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Master's thesis

Wealth and Suburban Stratification in Cape Town: Investigating the persisting effect of housing segregation

by

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Economic Policies for the Global transition (EPOG+) - Erasmus Mundus Joint Master Degree

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Table of Contents

1. Introduction 6
2. Context: History and Policy 8
   2.1. Colonial rule (1652-1947) 8
   2.2. Apartheid (1948-1991) 9
   2.3. Democratic power (1994-present) 10
3. Literature Review 12
   3.1. Theoretical review 12
   3.2. Methodological review 16
   3.3. Empirical review 18
4. Data 20
   4.1. Sources of data 20
   4.2. Survey design 21
   4.3. Key variables 22
   4.4. Descriptive tables 24
   4.5. Descriptive analysis 25
   4.6. Data limitations and measurement issues 28
5. Methodology 30
6. Results 33
7. Discussion 39
   7.1. Housing wealth inequality 39
   7.2. The political economy of inequality in South Africa 40
   7.3. Prognosis 41
   7.4. Policy recommendations 43
   7.5. Critiques and robustness 45
8. Conclusion 47

References 49

Appendix 55

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Abstract: This report aims to provide an estimate for the post-Apartheid distribution of growth in residential housing wealth, disaggregated according to historical race-based spatial classifications. Economic policies to address inequality in one of the world's most unequal contexts have primarily centred on increasing income transfers and expanding the social wage. Despite the removal of legally codified race-based discrimination, inequality in South Africa is increasing both between and within racial groups. The objective of this report is to use the case study of Cape Town in South Africa to demonstrate whether housing wealth plays a role in consolidating, enhancing, or reducing divergence. The paper addresses a gap in the literature by accounting for the impact of race-based socio-spatial penalties on contemporary housing asset values, appreciation, and the accumulation of wealth in an urban and contemporary South African context. Data from the Cape Town General Valuations (GV) roll during 2012 and 2015 is used in combination with Census and historical Apartheid race-based spatial classifications to conduct descriptive and hedonic regression analyses. It is shown that houses in formerly White areas, on average, have a higher initial endowment and grow at 2 percentage points more per year compared to houses in previously Black and Coloured neighbourhoods. Although the difference in growth appears modest, it is shown that during the first 20 years of democracy in South Africa, there was an 8-fold difference, on average, in the additional gains from residential housing between previously White and Black areas.

Key words: wealth inequality; housing inequality; racial stratification; South Africa

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1. Introduction

Economic policies to combat inequality in South Africa, one of the world's most unequal contexts, have mainly involved increasing income transfers and expanding the social wage. Despite the removal of race-based segregation, inequality remains deeply entrenched and is increasing both between and within racial groups (Leibbrandt et al. 2010). The purpose of the study is to focus on racial wealth inequality and investigate the role that housing plays in reproducing or reducing divergence. Specifically, private residential property ownership in Cape Town is examined to understand whether internal housing dynamics, such as appreciation and depreciation, are distributed unevenly based on previous spatial classification by race. Using descriptive analysis and a hedonic regression methodology, the real rate of return for residential property is compared among previously classified racial zones. Combining data from the City of Cape Town's General Valuations and the South African 2011 Census, I find that there is an uneven dispersion of gains both within and between housing wealth and earnings from income. Although the between race variations are modest, the long-term implication is a growing housing wealth disparity.

The paper is structured as follows. Section 1 provides an introduction and justification for the paper, situating the study in relation to the broader literature. Section 2 provides a historical context of the history of dispossession within South Africa and outlines several policies post-Apartheid that have shaped and influenced patterns of contemporary ownership and use. Section 3 consists of a literature review, outlining the theoretical, methodological, and empirical findings related to the themes of wealth inequality, stratification, and housing. Section 4 describes the different sources of data used and provides additional descriptive statistics. Section 5 outlines the hedonic regression methodological approach and Section 6 presents the results. The results are elaborated upon in the discussion in Section 7. Lastly, Section 8 concludes.

The paper is broadly nested within the political economy of the global socioeconomic crisis, where widening inequality is explained by the divergence between capital and labour. Since 1994, there have been numerous progressive social transfers in South Africa, but these have primarily centred around the redistribution of income. Much like the international literature, inequality in South Africa is dominated by studies on income stratification. Despite this trend, wealth inequality in South Africa is more pronounced than income inequality, leading to the persistence of patterns of accumulation over time. Studying and unpacking the components of

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wealth inequality is therefore important, both from a research and policy perspective. While Piketty (2014) has illuminated evidence on the divergence between growth in capital and income, few studies have examined and unpacked the racial component of wealth inequality in the country, mainly as a result of data constraints. Since housing forms the predominant component of wealth for those in the middle of the wealth spectrum (Chatterjee et al. 2020; OECD 2021), the distribution of housing wealth and the mechanisms through which it accumulates are important components in shaping inequality. Using general valuations combined with Apartheid suburban racial classification, this study adds to the growing literature on wealth inequality by introducing a racial component in understanding how wealth and the growth of wealth are distributed across population groups.

Patterns of land ownership in South Africa are largely influenced by the country's history of dispossession and disenfranchisement. Examining the cumulative impact of Apartheid legislation on earnings during one's lifecycle, Pellicer and Ranchhod (2020) show that being classified as a White male resulted in a threefold increase in income compared to being classified as Coloured. Although income inequality is an important form of welfare measurement, there are many other non-labour returns or losses stemming from Apartheid racial classification. Due to Cape Town's legacy of dispossession and legally codified segregation, the city presents itself as a worthwhile case study to examine the role of residential housing in reducing or reproducing wealth inequality. Moreover, the internal housing dynamics at a local level are situated within globally relevant themes of housing inequality, racial disparity, and class mobility.

The accumulation of wealth has been implicitly viewed as a function of income, but this largely ignores how the housing market itself can be a driver of housing wealth inequality. The levels and drivers of wealth stratification should therefore be examined as a separate thread of investigation within the study of inequality. While a significant number of studies have examined spatial inequality and injustice in South Africa, to my knowledge none have looked at asset appreciation along the distribution and between races. The lack of attention paid to the dynamics behind housing wealth inequality is reflected in policy and advocacy, which has mainly centred around agrarian reform; the use of state-owned land for building; and state-subsidised housing under the Reconstruction and Development Programme (RDP). Despite the need to analyse land reform in both urban and rural spaces, previous studies have focused on the political economy of agricultural land in largely rural settings (Hall 2004). Although agrarian reform and the availability of public land for housing are important mechanisms for

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addressing spatial injustice, the neglect of urban and private residential housing potentially ignores one of the channels through which racial inequality manifests. The paper will therefore address the gap in the literature, accounting for the impact of race-based socio-spatial penalties on current housing asset value, appreciation, and accumulation of wealth in an urban South African context.

2. Context: History and Policy

In introducing the topic, it is also important to understand the historical context that underpins contemporary patterns of land and homeownership. Cape Town is one of the most unequal cities in the world, characterised by affluent suburbs juxtaposed against informal settlements and treeless sand-plains of the Cape Flats (Turok et al. 2021). The informal settlements are densely populated and situated far from the city centre – a socially engineered legacy of Apartheid spatial segregation. The deeply segregated design of the city is rooted in the country's history of colonisation, dispossession and forced removals. The history of dispossession, segregation and stratification can be broadly compartmentalised into three periods: the colonial rule (1652-1947), Apartheid (1948-1991), and the democratic era (1994-present).

2.1. Colonial rule (1652-1947)

Since the first arrival of Dutch colonisers in 1652 in what is now recognised as the city of Cape Town, South Africa has faced over three centuries of European settlement, invasion, and colonisation. Prior to the arrival of European colonisers, the city of Cape Town was inhabited by indigenous Khoisan people. In 1672, the indigenous population succumbed into signing a treaty that surrendered land from Table Bay to Saldanha Bay in the north and to the mountains of the Hottentots Holland in the east (Feinstein 2005). The compensation received from the Dutch setters was 'derisory', and only a small fraction that was promised in the treaties was eventually paid (Feinstein 2002). Contestations around land use and ownership emerged between Dutch settlers and the indigenous and Black populations, culminating in violent land wars (Terreblance 2002). While the indigenous population was shrinking, freehold farms, land grants and financial support were being offered to European settlers on easy terms (Terreblanche 2002). Patterns of land ownership were therefore formally established in contrast to pastoral arrangements that preceded the colonial period.

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The British colonial era lasted from 1795 to 1910 and centred around the legal, moral, and economic redefinition of three pivotal factors of production: land, labour, and capital (Terreblanche 2002). During the British and Dutch colonial period, the White propertied class established a system of agricultural capitalism based on a repressive labour system (Terreblanche 2002). Although there was a brief period where Black men who owned property were allowed to vote in the late 19th century (Terreblanche 2002), this era of Cape Liberalism declined with the introduction of further race-based discrimination. The Natives Land Act of 1913 was one of the most damaging pieces of legislation for the Black population, initially preventing Black people from owning or renting 93 percent of the total land area in the country (Pellicer and Ranchhod 2020). In contrast, White people who made up less than 20 percent of the population were allotted 80 percent of the land use (Pellicer and Ranchhod 2020). Moreover, the ownership of land in designated areas was undesirable for the Black population because of the existence of communal tenure and overcrowding (Feinstein 2005). The economy of the Cape colony was essentially restructured into a white land-owning class and a black wage-earning proletariat, a decisive marker in the labour patterns and racist systems which prevailed even after independence (Terreblanche 2002).

2.2. Apartheid (1948-1991)

The eruption of the plague in the early twentieth century provided the pretext for the dispossession of Black people from the urban centre to the peripheral and under-resourced areas (Strauss 2019; Turok et al. 2021). Racial discrimination and segregation were legally codified in 1948 by the National Party (NP) under a policy of 'separate development'. The Bantu Authorities Act (1951) and the Bantu Resettlement Act (1954) together with the Bantu Self-Government Act (1959) and the Bantu Homeland Constitution Act (1971) created ten separate homelands under the rhetoric of 'separate development' (Abel 2016), none of which were situated in the Western Cape. The justification used by the NP was that the homelands would be self-governing separately run Black areas, but in reality, it was a mechanism to restrict, control, and dispossess Black people from both land and dignified forms of work. The notion of capitalism as a process that is instituted through particular legal and regulatory mechanisms strongly resonates in the context of South Africa (Deakin 2020).

Evictions were a predominant feature of The Group Areas Acts of 1950, 1957, and 1966, relocating and segregating Black, Coloured and Indian people into poorly serviced and densely populated areas situated on the urban periphery (Isaacs 2016). In District Six, a racially diverse

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neighbourhood near the Cape Town CBD, thousands of families were forcibly evicted to racially segregated areas located mainly on the urban periphery. Gugulethu and Nyanga were built in the 1950s and 1960s to accommodate the African labour force needed for the city's expanding economy (Turok 2001). Mitchells Plain, Blue Downs, and Khayelitsha became home to the majority of Coloured and Black people, characterised by dormitory suburbs with relatively rudimentary rental housing and infrastructure (Turok 2001). By the end of the 1960s, a total of 150 000 people had been forcibly removed to the Cape Flats (Turok et al. 2021). Not only was there a concerted effort to remove Black and Coloured people from urban spaces, but there was also a prohibition on Black people from owning housing and accumulating wealth. Through legally codified spatial segregation and dispossession, the socially engineered racial distribution and composition of the city were consolidated.

