HDI and these variables. These limitations provide substantial opportunities for future research. Using more thorough data collection methods that provide a more complex picture of TRA and ICT growth trends may give greater insight into their relationship with HDI. In addition, assessing these factors across shorter periods should assist in identifying particular periods where TRA and ICT changes might have had a clearer impact on HDI.

The quantitative analysis offers valuable insight into South Africa's HDI trajectory as it navigates its unique post-apartheid development journey. However, the generalization of these findings to other countries might be restricted. Future research might look at the impact of certain policies on various regions of HDI in South Africa. Furthermore, comparative studies with other post-conflict nations might provide a more thorough knowledge of development techniques in similar settings.

In conclusion, despite that each president has contributed significantly to South Africa's human development, the nation continues to confront challenges such as poverty, inequality, and unemployment. Addressing these issues requires a sustained commitment to efficient and inclusive policies that priorities human development.

**Author Contributions:** Conceptualization, K.O. and L.M.; methodology, L.M.; validation, K.O.; L.M. and N.S.; formal analysis, L.M.; investigation, L.M. and N.S.; data curation, N.S.; writing—original draft preparation, L.M.; writing—review and editing, K.O. and L.M.; visualization, N.S.; supervision, K.O. All authors have read and agreed to the published version of the manuscript.

**Funding:** The APC was funded by the University of Mpumalanga, South Africa.

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** The data presented in this study are available on request from the corresponding author.

**Conflicts of Interest:** The authors declare no conflict of interest.

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