2.3. Democratic power (1994-present)

After the democratic transition in 1994, the impact of racial segregation is still a predominant feature in the economic and social landscape of the country. Although there are attempts to desegregate communities, Cape Town in particular still largely reflects an Apartheid city. According to Turok (2002), the three most important structural elements that determine the efficient and equitable functionality of cities are employment, housing, and the transport connections between them. High unemployment, poor housing, and a collapsing public transport system create a poverty trap whereby living on the periphery results in poverty, while poverty ensures living on the periphery (Budlender and Royston 2016). Quality of life also differs between neighbourhoods. From an environmental perspective, public and private green infrastructure are more abundant in previously White areas (Venter et al. 2020). People located in informal settlements also spend a sizeable portion of their time and income on transport – 45 percent compared to the global average of between 5 and 10 percent of income (Shandu and Clark 2021).

At the start of the democratic transition, 2.6 million people were located in informal settlements across the country and half of these people did not hold secure tenure (Isaacs 2016). Furthermore, a housing backlog of 1.5 million units put significant pressure on the state to address spatial injustice and access to shelter (Isaacs 2016). However, at the centre of the inability to transcend race-based spatial planning is structural resistance to redistributing land, both from private individuals and the ruling government (Shandu and Clark 2021). It is argued that housing policy in democratic South Africa has not been underpinned by a consistent and

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rigorous conceptual framework (Isaacs 2016). In addition, there is a general lack of linkages drawn between housing and other developmental agendas (Isaacs 2016).

Broadly, housing policy in South Africa can be divided into 5 phases: policy formulation (1992-1994); private sector led development (1995-1999); public sector driven delivery (2000-2003); 'Breaking New Ground – delivering human settlements' (2004-2009); and National Development Plan (NDP) (2010-present) (Isaacs 2016). Throughout the years, housing policy has been a contested space, with the government largely promoting tenure to counteract centuries of Black dispossession and restrictions on ownership. Since the locations made available by the state for Black people to own housing are still situated on the urban-periphery, the asset-based potential of housing ownership to reduce poverty is overemphasised in current human settlements policy (Budlender and Royston 2016).

The asset-based potential of housing to reduce poverty is promoted at both a national and local level, and across the political party spectrum. The former Minister of Housing, Lindiwe Sisulu, stated during an interview the importance of housing being transformed into financial and economic assets (Isaacs 2016). Housing as a financial and economic asset is seen as an avenue to generate profit and it also acts as a platform through which access to more credit can be facilitated (Isaacs 2016; Lemanski 2011). This framing signified a paradigm shift from the constitutional understanding of housing as a social right into housing as an economic asset for collateral as well as housing as a financial asset that can appreciate in value (Isaacs 2016).

During May 2022, the Mayor of Cape Town, Geordin Hill-Lewis, handed over 19 title deeds for homes in Harare, an informal settlement in Khayelitsha (Democratic Alliance 2022). The mayor echoed the role that homeownership plays in restoring dignity, breaking cycles of intergenerational poverty, and providing financial and physical security (Democratic Alliance 2022). He further emphasised that no Capetonian should be a permanent tenant of the state, reflecting a policy environment where public housing is discouraged (Democratic Alliance 2022). Although this study will treat houses as assets in order to unpack the dimensions of wealth inequality, it is necessary to note that the 'assetisation' of housing is an outcome of a commodified and financialised system of provision (Isaacs 2016). Furthermore, the notion of asset-based welfare as a substitute for redistribution and redress needs to be problematised.

While the historical roots of spatial injustice are widely documented, less attention has been paid to the ways that wealth is reproduced or reduced in relation to previous racial segregation in a contemporary South African context. The point of departure, therefore, is to explain an

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underexplored aspect of wealth inequality: the value and appreciation of houses as assets disaggregated by race.

3. Literature Review

3.1. Theoretical review

Wealth inequality and housing

Wealth inequality is a distinct measure of socio-economic stratification. The seminal work by Piketty (2014) shows that capital tends to grow faster than income in the long term. Wage-based taxonomies of class are therefore less relevant in "understanding a process of stratification in which capital gains, capital income and intergenerational transfers are preeminent" (Adkins et al. 2021, p. 548). Since income from capital is unequally distributed, both the relatively higher growth of capital and the uneven dispersion of gains from capital are driving forces behind inequality (Piketty 2014). The accumulation view presents the argument that capital accumulation is causing capital's share to rise relative to income. Rognlie (2015) contests the accumulation view and argues that it is only successful when the elasticity of substitution between capital and labour is satisfactorily high. Rognlie (2015) suggests that residential investment and land are becoming pricier and scarcer, and it is therefore scarcity, not accumulation, that explains the expanding net share of capital arising from the increase in the cost of housing.

For most households, housing forms the main component of wealth (Stockhammer and Wolf 2019; Wind and Hedman 2018), and it also consists of the largest share of total return on aggregate wealth (Piketty and Zucman 2014). Pfeffer and Waitkus' (2021) empirical analysis shows that housing wealth plays a central role in explaining national and cross-national levels of wealth inequality. Furthermore, there is a strong negative correlation between homeownership and wealth inequality (OECD 2021). Housing, therefore, tends to equalise the distribution of wealth since it is the most predominant asset in household balance sheets and is relatively more equally distributed than other financial assets (OECD 2021).

There are some international trends that suggest housing appreciation outpaces both economic growth and growth in wages (Adkins et al. 2021). Globally, however, growth in housing wealth does not invariably exceed economic growth. In Germany and Japan, house price inflation has been noticeably absent due to housing policy and an asset bubble in the 1980s, respectively

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(Stephens 2017). In the US, UK, and Australia, it is argued that the asset inflation/wage stagnation norm was forged through monetary and fiscal policy, as well as public spending constraints (Adkins et al. 2020).

Wealth and housing inequality in South Africa

South Africa is characterised by one of the highest levels of income inequality in the world. Much like the international literature, inequality in South Africa is dominated by studies on income stratification. Using administrative tax data, Orthofer (2016) found that the Gini coefficient for wealth is 0.95, exceeding the Gini coefficient of 0.7 for income. Unpacking the components of wealth is necessary to establish how wealth inequality is manifested. In South Africa, forms of wealth ownership differ along the wealth distribution. Currency, notes, and coins are the predominant form of assets held by the poorest South African adults, while owner-occupied housing, pensions, and life insurance are the primary components of assets for the bottom 90 percent (Chatterjee et al. 2020). For the top one percent, bonds and stocks dominate the share of wealth (Chatterjee et al. 2020). Unlike the empirical findings of Piketty in developed regions, South Africa did not experience a dramatic rise in the wealth-income ratio between 1970 and 2010 (Orthofer et al. 2019). Income growth post-2008, however, has been triple for the top percentiles compared to the national income, driven by a combination of both wage and capital increases (Bassier and Woolard 2020). While wealth inequality relates to the accumulation and persistence over time, income inequality speaks to the affordability of access into the housing market.

Housing as an asset

Since the paper critically analyses the role of housing as a financial asset in reproducing or reducing inequality, it is necessary to explain the different perspectives on the role that housing plays. Rust (2008) conceptualises housing as an asset on three fronts: social, financial, and economic. The social dimension refers to housing as a human right, enabling households access to shelter, security, and community (Rust 2008). De Soto (2000) explains that the use of housing as collateral or a tradeable good underpins how housing is seen as a financial asset. Since wages have become stagnant and consumer credit more abundant, Anglo-American countries have moved to housing as an alternative source of welfare based on increasing asset prices rather than income from labour (Adkins et al. 2021). From a fiscal policy perspective, the exclusion of primary residences from capital gains tax has helped drive the transformation of residential housing into a lucrative financial asset, shielding private housing from the tax

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rates that apply to labour income (Adkins et al. 2020). Financialisation is an important aspect in understanding housing and homeownership, with Stephens (2017) suggesting that a lack of financialisation means a much weaker relationship between housing and inequality. Moreover, it is noted that financial assets are only realisable when it is sold or leveraged to access finance, which is not the case for most forms of housing in informal settlements due to low churn rates (Rust 2008). Housing can also be seen as an economic asset if it is used to generate income through rent, home-based businesses, agricultural production, or other means (Rust 2008). Social, financial and economic assets explain how housing operates as an asset at an individual and private level, but housing is also embedded in the national economy and can contribute to the sustainability of human settlements (Rust 2008).

Housing has not always been seen as a financial asset. Inflation became a feature of western housing markets only since the financial market deregulation in the 1970s (Stephens 2017). Financialisation started to define homeownership, with a tendency for homeownership to be dependent on mortgage finance. Along with an increased tendency of the financial system to make housing assets more liquid through equity withdrawal and release, the relationship between asset value and current income strengthened (Stephens 2017). Globally, the 2007-2008 financial crisis was predicted to dampen several decades of credit growth and real estate inflation, but this failed to occur (Adkins et al. 2021). Apart from the liberalisation of credit, tax incentives such as the exclusion of primary residences from capital gains tax have further helped the transformation of housing into a financial asset (Adkins et al. 2021). On a local level, the financialisation of housing is also reflected in South African policy, with homeownership being emphasised by government as a force of upward mobility (Isaacs 2016).

The political economy of housing

There are also several pluralist perspectives on the political economy of housing. The concept of residential capitalism has been recently developed within Comparative Political Economy and speaks to how the financialisation of housing is globally interdependent (Schwartz and Seabrooke 2008). Wealth effects feature in Post Keynesian Economics through Stock Flow Consistency models, showing that a debt-driven regime explains growth prior to the 2007 financial crisis and that real estate prices rather than income inequality have been the main driver of household debt (Stockhammer and Wildauer 2016). From a Marxist perspective, issues around rent and the social relations of land ownership have long been problematised (Stockhammer and Wolf 2019). Harvey (1974) argues that housing-related class conflicts lie both between landlords and tenants as well as between speculator-developers and middle-class

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homebuyers. House prices in western cities often appreciate at far higher amounts in the space of a year than is possible for middle-class income earners to save from wages (Adkins et al. 2021). The housing affordability crisis whereby housing prices rise faster than income is driven by a globally liberalised financial system embedded in a strong policy preference for homeownership (Ryan-Collins 2019). The emergence of residential capitalism alongside the retreating role of the state in supplying housing means that policy largely shifted toward the subsidising of individual's' ability to buy a home in the market (Ryan-Collins et al. 2017).

Drivers of house prices and asset inflation

The broader aim of this study is to establish the dynamics of housing wealth inequality. To this end, an understanding of the drivers behind house prices and asset inflation is needed. Within neoclassical economics, housing is seen as a standard commodity and its demand is determined by relative prices of other goods and households' budget constraints, while its supply follows a standard Cobb-Douglas production function (Stockhammer and Wolf, 2019). One of the characteristics that make the housing market different from standard goods and services is the inelasticity of housing supply (Selim, 2009). Adkins et al. (2021) argue that since little innovation takes place in the property industry, buyers perceive their purchases as speculative. Pettifor (2018) suggests that speculation in the housing market fuels stratospheric house price rises, rather than the shortage of supply. Expectations of capital gains from housing cause high volatility in house prices due to increased demand (Selim 2009). Adkins et al. (2021, p. 553) emphasise the role of public policies "in constructing a particular logic of asset inflation that is anchored in a particular institutional configuration of path-dependent public policy making". A high rise in property inflation is argued to be in part due to speculative bubbles; neoliberal policymaking; a structural feature of capitalism; and the failure to materialise a post-Fordist accumulation regime (Adkins et al., 2021).

Wind and Hedman (2018) argue that while income determines investments in housing, the returns on the investment are dependent on local housing market dynamics. On a theoretical level, it is argued that wealth inequality among homeowners is derived from three drivers: the purchase price, mortgage size and amortisation, and capital gains and losses (Wind and Hedman 2018). The purchase price and mortgage size are argued to be linked to income, whereas capital gains and losses are impacted by local housing dynamics, such as supply and demand, and may therefore be distributed unevenly (Wind and Hedman 2018). The socio-spatial dimension of inequality in property appreciation and depreciation can sometimes be linked to race-based discrimination. In the United States, it was shown that capital losses were

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more severe for Black and lower-income individuals compared to the White and middle-income population group (Newman and Holupka 2016).

When considering the determinants of house prices, it is also necessary to factor in behaviour at an individual level in influencing demand. The Schelling (1971) model of segregation is an agent-based model that unpacks the evolution of neighbourhood compositions. Within the segregation literature, there is a debate on the role that aversion to racially mixed neighbourhoods plays in driving contemporary patterns of segregation. Moreover, Ihlanfeldt and Scafidi (2004) investigate whether the reluctance to desegregate is driven by neighbourhood stereotyping or discriminatory racial prejudices. Schelling (1971) theorised that there is a tipping point when a minority group moves into a particular area, changing the demographics of the area both because of migration from the incoming group and exit from previous residents. This hypothesis is useful for two reasons. First, it provides a theory for explaining enclaves based on race and second, if true, it shows how racial desegregation can be undermined due to individual behaviour despite policy interventions.

3.2. Methodological review

Measuring wealth inequality

There are several approaches used to measure wealth inequality. Household sector balance sheets have recently been used in international literature to aggregate household wealth (Orthofer et al. 2020). The relatively new incorporation of both stocks and flows into national systems of accounting has allowed for the introduction of novel approaches to studying wealth inequality (Chatterjee 2020; Orthofer et al. 2020; Piketty 2014). A limitation, however, is that national balance sheets do not provide a racial disaggregation of ownership and are therefore not suitable for answering the questions outlined in this paper.

The estate duty method takes the value of assets recorded in the estate duty records and multiplies it by the inverse of the mortality rate to obtain an estimate for the value of the assets of the living (Chatterjee 2019). The income capitalisation method uses investment income from tax data and an assumption about the yield is to reverse out an estimate for the value of the underlying asset upon which the income had been based (Chatterjee 2019). The income capitalisation method, however, only allows for assets that generate income to be measured and it is therefore inappropriate for measuring owner-occupied residential housing wealth. A

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different method of capitalisation is used by Saez and Zucman (2014) whereby a capitalisation factor representing the ratio of the equivalent category's aggregate flow of wealth to the tax return income is calculated (Chatterjee 2019).

Housing valuations

Valuation is often used to determine the market value of housing and can be undertaken by the state, real estate agents, banks, and other interested parties. Differences in valuation could result in heterogeneous understandings of the housing market. The three commonly used methods in investigating house prices include the median-price series; the hedonic regression; and the repeat sales regression (Mo 2014).

Hedonic methodology is predominantly used for the market value of goods to determine their utility-bearing factors (Selim 2009). Using hedonic regressions allows one to measure the impact of housing characteristics on price. The methodology of hedonic price models is based on Lancaster's (1996) consumer theory and has subsequently been extended and applied to the residential market (Rosen 1974). Attributes can be broadly compartmentalised into three groups: structure, location, and neighbourhood (Mo and Wilhelmsson 2014). Structure includes variables such as building and land size; the number of bedrooms and bathrooms; and the age of the property. Location measures distance to places of interest such as jobs, schools and transport hubs while neighbourhood looks at amenities and other characteristics such as the crime rate, pollution, and parks and recreational areas.

The benefit of hedonic regression analysis is that the data requirements are less onerous (Ferreira and Gyorko 2011). A problem that emerges, however, is that there is often an inadequate understanding of space in unpacking the determinants of valuation price (Le Goix et al. 2019). An alternative approach would be to use a repeat sales methodology, but this would mean an overrepresentation of "flipped" houses alongside an inadequate number of properties that are held across generations, thereby creating a selection bias.

Measuring spatial stratification

An outcome of stratification economics is that spatial stratification often reveals social relations embedded in spatial divisions (Han 2022). Stratification studies can be broadly divided into data-driven and model-driven approaches (Han 2022). Since the 1950s, the dissimilarity index has been the gold standard in measuring segregation and looks at whether a racial group is proportionately represented in a given population (Duncan and Duncan 1955; Haque et al. 2021). However, this index is mainly appropriate for data that consists of only two population

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groups (Haque et al. 2021). From the 1970s, multigroup segregation analysis was established, but indices and estimates are non-spatial, therefore the problem of smaller clusters of segregation or a 'checkerboard' phenomenon is ignored. Clustering algorithms can also be used in data-driven methodologies in unpacking spatial inequality (Han 2022). Additionally, data visualisations are often relied upon to highlight spatial inequalities within the study of stratification economics, and it is an effective tool in demonstrating high and low levels of concentration. Furthermore, it does not hide segregation within clusters depending on the unit of analysis.

Comparing income growth to wealth returns: the case for Growth Incidence Curves

Because the theoretical framework suggests growth in house prices is greater than growth in income, it is necessary to measure changes in earnings over time. GICs, as conceptualised by Ravallion and Chen (2001), provide a useful tool to show growth rates by percentiles across the income distribution. Because growth in income is not always evenly distributed, Growth Incidence Curves measure inclusive growth which other forms of measurement such as growth in Gross National Income (GNI) or Gross Domestic Product (GDP) would not be able to reveal.

3.3. Empirical review

International empirical findings

Pfeffer and Waitkus' (2021) empirical analysis shows that housing wealth plays a central role in explaining national and cross-national levels of wealth inequality. Causa et al. (2019) found that there is a strong negative cross-country relationship between homeownership and wealth inequality.

Using Census data from the US, Glaeser et al. (2005) show that between 1970 and the early 2000s, the standard deviation of house prices have increased by 247 percent. Growth in home prices was mainly observed at the upper-end of the distribution, while the prices of low-cost and abundant houses have remained stagnant (Glaeser et al. 2005). Furthermore, Howell and Korver-Glenn (2021) find that in the US, neighbourhood racial composition was a stronger determinant of appraisal values in 2015 compared to 1980, implying that persistent racial inequality is driven partially by the historical and contemporary devaluing of Black communities.

South African empirical findings

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Chatterjee et al. (2021) find that the richest 10 percent own 60 percent of housing wealth in South Africa. Housing assets in South Africa, however, constitute 75 percent of national income compared to 180 to 380 percent in developed economies (Orthofer et al. 2019). Housing wealth has also undergone a decline in South Africa between 1980 and 1997, but later recovered due to valuation increases in the private property market and equity prices (Kuhn 2010). The low housing share indicates that generally, the majority of assets in South Africa are financial. Bassier and Woolard (2020) attribute the stark growth in the top share of income to wage growth in addition to increases in capital. Although housing is not a predominant form of wealth for the top 0.1 percent, the importance of housing assets for the middle and upper-middle of the distribution indicates that the underlying growth of these assets is important for unpacking wealth and housing inequality along the distribution.

While wealth inequality and the differences between capital and wage growth have been extensively studied, there are no empirical exercises that investigate the race-based component of post-Apartheid asset appreciation in South Africa. Based off previous literature, housing is an important element of wealth to unpack. By using General Valuations combined with Apartheid suburban classification, it is possible to bring in a racial dimension to unpacking wealth inequality in a South African context. Although housing affordability, spatial injustice, and financialisation have drawn considerable attention, to my knowledge none have looked at real estate inflation disaggregated according to Apartheid suburban race-based spatial classifications.

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4. Data

4.1. Sources of data

The City of Cape Town is a municipality that is comprised of 116 wards and 766 official suburbs. The data used in this paper comes from several secondary sources. The main sources of data are the freehold residential property valuations from the City of Cape Town taken in 2012 and 2015 and the South African 2011 Census. The residential property data contains observations for 646 out of the 766 official suburbs in the data frame. The residential property valuations are made publicly available by the City of Cape Town and are derived from the General Valuations (GV) roll. The GV roll for Cape Town is conducted every three years. Apart from missing observations, the data from both the Census and the residential property data are reflective of the true population and weights, clustering and stratification therefore do not need to be applied in the empirical exercise.

The South African Census is an essential mechanism for collecting basic population and housing statistics needed for social and economic development, and policy interventions, implementations, and evaluations (Statistics South Africa 2012). Since South Africa's democratic transition, the government has conducted four Censuses, in 1996, 2001, 2011, and 2022. The 2011 Census is used in this study to look at the racial composition of areas in the City of Cape Town. Since only a 10 percent sample of the Census is released publicly through Statistics South Africa, 2011 Census data is taken using Wazimap – an interactive tool that maps Census data using either the country, province, municipality, or ward as the unit of analysis.

Census data does not accurately measure income because individuals tend to underestimate and under-report their income level. In order to compare growth in housing prices to growth income, the Post-Apartheid Labour Market Series (PALMS) is used. PALMS is a stacked cross-sectional dataset consisting of microdata from 69 household surveys conducted by Statistics South Africa between 1994 and 2019 (Kerr et al. 2019). The sample used is restricted to Cape Town between 2011 and 2016. Because of the period of analysis, only the Quarterly Labour Force Survey (QLFS) contained in PALMS is utilised. Outliers as identified in the dataset are removed (Kerr and Wittenberg 2017). After restricting the dataset, there are 108 075 observations spread across several years with the unit of analysis at the level of the individual.

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A key addition of PALMS is the availability of a consistent income variable across all waves denoted as real earnings which is inflation-adjusted (Kerr and Wittenberg 2019).

Because several data sources are used, the ward number is exploited as the identifier to match and merge the datasets together. Unfortunately, the wards are not provided for the residential property data. Using the City of Cape Town's ward directory, it is possible to identify and establish the ward number for each suburb (City of Cape Town n. d.).

The methodology adopted by the City of Cape Town to obtain the median values involved identifying the number of non-residential and freehold residential properties based on the GV2015 roll with reference to the Official Suburb Layer of the City of Cape Town (City of Cape Town 2018). The General Valuation Roll comprises of the municipal valuations of approximately 875 000 registered properties within the boundaries of Cape Town. Because some suburbs contained missing variables, a total of 592 890 freehold residential properties are used. When comparing the location of properties according to previous Apartheid classification, it is shown that 228 440 are situated in White areas compared to 89 939, 213 952, 6 025, and 3 648, in Black, Coloured, Indian, and racially mixed areas, respectively. The amount of residential properties in areas established post-Apartheid is 50 886, indicating that expansion of the city's residential areas has not outnumbered established suburbs. Although each city is legally obliged to produce a GV Roll every four years, it is done every three years by the City of Cape Town. All properties on the GV roll are valued at market value as of the date of valuation, which will be explained further when describing the key variables (City of Cape Town 2018).

4.2. Survey design

The Census and residential property data resemble the population size by design, so weighting, stratification and clustering is therefore not required. PALMS, however, is a sample of the population. Since many individuals refused to answer the survey question on earnings but provided a bracket response, Kerr and Wittenberg (2017) recommend applying bracket weights as provided by Kerr et al. (2019) in the dataset. The bracket weight by Kerr et al. (2019) is therefore used in this study. It is calculated by combining the inverse of the probability of a bracket response in a particular bracket in a particular wave, multiplied by the cross-entropy weight for the individual (Kerr and Wittenberg, 2017). Cross-entropy weights are based off mid-year population estimates from Statistics South Africa (Kerr and Wittenberg, 2017). In general, weights are used to compensate for unequal probabilities of selection, unit non-

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response and to allow the distribution of variables to conform to the known population distribution. Therefore, by using weights in the analysis, the data better corresponds to the population estimates produced by Statistics South Africa.

4.3. Key variables

The key dependent variables are the valuation price measured in South African Rands (ZAR); the valuation price difference between 2015 and 2012; and the percentage change or rate of nominal appreciation. The dependent variables are either contained or derived from the residential property data (City of Cape Town 2020). The valuation price is provided as a median value for each suburb in the dataset, for both 2012 and 2015. In order to obtain the median values, a certain methodology was adopted by the valuation authority whereby the number of freehold residential properties were identified based on the 2015 GV roll with reference to the Official Suburb Layer (City of Cape Town 2018). The residential properties include single, two, three and four dwellings as well as guest houses. Each suburb, therefore, contains variables relating to the number of properties; median GV in 2012; median GV in 2015; median land size (m^2); and median building size (m^2). According to the City of Cape Town (2018, p. 1), property valuations are an indication of market value:

> They are an indication in the growth of the value of the property and while the valuation is used to determine the rates income for the City, it is not an arbitrarily increased value. Valuations are done based on international standards and prescribed methodology, and the City processes are audited by a qualified external auditor to ensure compliance.

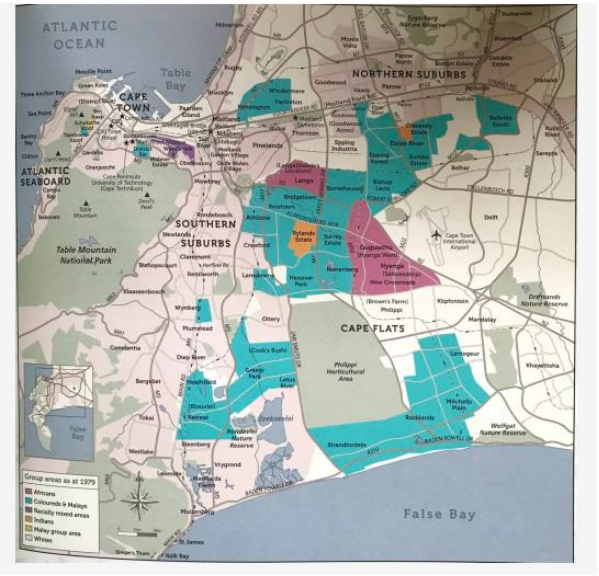
Market value is defined as the amount that the property would sell for in the open market and it is calculated by municipal valuers, statistical analysts, data collectors, and support staff using the Computer-assisted Mass Appraisal (CAMA) system, which is an analytical system used to value a large number of properties in a fair and accurate manner (City of Cape Town 2021). The Davis Tax Committee (2018) raised concerns around using the GV roll as a basis to calculate house value and wealth taxes. However, this concern stems from inconsistency between different municipalities in how property is valuated. Since the study only focuses on one municipality, the GV roll is a reliable and comparable indicator of market value in the City of Cape Town.

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An important aspect of the research report is examining how previous racial classification impacts residential housing appreciation. The Apartheid racial classification of the suburb is therefore a key explanatory variable. Due to changing classifications of various areas and amendments of the Group Areas Act over several years, forced removals and racial segregation were protracted processes. Because of Consolidation Acts, amendments and re-enactments, there is no single year that represents a policy change to establish the point of reference for allocating the racial classifications to suburbs. Furthermore, even long after the Consolidation Act of the Group Areas Act in 1966, many people continued to move onto land and in the process established new residential areas. For example, informal settlements such as Khayelitsha were established in the final years of Apartheid (Seekings 2013). Because a central theme in this study is to showcase the economic impact of the prohibition of housing in previously White areas, 1985 is used as the reference year to establish each area's racial classification. Figures 1 and 2 below were used as an approximate reference to establish the racial classification of each suburb (Brodie 2015; Crankshaw 2012). A new variable for previous racial classification was created for each suburb and appended to the residential property data. Areas of land not demarcated into racial groupings were used for agriculture or industrial purposes, rather than residential housing. Suburbs that have since become residential are categorised as Post-Apartheid areas. Furthermore, areas that were reserved for Malay people are categorised as Coloured suburbs. There are two suburbs, namely Woodstock and Salt River, that were able to remain relatively integrated during Apartheid. Racially integrated suburbs are classified as mixed. There are therefore 6 mutually exclusive categories pertaining to previous racial classification used in the report: Black, Coloured, Indian, White, mixed and Post-Apartheid.

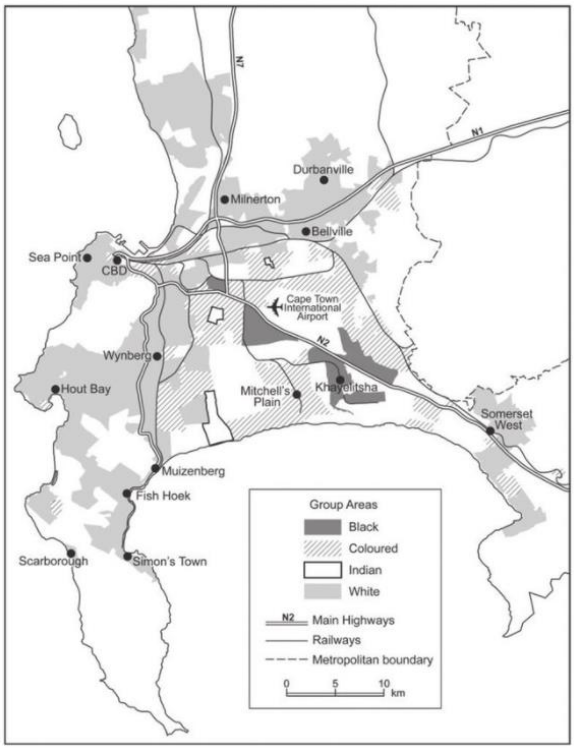
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Figure 1. Group Areas Act in Cape Town, 1979



Source: Brodie (2015)

Figure 2. Group Areas Act in Cape Town, 1989



Source: Crankshaw (2012)

Valuation price could also be impacted by location and proximity to places of employment, so this would need to be controlled for. Unfortunately, neither residential property data nor the Census provides data pertaining to the travelling distance (km) from the suburb to the City Centre, therefore this information was acquired through Google Maps using the Cape Town Central Business District (CBD) as the endpoint of travelling distance for all suburbs.

4.4. Descriptive tables

Table 1 shows the descriptive statistics for the variables of interest. Unsurprisingly, the median valuation price for previously White suburbs is larger compared to former Black areas. The magnitude of the difference, however, is substantial: houses in former White areas are 6.15 and 6.42 times greater compared to previously Black areas in 2012 and 2015, respectively. Nominal appreciation between 2012 and 2015 was greatest for areas that remained desegregated during Apartheid, but the distance to the city centre and very small sample size could be driving this trend. There is a 10-percentage point difference in nominal appreciation over a three-year period between previously White and Black suburbs. This difference is reduced by half when nominal appreciation is calculated adjusting for building size. Using the descriptive statistics to explain wealth accumulation over time, over three years the median property in previously

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White areas gained, on average, R405 041 compared to R51 183 for properties in previously Black neighbourhoods. In nominal terms, homeowners in previously White areas thus have an 8-fold advantage. The annual real rate of return is 5 percent for previously Black areas compared to 7 percent corresponding to previously White neighbourhoods. Although these findings have implications for understanding the racial component of wealth inequality and access to housing, further investigation is required to establish whether other variables such as quality of housing rather than race-based classifications are driving the differences in nominal gains.

Table 1: Descriptive Statistics by Group Areas Act Classification

Variable	*Mean or %*	*Median*	*Black*	*Coloured*	*Indian*	*White*	*Mixed*	*Post-Apartheid Area*
Valuated Price (2012)	1 221 564	870 000	281 667	487 770	787 583	1 732 634	702 500	672 497
Valuated Price (2015)	1 495 944	1 050 000	332 850	570 755	906 667	2 137 675	960 000	807 124
Nominal Appreciation (2012 - 2015)	0.22 (0.013)	0.18	0.16 (0.029)	0.17 (0.007)	0.09 (0.074)	0.26 (0.020)	0.36 (0.010)	0.18 (0.032)
Real rate of return	0.06	0.06	0.05	0.05	0.04	0.07	0.10	0.06
Nominal appreciation per m^2 of building size	0.22	0.21	0.18	0.17	0.15	0.23	0.37	0.20
Land Size (m^2)	890.80	496.00	957.12	349.42	394.33	1 185.11	173.50	799.18
Building Area (m^2)	193.75	181.00	57.86	116.66	165.08	248.29	119.00	145.23
Distance (km)	29.10	28.00	29.05	28.16	18.87	29.65	3.25	29.38

Source: Author's calculations using freehold residential property valuations from 2012-2015 (City of Cape Town 2020)
Note: Standard errors for nominal appreciation are provided in brackets

4.5. Descriptive analysis

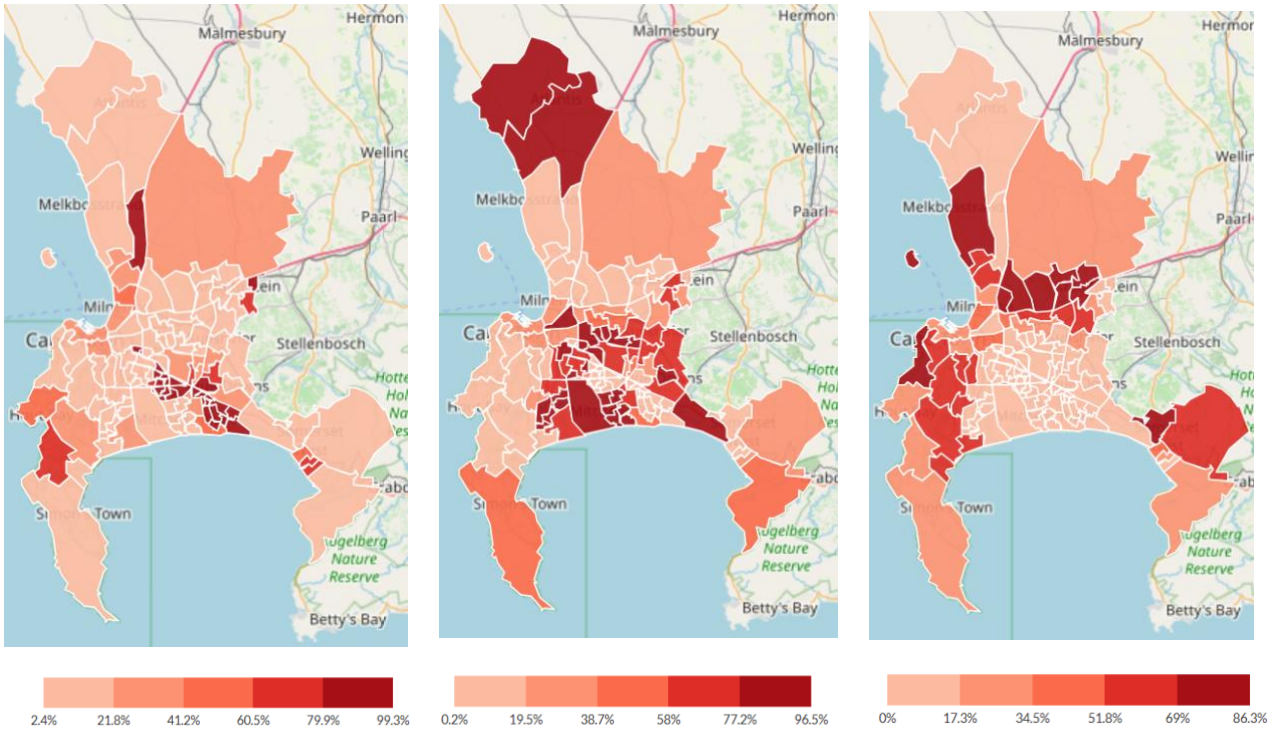
Figure 3 depicts the levels of racial segregation in 2011 by ward, drawn from the Census. Although there has been some degree of desegregation, the map still largely reflects racial demarcations pre-democracy. Moreover, these percentages for levels of desegregation should also account for proportional representation in the municipality. For example, 16 percent of the population in Cape Town are White compared to 39 and 42 percent for Black and Coloured people, respectively (Statistics South Africa, 2011). Therefore, wards that exceed this ratio would be relatively more segregated considering the make-up and diversity of the population. Furthermore, if the racial composition of wards and suburbs are still closely linked with

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Apartheid patterns of segregation as can be shown in figure 3, then the penalties and benefits of housing gains associated with the previous race-based spatial classifications continue to exacerbate racial wealth inequality. A caveat, however, is that figure 3 only shows the number of people residing in the ward, not the extent of homeownership.

Figure 3. Population by population group at the level of the ward, 2011

Black Coloured White



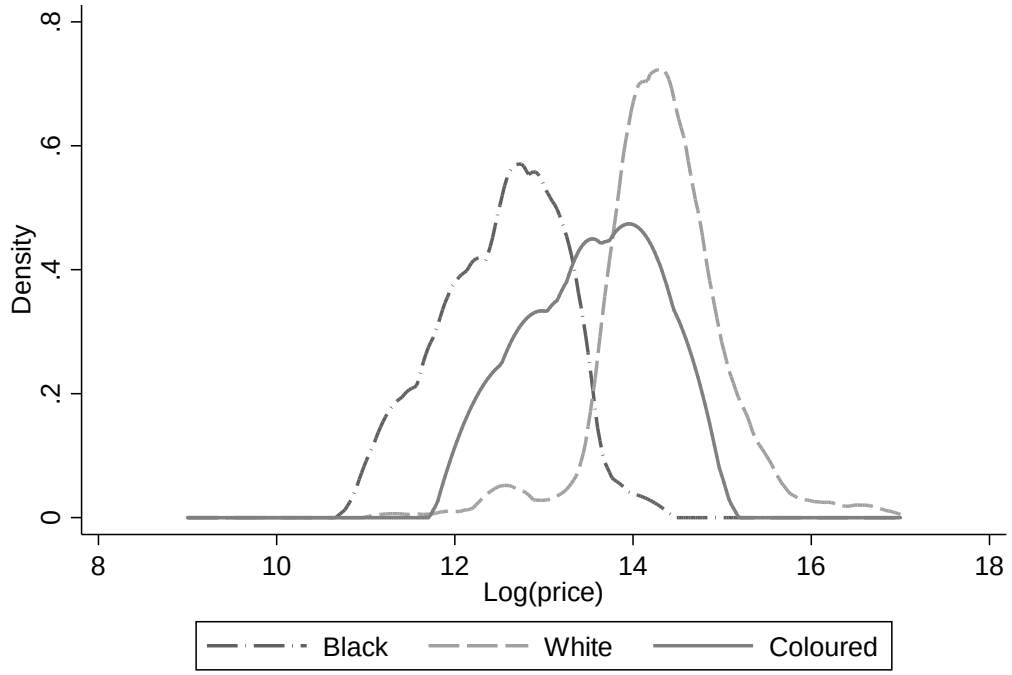
Source: Statistics South Africa (2011)

Figure 4 shows nonparametric estimates for the difference in house price valuation according to Apartheid suburban race-based classifications. Figure 4 illustrates that while houses in previously in previously White areas are more expensive, houses in previously Coloured areas have a relatively large range. Furthermore, the most expensive properties in formerly Black areas roughly correspond and overlap with lower-priced houses in formerly White areas.

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Figure 4. Racial difference in housing valuation price

Kernel density estimate, log(valuated price$_{2015}$)



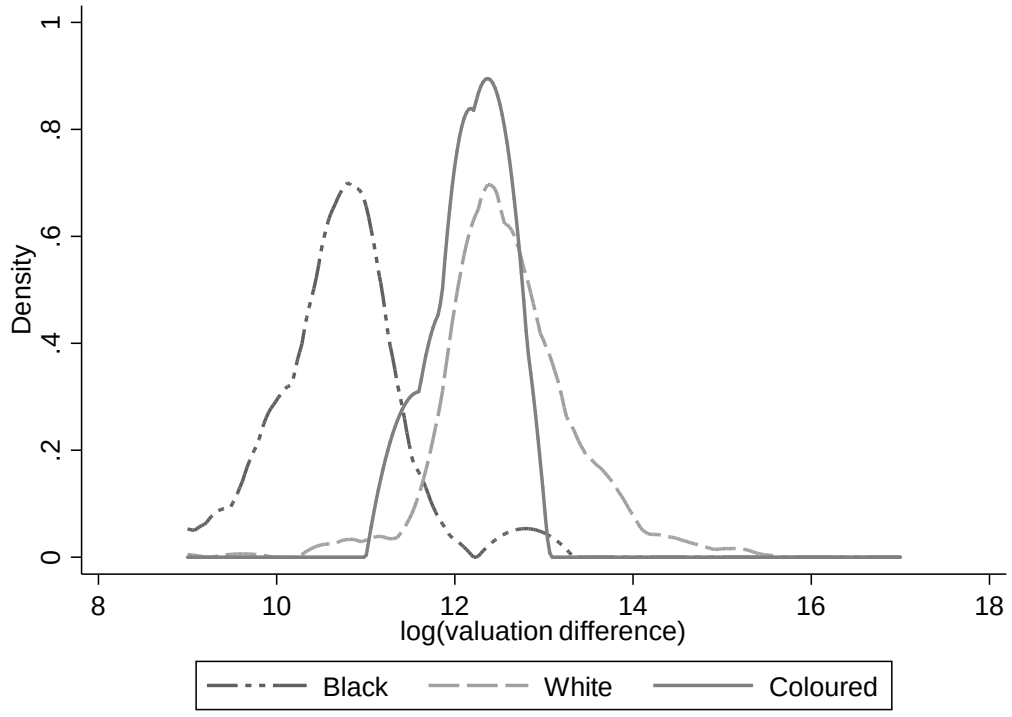
Source: Author's calculations using residential property data, 2015 (City of Cape Town 2020)

Figure 5 illustrates a nonparametric estimate for the difference in housing wealth stock between 2012 and 2015, disaggregated by Apartheid race-based spatial categories. Although there is some overlap between previously White and Coloured areas, a considerable portion of homes in previously White suburbs accumulate at a higher magnitude compared to other racial groupings. Furthermore, gains for the housing wealth stock located in previously Black areas do not experience the same overlapping characteristics as former White and Coloured areas.

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Figure 5. Racial difference in the rise of housing price valuations between 2012 and 2015

Kernel density estimate, log(valuation difference)



Source: Author's calculations using residential property data, 2012-2015 (City of Cape Town 2020)

4.6. Data limitations and measurement issues

There are two mismatches between the Census and residential property data. First, Census data is taken from 2011 whereas residential property data is for 2012 and 2015. Since Census data is being used to analyse the recent racial composition of neighbourhoods, the minor difference between the years in the datasets should not alter results drastically assuming that major racial shifts and relocations do not take place in a one-to-three-year window. Moreover, the indication of slow desegregation during the post-Apartheid period suggests that the population composition would not shift significantly in a one-year period. Second, census data is provided with the ward as the unit of analysis whereas residential property data contains observations given for each suburb. Because wards are comprised of multiple suburbs that could each be

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classified according to different previous racial zones, assigning an Apartheid racial classification to each ward is tricky.

An additional data limitation is that the residential property data based on the GV roll has only been released for 2012 and 2015. This is problematic if the growth of the property during the period analysed is different compared to previous and future property trends. Furthermore, since relative trends are analysed, the limited period of analysis is not an issue if one assumes that shocks affect everyone in the same manner. However, due to high-end property largely catering to an international market, shocks would not impact all properties in the same way. Two significant economic shocks impacting property prices in Post-Apartheid South Africa are the Global Financial Crisis and the COVID-19 pandemic. These, however, do not fall within the period of analysis so the growth or decline analysed is not an outcome of economic shocks.

Another limitation is that due to the disproportionate allocation of land during Apartheid, the number of previously White suburbs is far greater than Coloured, Black, Indian and racially mixed areas. This presents problems for obtaining statistically significant results. In terms of the population and unit of analysis analysed, the study by design does not look at individuals who do not reside in houses. In Cape Town, there are 1 113 238 households, whereas the data used looked at 599 262 residential properties (City of Cape Town 2020; Statistics South Africa 2011). According to the population census, 54 percent of households reside in houses compared to 20 percent who live in shacks (Statistics South Africa, 2011). There is therefore an additional reason for the inclusion of an analysis of real earnings in the resport, showing how gains are distributed among people who do not own assets.

There are multiple variables that are not included in the analysis. Number and size of bedrooms and bathrooms; housing quality and additional features; green neighbourhoods; crime rates; and access to transport hubs and schooling could all influence housing prices. Unfortunately, the number and size of bedrooms and bathrooms is not publicly and freely available. Since previously White areas are situated on prime property with greater public goods such as parks and beaches, the impact of previous racial classification could be a result of neighbourhood quality. Due to the entanglement of neighbourhood quality and previous racial classification, separating these characteristics is not possible.

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5. Methodology

The purpose of the study is to examine the impact of Apartheid racial segregation policies in driving contemporary wealth inequality in the residential property market of Cape Town. Although the historical roots of dispossession are widely documented in South Africa, less consideration is given to identifying the mechanisms through which housing wealth inequality is reproduced among elites. In this study, wealth inequality is looked at both in terms of distribution and the distribution of growth itself. While it is reliably assumed that historical patterns of ownership have consolidated asset inequality along racial lines, an unequal distribution of *growth* would further penalise and advantage victims and beneficiaries of Apartheid spatial planning, respectively.

To answer the hypothesis of whether race-based Apartheid spatial planning exacerbates contemporary wealth inequality, hedonic regression analysis will be used. Hedonic regression analysis shows the relationship between price and the characteristics or properties of a particular good. In the general form, the hedonic price model expresses the sale price of a real estate asset *i* at time *t* as a function of all the physical and environmental characteristics. In the log-linear form, the hedonic regression is given as:

$$ln\, p_i^t = \beta_0^t + \sum_{k=1}^{k} \beta_k z_{ik}^t + \varepsilon_i^t$$

Where *p* is the sales price, z refers to the characteristics and k corresponds to the number of characteristics or controls. ε is the random error term (de Haan and Diewert 2013). Under the classic error assumptions of a zero mean and constant variance, the parameters of hedonic regressions can be interpreted by Ordinary Least Squares (OLS) (de Haan and Diewert 2013).

Instead of using sales price, the valuation price is applied to the hedonic model as the dependent variable as it better captures the entirety of the property market. It would be harder to take stock of housing wealth through sales as the types of houses on the market compared to the entire housing portfolio could have varying characteristics. The dependent variable is log of valuation price and explanatory variables included in the model are land size, building size, previous Apartheid residential segregation categorisation, and distance from the city centre. The unit of analysis is the suburb and therefore the median valuation price and characteristics are measured for the suburb. It should be noted that the municipality of Cape Town is broken down into

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many wards. Suburbs are a smaller area of land, and in some cases, could fall into two neighbouring wards. Overall, the model includes the three main categories of hedonic regression real estate analysis, namely structure, location, and neighbourhood (Mo and Wilhelmsson 2014). Because of data constraints, the number of bedrooms and bathrooms have been excluded from the model, however, since the unit of analysis is the suburb, taking the average number of bedrooms and bathrooms would be an imprecise measurement. The log of the valuation price is calculated for the dependent variable to curtail the effect of outliers. Land extent and building size are measured in metres^2 and distance is given as the travelling distance in kilometres to the city centre. The base regressions uses data from 2012 and 2015 separately and are therefore specified as follows:

$$Log(price_{2012}) = \beta_0 + \beta_1 land_{size} + \beta_2 building_{size} + \beta_3 race_{1985} + \beta_4 distance + \epsilon \quad (1)$$

$$Log(price_{2015}) = \beta_0 + \beta_1 land_{size} + \beta_2 building_{size} + \beta_3 race_{1985} + \beta_4 distance + \epsilon \quad (2)$$

By comparing the coefficient of the race variable from the two respective years, it will be possible to assess whether spatial classification by race has a diminishing or increasing impact on price over time.

The purpose of the third regression model is to illustrate the additional capital earned on housing and what impact previous racial classification has on patterns of asset accumulation. By first looking at the capital accumulated, one is able to see how the accumulation of residential wealth differs among various suburban strata. While the first two regression models explained the characteristics that impact the valuation price, the third regression model shows the factors that influence the additional capital accumulated. This is important because it is able to illustrate whether there is a post-Apartheid benefit even after the end of legalised race-based discrimination.

$$Change\ in\ price = \beta_0 + \beta_1 land_{size} + \beta_2 building_{size} + \beta_3 race_{1985} + \beta_4 distance + \epsilon \quad (3)$$

where $Change\ in\ price = median\ price_{2015} - median\ price_{2012}$

The fourth regression model uses the percentage change in valuation price as the dependent variable. The purpose of looking at the percentage change is to show how residential asset inflation is distributed according to suburb while controlling for other characteristics such as location and housing structure. While the third regression model does not factor in the initial starting value in explaining the additional wealth obtained, the fourth regression only looks at the percentage increase and this model therefore centres growth rather than initial stock.

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$$\%\ Change\ in\ price = \beta_0 + \beta_1 land_{size} + \beta_2 building_{size} + \beta_3 race_{1985} + \beta_4 distance + \epsilon \quad (4)$$

The fifth regression model uses an additional variable from the 2011 Census, percent of the population in the ward who are Black, to determine to what extent different shares of racial desegregation in previously white-only suburbs impact property prices. Building on Schelling's (1971) segregation model, the purpose is to establish whether racial preference and composition of neighbourhoods are determining factors for valuation price. The percentage of Black people in the ward is obtained from the Census and merged onto the residential property data using the ward variable. First, log of the valuation price in 2015 acts as the dependent variable to examine the role desegregation has in determining the valuation price. The final regression uses the change in price as the dependent variable as is done in the specification to account for whether racially exclusive areas have a higher return. The purpose of the last regression is to indicate whether areas that have failed to desegregate experience greater levels of asset and wealth accumulation. This is important for partially explaining accessibility into housing markets and shows how racial enclaves can lead to higher or lower levels of returns.

$$Log(price_{2015}) = \beta_0 + \beta_1 land_{size} + \beta_2 building_{size} + \beta_4 race_{1985} + \beta_4 distance + \beta_5 population\ share_{2011} + \epsilon \quad (5)$$

$$Change\ in\ price = \beta_0 + \beta_1 land_{size} + \beta_2 building_{size} + \beta_4 race_{1985} + \beta_4 distance + \beta_5 population\ share_{2011} + \epsilon \quad (6)$$

A limitation of the methodological approach is the issue of omitted variable bias. Omitted variables include characteristics such as the number of bedrooms and bathrooms, age of the structure, and quality of the house itself. The sign and magnitude of the bias depends on the correlation between the omitted and included variables. For example, the quality of the house may be correlated with the suburban Apartheid racial classification of the neighbourhood, and the racial category's impact on the valuation price could therefore be overestimated. Hedonic regression analysis is preferred over the repeat sales approach because it does not suffer from selection bias and the data requirements are less onerous (Ferreira and Gyorko 2011).

Apart from regression analysis, descriptive statistics uncover valuable information regarding the racial decomposition of asset inflation and the annual real return on housing. An additional comparative component is the use of GICs to show the difference between growth in earnings and housing, illustrating whether there is a divergence between asset-owners and workers.

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6. Results

Table 1 has already illustrated that houses in historically White areas are both more expensive and exhibit greater gains over time. Controlling for location and other factors in the regression models in Table 2, it is shown that racial spatial planning plays a heavier role in the market value compared to proximity to jobs, building size, and land extent. The results in Table 2 below explain the key findings of each model specification, noting the precise impact of each variable. The results from the regression analysis can then be complemented by descriptive statistic trends of housing inflation situated in the data section in addition to the average annualised percentage change of real earnings found below in Figure 6. While there is negative growth in real earnings for the majority of the middle-class, owners of housing wealth are able to capture positive growth of assets in Cape Town, largely supporting the international theoretical and empirical literature. The negative earnings growth contrasted against rising housing wealth, especially among the White elite, explain the dynamics and consolidation of stratification within a South African urban context.

Table 2 shows the regression results for six models specified under the methodology. Even after controlling for land extent, building area, and location, the variable which has the most sizeable impact on valuation price is the White suburban racial category. In Model 1, houses in previously White areas were 61.5 percent pricier than houses in previously Black areas, ceteris paribus, and this finding is shown to be statistically significant at the one percent level. The coefficient for previously White suburbs increases between model 1 (2012) and model 2 (2015), implying that over time houses in previously White areas are becoming relatively more expensive. When the race variable is added to the model, land area, building size and distance become less relevant in explaining the level of valuation, exhibited by the small coefficient sizes of these core variables. Although it is surprising that land area and distance are both negatively related to house price valuations, the almost negligible coefficient size removes this concern. Since high-end property is sometimes located in the winelands, on the Atlantic Seaboard, and deep in the Southern suburbs, which are all located far away from the city centre, luxury property in distant and remote areas could be driving the negative relationship between distance and property price.

The third regression specification depicts the return to houses between 2012 and 2015. Houses in White suburbs exhibited a 77.5 percent greater gain compared to houses situated in previously Black areas, ceteris paribus, and this is found to be statistically significant at the 1

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percent level. Additionally, when comparing Coloured areas to Black areas, the return is 2.85 lower, ceteris paribus, although it should be noted that this result is not statistically significant. The greatest returns were for areas that remained mixed residential areas during Apartheid, namely Salt River and Woodstock. While the demand for houses in these areas could be driven by many factors, it is worth adding that both of these suburbs are located close to the CBD.

The results show that on average, houses in previously White areas are more expensive and that there is a strong positive relationship with valuation gains. The fourth regression specification subsequently uses the percentage change of valuation price to illustrate the differentials between different racially classified areas, irrespective of the initial value of the stock of wealth. The low R^2 and statistically insignificant results indicate that the variables selected poorly explain the differences in percentage change. From the descriptive statistics, however, the average housing inflation and the annual real rate of return both exhibit a difference when comparing areas that were assigned different racial classifications during Apartheid. Although the difference in housing inflation by race is modest, over the long term it would make a substantial impact on the amount of additional wealth accumulated.

The models explained so far focus on previous racial classification of suburbs, but an additional question is how does racial exclusivity and thus inaccessibility determine the concentration and accumulation of housing wealth. Model specifications 5 and 6 include an additional explanatory variable: the proportion of Black people residing in a ward. Unfortunately, the racial breakdown at the level of the suburb could not be obtained from the Census data, so it is assumed that the racial composition of the ward is reflected at the level of the suburb. The independent variables are log of valuation price in 2015 and valuation gain over the period, respectively. When a variable to account for racial composition, measured in this instance as the proportion of Black people in a ward, is included, the impact of previously White suburbs on the 2015 valuation price decreases slightly from 61.5 to 54.1 percent, ceteris paribus. Furthermore, having a larger percentage of Black people is associated with a decrease in valuation price by 24.8 percent. The higher coefficient for the variable corresponding to previous racial classification as opposed to current racial composition, indicates that the former has a greater impact on the cost of houses – an aspect to consider when thinking about ease of access to homeownership in contemporary South Africa. Importantly, model 6 shows again, that the addition of a variable to indicate the extent of racial composition has a lower bearing on the valuation gain compared to previous racial classifications. This finding gives way to issues around inaccessibility and intergenerational transmission of housing wealth that could

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further entrench patterns of wealth ownership, and these themes are subsequently elaborated upon in the discussion.

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Table 2: Regression Results

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	I	II	III	IV	V	VI
Land Area	-0.0000627***	-0.0000638***	-0.000072***	-0.00000045	-0.000006***	-0.00007***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.0001)	(0.00001)
Building Size	0.00595***	0.00057***	0.00614***	-0.0000395	0.00590***	0.00609***
	(0.000558)	(0.00057)	(0.000663)	(0.00009)	(0.00057)	(0.00066)
Distance	-0.00939***	-0.009***	-0.0151***	0.000115	-0.00974***	-0.0148***
	(0.00182)	(0.00179)	(0.00224)	(0.0011)	(0.0018)	(0.00226)
Race: Base Black						
Coloured	0.133	0.141	-0.0285	0.00829	0.00504	-0.115
	(0.1227)	(0.1298)	(0.167)	(0.029)	(0.129)	(0.169)
Indian	0.315	0.236	0.266	-0.0679	0.0868	0.164
	(0.1364)	(0.1429)	(0.185)	(0.077)	(0.1395)	(0.189)
White	0.615***	0.680***	0.775***	0.101	0.541***	0.689***
	(0.1425)	(0.1460)	(0.175)	(0.042)	(0.1422)	(0.176)
Mixed	0.376	0.525	0.906**	0.204	0.420	0.842*
	(0.2049)	(0.2121)	(0.2438)	(0.041)	(0.2003)	(0.236)
Post-Apartheid	-0.0230	-0.0196	-0.152	0.0214	-0.146	-0.230
	(0.1371)	(0.1443)	(0.192)	(0.043)	(0.153)	(0.198)
Racial Composition					-0.248**	-0.157
					(0.089)	(0.124)
Constant	12.37***	12.53***	10.83***	0.164***	12.72***	10.95***
	(0.1393)	(0.148)	(0.195)	(0.041)	(0.152)	(0.199)
Observations	613	613	601	613	611	599
R-squared	0.772	0.784	0.725	0.023	0.783	0.723

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

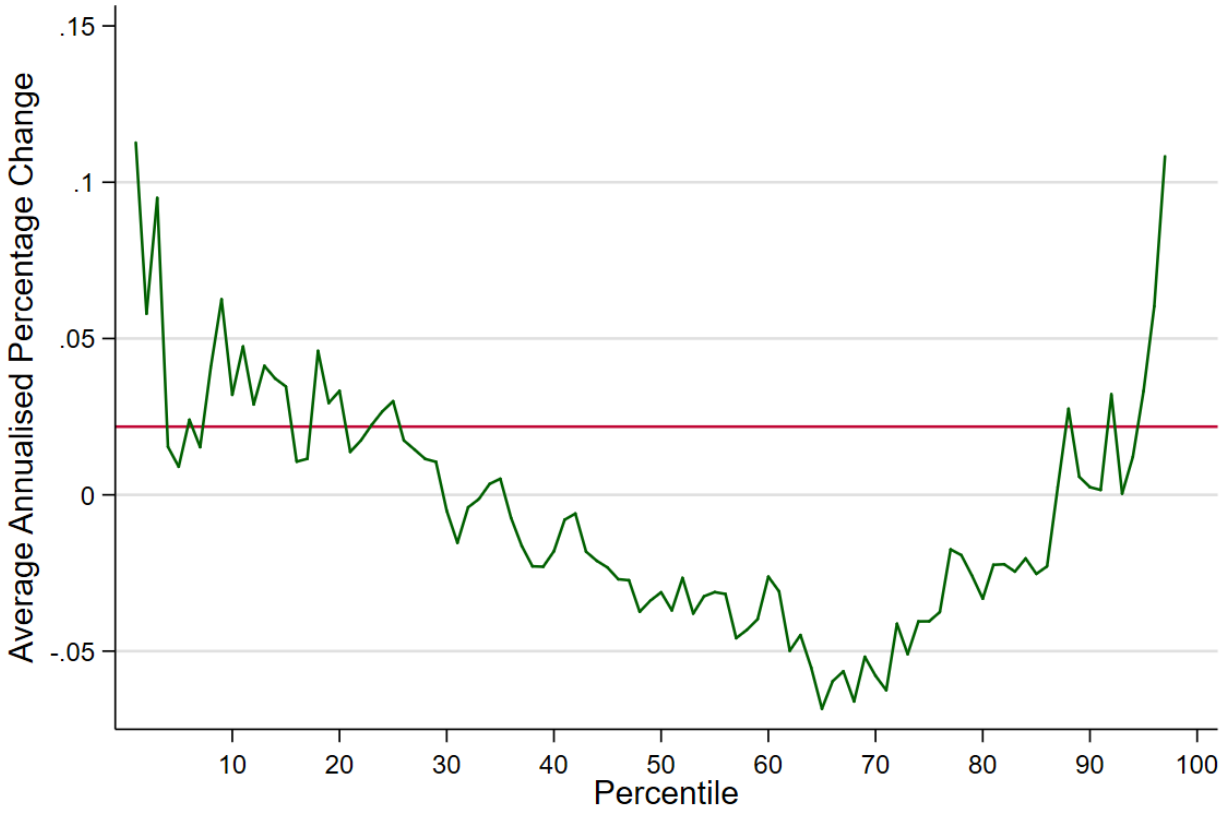
Source: Author's calculations using City of Cape Town (2020) and Statistics South Africa (2011)

Considering that the returns to wealth housing appear modest, it is necessary to benchmark it against other components found within household portfolios. Adkins et al. (2020) describe how asset inflation combined with wage stagnation mean that assets pay more than working in the wage economy, and it is phenomenon that explains the contemporary formation of class and inequality. While policy and theory emphasise work and occupation in shaping stratification, a further understanding of how income growth is distributed along the population is needed. Although previous studies have illustrated through Growth Incidence Curves (GIC) that South Africa's middle-class are becoming poorer over time (Bassier and Woolard 2020; Bhorat and Khan 2018), for comparative purposes it is necessary to depict the GIC at a municipal level. The GIC can then be used in combination with the previous findings to determine whether the trend of asset inflation and wage stagnation holds weight in the context of Cape Town.

Figure 6 shows the GIC for income for the City of Cape Town from 2011 to 2016 up till the 97th percentile. Because the average annualised percentage change for the top 3 percent is so stark, it has been excluded from figure 6 but can be found in the appendix. The figure clearly indicates that the majority of people experienced a decline in real earnings over the period, especially for those in the middle of the earnings distribution. Contrasting the rise in income to the rise in wealth, it is evident that those without high-paying jobs are getting relatively poorer over time, and additionally, are less likely to be able to fall back on asset inflation to soften the impact of declining wages. The red line refers to the average annual growth of Gross National Income (GNI) in the country. The disaggregation of growth along the distribution uncovers the decline of the middle-class over time, revealing an aspect of divergence that the national GNI data for growth would otherwise mask.

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Figure 6. Growth Incidence Curve for the City of Cape Town (2011-2016)



Source: Author's calculations using PALMS (2019)
Note: Red line refers to average growth in Gross National Income (GNI). Weights applied.

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7. Discussion

7.1. Housing wealth inequality

There are three main results that are shown, shaping the discussion, and placing the findings in the broader literature. First, valuation price is 61.5 percent higher in previously White areas compared to previously Black areas, ceteris paribus. This result is unsurprising, but what is interesting is the magnitude and that even after controlling for location, land extent, and building size, the variable that explained most of the variation in valuation price is whether the property is situated in a previously White neighbourhood. The second main finding is derived from the descriptive statistics, which indicate a 2 to 3 percentage point difference in the annual real rate of return between previously White and Black, Coloured, and Indian areas between 2012 and 2015. Although the percentage point difference in the annual real rate of return is modest, the cumulative impact in the long run is significant. The third primary finding is that the middle-class has faced a penalty in real earnings growth, reflected by a decline in earnings in real terms. By combing the results together, it is found that people who own property in previously White areas own significantly more wealth in housing, and accumulate wealth faster due to the higher initial stock of wealth *combined* with the higher annual rate of return. Although the annual real rate of return on property is small, the decline in real earnings for the majority of those in the middle of the income distribution alludes to an absence of a wage-led growth regime. The reliance on wages as a platform for class and income mobility is therefore questionable.

Comparing the findings to international literature, the difference between the growth of capital and wages is somewhat echoed in the South African context. Piketty (2014) calculates an average growth of capital between 4 and 5 percent, compared to wage growth which lies between 1 and 1.5 percent in the long run. The average annual real rate of return of housing wealth among previous racially classified areas in South Africa ranges between 4 and 10 percent. Areas that were previously reserved for White people had an average annual real rate of return of 7 percent for the years from 2012 to 2015, compared to 5 percent for previously Black neighbourhoods. It can therefore be seen that even after the ending of racial segregation, property in previously White areas grows at a higher rate compared to the mean and median growth, whereas growth for houses in previously Black, Coloured, and Indian areas falls below mean and median rates.

Along the income distribution in Cape Town, growth in real earnings varies significantly from -6.8 percent for the middle-class to 104.1 percent for the top 1 percent, with an average growth of 1.3

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percent in real earnings. The average growth in earnings in Cape Town is within range of Piketty's (2014) estimates for the UK, US, and France. Furthermore, the trend in earnings growth is partially confirmed by Bassier and Woolard (2020), where they show negative growth in earnings for those in the middle of the distribution post-2008 at the national level. Comparing middle-income wage-earners to the propertied, asset-owning class, divergence in growth can in some cases equate to a difference of approximately 16 percent per year. Disaggregating wealth and income growth along the spectrum and by racial classification uncovers an aspect of the dynamics behind wealth and income inequality that would otherwise be ignored. Moreover, the historical context whereby land dispossession was exploited to create a system of cheap labour supply further illustrates the long-term penalty of only being able to participate in the market economy via wages.

7.2. The political economy of inequality in South Africa

Situating the results within the broader literature of the political economy of contemporary South Africa, the racial component of wealth inequality becomes increasingly relevant. It is already established that wealth inequality in South Africa exceeds that of income (Orthofer 2016) and that the levels of wealth inequality have not decreased since the ending of Apartheid (Chatterjee et al. 2021). The contribution of this paper is to demonstrate whether the distribution of *gains* post-Apartheid alludes to an accelerating divergence between racial groups – an aspect that is not covered by national data. Although attempts to address inequality have centred around income, race-based wealth inequality continues to persist in contemporary South Africa. Additionally, the debates around land reform and redistribution are primarily concentrated on rural land for agrarian purposes, leading to an unchecked and increasing divergence of housing wealth within urban spaces.

The economy of South Africa is still largely centred around three primary factors of production - land, labour, and capital (Terreblanche 2002). The cumulative impact of the historical dispossession of both land and capital for the majority of South Africans can be reflected in the contemporary patterns of ownership. The location of such ownership can also be linked to opportunities in the form of services, jobs, and recreation, improving the standard of living depending on where people reside. According to Turok (2002), the efficient and equitable functioning of cities is dependent on employment, housing, and the transport connections between them. The spatial mismatch hypothesis is the idea that people who live further away from the urban core will face higher rates of unemployment due to the lack of appropriate jobs in close proximity (Budlender and Royston 2016). This spatial mismatch means that poverty traps largely prevail for the millions of people located in

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informal settlements on the urban peripheries, further enabled by restrictive access to the housing market.

From the descriptive analysis, it is graphically shown that the racial composition of neighbourhoods in Cape Town is still largely linked to Apartheid race-based classifications. Put simply, the composition of wealth ownership has hardly transformed since the beginning of democracy. By disaggregating the rate of return on wealth by race, it demonstrates whether the Group Areas Act continues to have an impact even after the removal of legally codified race-based discrimination. Although there are attempts to provide ownership to people who have been historically dispossessed, the areas that are made available for affordable and state-subsidised housing continue to be on the urban periphery as opposed to being placed in former White suburbs. During the Group Areas Act, thousands of people were forcibly evicted, resulting in a loss of both asset ownership and capital growth. Using the findings in the descriptive statistics, during the first 20 years of democracy in South Africa, houses in previously White neighbourhoods gained an additional R1 585 259 in value compared to R207 402, R355 643, and R492 877 for houses in previously Black, Coloured, and Indian areas, respectively. To illustrate the magnitude of the advantage given to mainly White South Africans post-Apartheid, cash transfers – a fundamental redistributive policy in the country – ranged between R3 780 and R16 440 per person per year in 2015 (National Treasury 2015). The wealth gains from residential property are arguably a more powerful social and economic policy mechanism that determines the trajectory of inequality and its outcomes.

7.3. Prognosis

Recently, in May 2022, the Mayor of Cape Town handed over 84 title deeds to people for residential housing located in an informal settlement of Harare. The annual real rate of return for houses in this ward is 4.8 percent compared to 9, 6.7 and 10.5 in Rondebosch, Sea Point, and Newlands, respectively. Although the differences may appear marginal, the difference in additional wealth accumulated over the long term is substantial. For example, if one assumes an equal starting price of R500 000 in both Ward 98 (Harare) and Newlands and the same trend measured between 2012 and 2015, after 20 years the house in Ward 98 will be worth R1 277 014 compared to the R3 683 117 in Newlands – a difference of R2 406 103. In reality, the assumption of an equal initial endowment between different areas does not hold as is evident in the data: the average valuation price in 2015 was R4 900 000 and R320 000 for Newlands and ward 98 (Harare), respectively (City of Cape Town 2020). Applying the same concept but factoring in the varying initial valuation price, after 20 years the house in Newlands will be R36 094 551 compared to R817 289 in Ward 98, representing a

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difference of R35 277 262 in the *additional* wealth gained. The logic of housing as a financial asset to level the playing field is flawed if the mechanisms through which wealth and income mobility and security take place are not considered.

The results are relevant for the trajectory of inequality, thus making it possible to carve out a prognosis for how inequality is predicted to consolidate or diminish over time. If we assume that over the long-term, housing wealth will grow on average at a similar rate to what is shown for the period between 2012 and 2015, then over a 20-year timeline, houses in previously White areas will, on average, gain R6 134 453 in value compared to R550 300, R943 628, and R1 079 952 for houses in previously Black, Coloured, and Indian areas, respectively. While housing wealth inequality widens, returns to labour will be low, especially for the middle-class. A caveat, however, is both these trends are dependent on the broader economic conditions, but what we have seen is that whether economic growth is strong or weak, those at the top-end of both the wealth and income distribution come out stronger.

Access to housing

The next point of discussion is accessibility to homeownership and access to housing under the pretext of declining earnings among the middle class. Access to consumer credit in Anglo-American countries is argued to have shifted housing as an alternative supplier of welfare based on rising asset prices as opposed to income from labour (Adkins et al. 2021). Although this study has not centred mortgage debt, Chatterjee et al. (2020) establish that mortgage debt and residential buildings are approximately 28 and 55 percent of national income, respectively. Between 1975 and 2008, mortgage debt and residential buildings as a percentage of national income rose significantly, mainly due to the boom in mortgage advantages in the lead up to the Global Financial Crisis (Chatterjee et al. 2020). The house-price-to-income ratio is often given as an indicator of housing affordability and is measured by taking the price per square meter, divided by the GDP per capita, and multiplied by 100. For Cape Town, the house-price-to-income ratio is 2.8 and 3.32 in 2012 and 2015, respectively (City of Cape Town 2020). However, as indicated by the earnings disparity across the distribution, GDP is a poor reflection of growth among the middle class. Adapting the house-price-to-income ratio to account for the distribution of earnings would be a better indicator of affordability in understanding the evolution of access to housing over time

The absence of a wage-led growth regime

Adkins et al. (2020, p. 6) argue that "asset appreciation has been engendered by a specific institutional nexus that has fundamentally redrawn the social structure – such that asset ownership is now

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becoming more important than employment as a determinant of class position". Embedded in the institutional processes are fiscal and monetary policies that have shaped and framed the 'assetisation' of the economy (Akins et al. 2020). One implication is that within the middle class, there is a growing divide between homeowners and those who rely mainly on wages. Moreover, notions around the need for investment in education and human capital to improve wages are arguably flawed if the middle-class experiences a declining rate of income over time. A fiscal policy in Anglo-American countries that is mirrored in the South African context is the exclusion from paying tax on primary residences for capital gains of R2 million and below (South African Revenue Services 2021). The policy implications are linked to the broader, national strategy of addressing spatial injustice and racial inequity. Considering that redistribution in South Africa is primarily facilitated through income, institutional structures contribute to the entrenchment and perpetuation of inequity.

7.4. Policy recommendations

Considering the diagnosis and prognosis of increasing inequality that manifests through prior race-based discrimination, policies should be considered to address historical, present, and future divergences. While the reasons for addressing inequality have been extensively discussed within other studies (Piketty 2014; Pickett and Wilkinson 2009; van der Weide and Milanovic 2014), this study echoes the justification for addressing wealth inequality for four reasons. First, it has been shown that contemporary housing wealth inequality in South Africa is grounded and linked to historical injustice, colonial dispossession, and racially discriminatory legislation. Reducing wealth inequality is therefore a necessary tool to address spatial injustice. While the historical roots of injustice are nothing unknown, the mechanisms through which inequality is reproduced or reduced are inadequately addressed through policy. Even though racially discriminatory legislation has been removed, the benefits and disadvantages continue to be perpetuated in contemporary South Africa. The second justification for addressing inequality relates to the contemporary evolution of wealth accumulation that creates winners and losers according to past racial and spatial classifications. Third, an asset-based welfare regime alongside stagnant and declining wages for the middle-class diminishes prospects for inclusive economic growth. The institutional mechanisms that allow for 'assetisation' incentivise the increasing financialisation of the economy (Adkins et al. 2020). Rather than favouring asset inflation, policy needs to encourage growth within the productive economy to ensure inclusive and sustainable economic growth. Four main policy proposals are therefore discussed in relation to addressing race-based residential wealth inequality, namely, an acknowledgement of the flawed logic

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of using housing as financial assets; stronger mechanisms to encourage desegregation and access; amendments to fiscal policy; and the implementation of a wealth tax.

This study has shown that there are greater financial benefits for the owner when ownership of housing falls in a previously White neighbourhood. Although there are several state-led policies that have facilitated and supported the allocation of housing as a form of redress, the location of state-subsidised housing is predominantly on the urban outskirts away from jobs and opportunities. Importantly, housing made available by the state is very seldomly located in previously White areas, even when publicly-owned land for housing is available. One such example in Cape Town is the Rondebosch golf course, a recent site of contestation between local government and activists fighting for affordable housing (Shandu and Clark 2021). There are several issues with the current policy approach of viewing homeownership as a financial mechanism to address poverty and inequality. The combination of vastly different initial endowments combined with unequal gains based upon previous racial classification translates into very little wealth accumulated over the long-term for recipients of redress. While there is a general understanding of intergenerational wealth accumulation, mechanisms to address it are not acknowledged and reflected in policy.

The second recommendation, therefore, is for greater efforts to be made at desegregating neighbourhoods and increasing access to housing. A limitation, however, is the role that elites play in resisting desegregation and enabling "neo-Apartheid" spatial planning (Bradlow 2021). Housing policies should be centred around access to housing as a form of shelter as opposed to homeownership being inappropriately relied upon as a tool for welfare, thereby recognising the layered social and ecological values that are inherent in the access to land (Shandu and Clark 2021). Although civil society has long been advocating for the use of publicly-owned land to be made available for affordable housing, this approach ignores the initial endowments of privately owned residences that are a significant component in the overall structure of housing wealth inequality.

The third recommendation is to address institutional structures that enable the pattern of asset inflation and wage stagnation. The exclusion of primary residences from capital gains tax of up to R2 million is an example of how fiscal policy contributes to the difference between wage and income growth and the widening racial wealth inequality even after the removal of legalised race-based discrimination. The gains from asset inflation should therefore be taxed commensurate with income, contributing to a fairer allocation of growth between labour and wealth.

The findings of this paper echo and reinstate the need for a wealth tax. There are various types of taxes on immovable property, namely, transfer duty, capital gains tax, and estate duty tax. Even if the capital gains tax is amended so that it is commensurate with income, capital gains are only paid at the

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point of disposal of the asset and this form of tax does not fall under the umbrella of wealth taxes (SARS 2022; Davis Tax Committee 2018). Inheritance plays an important role in the intergenerational transmissions of wealth, with a flat estate duty tax (20 percent for the first R30 million) sitting below the personal income tax rate equivalent (SARS 2022). Additionally, transfer duties are currently paid by the buyer (Davis Tax Committee 2018), limiting the redistributive impact and creating another barrier to accessing homeownership.

Within South Africa specifically, the Davis Tax Committee (2018) investigated the feasibility for the implementation of a wealth tax but found that more data is required to determine whether the costs of administering the tax will be less than the amount generated from its implementation. Immovable property, however, is different to other forms of wealth as there are established records on residential ownership. Furthermore, a land tax is strongly favoured on a theoretical basis by the Davis Tax Committee because it is the least distortive of all taxes; least harmful for economic growth since the supply of land is fixed; and discourages speculation in the market by reducing the likelihood of bubbles through price stabilisation (Davis Tax Committee 2018). Concerns around the implementation of a land tax include the issue of liquidity and ability to pay (Davis Tax Committee 2018). For example, retired individuals who are asset-rich, but income-poor, would find it more difficult to meet the requirements of a land tax. Additionally, the disproportionate targeting of one asset class means that the bottom 90 percent would face a heavier penalty compared to the top 1 percent whose wealth primarily lies in bonds and stocks (Chatterjee et al. 2021; Davis Tax Committee 2018).

In determining property or land ownership for the purposes of a land tax, Chatterjee et al. (2021) recognise the limitations of municipal valuations because of inconsistency and unreliability across cities and towns. Since this study focused on one municipality alone, the issue of inconsistency across municipal valuations is circumvented but the limitation still has implications for the proposed recommendation. For a wealth tax on property, Chatterjee et al. (2021) further note that there are other reliable sources of housing wealth information, such as private property companies that collect reliable data on market valuations. Although there is a need for the South African Revenue Service (SARS) to establish a centralised online platform for the housing market in the long term, there are alternatives that can be used in the interim period (Chatterjee et al. 2021). A wealth tax on land or property can therefore be seen as both a theoretically sound and feasible tool to address the growing racial divergence of wealth that is visible in the data.

7.5. Critiques and robustness

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There are several methodological and conceptual critiques that need to be raised. First, it is not entirely safe to assume that the period of analysis is indicative of a general long-run growth trend because of the absence of economic shocks. The period of analysis is after the 2007/08 Global Financial Crisis and before the Covid-19 pandemic. However, the exclusion of economic shocks is deliberate given that the period analysed is more representative of how the property market would behave in the long run.

A second possible critique is that if the valuation process differed across the two periods by weighting factors differently, then the increase in price between 2012 and 2015 does not reflect a growth in wealth. For instance, if certain characteristics that are correlated with higher property prices are weighted greater to increase the rates (taxes) of high-end property, then the growth in more expensive properties is overestimated. A possible mechanism to check the robustness of the results is to use sales data from a different source to compare the growth between the two periods. Sales data, however, does not provide a complete understanding of the market as houses sold frequently might contain unmeasurable characteristics that could either increase or deflate the true market value as a whole. The source of data used in the paper is, therefore, more reliable in sketching an understanding of the housing market in Cape Town.

A further limitation is that the annual real return of wealth is underestimated due to rental income being excluded from the analysis. Within Rust's (2008) conceptual framework, rental income relates to housing as an economic asset, not a financial one. Since the study focuses on the concept of housing as a financial asset, the rent earned on property is appropriately excluded, however, the issue of total returns (financial, economic and social) being underestimated remains.

Additionally, there is a potential endogeneity bias that plagues variables such as the size of the property and valuation price. However, because of the lack of a suitable instrumental variable, correcting the endogeneity bias is not feasible. Moreover, while it is true that there could be an endogeneity bias, there exists some variation in the relationship between size of property and valuation price. In the dataset, it is shown that smaller sized residences closer to the CBD and Atlantic Seaboard have a higher price per square meter.

It should also be recognised that the low R^2 for the fourth regression model indicates a poor specification. Combined with the statistically insignificant results, it is evident that the model is not appropriate for treating percentage change as a dependent variable. Taking this consideration into account, the descriptive statistics are drawn upon to illustrate the differences in the real rate of return among the different former racial areas. This means that although there is an estimate for the real rate of return, it is not controlled for by location and structural characteristics.

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8. Conclusion

This study provides the first empirical research, to my knowledge, of analysing returns to housing disaggregated by race in South Africa. Using GV data combined with the 2011 Census, Apartheid suburban classifications were identified by suburb. Through descriptive statistics and hedonic regression analysis, it is shown that residential property values in formerly White areas are 61.5 percent higher compared to Black, Coloured and Indian areas, ceteris paribus. On average, the median valuations in 2012 were R1 732 634 for previously White areas compared to R281 667, R487 770, and R787 583 for formerly Black, Coloured, and Indian neighbourhoods, respectively. Moreover, the annual rate of return on property in previously White areas is 2 percentage points higher, showing an uneven dispersion of asset accumulation along the distribution. Although the difference in the annual real rate of return is modest, over time and taking into account the higher stock of wealth, owners of homes in former White suburbs experience greater accumulation of wealth post-Apartheid compared to owners in former Black neighbourhoods, which is grounded in race-based segregation that precedes democracy. Furthermore, it is shown that wealth inequality is growing at a faster rate compared to income growth for the middle-class in Cape Town, which has implications for class mobility, intergenerational transmissions, and widening divergence over time.

In terms of policy recommendations, several aspects should be considered. First, there should be an acknowledgement of the flawed logic of using housing as financial assets given the unequal dispersion of gains across the distribution. While significant advocacy has been channelled into making publicly-owned land in well-located areas available for affordable housing, state-subsidised housing schemes in Cape Town are still placed on urban peripheries. The second recommendation, therefore, is a general remark on the need to take greater strides in desegregating neighbourhoods. The third recommendation is to address institutional structures that enable the pattern of asset inflation and wage stagnation. The exclusion of primary residences from capital gains tax up to R2 million is one example of a fiscal policy that facilitates the difference between wage and income growth and the widening racial wealth inequality even after the removal of codified race-based discrimination. The gains from asset inflation should therefore be taxed in line with income,

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contributing to a fairer allocation of growth between labour and wealth. Additionally, the implementation of a wealth tax on land or property is strongly recommended due to its theoretical soundness and practical feasibility.

Much further work remains at this point. Areas for potential research include incorporating rent in the real rate of return for housing wealth and examining other *components* of wealth along the distribution and between different groupings. Furthermore, this study paves the way for General Valuations to be used in estimating the financial losses of the Group Areas Act and its forced removals on long-term financial and wealth inequality in South Africa. Additionally, this study can be extended within South Africa more broadly to illustrate how wealth dynamics are reproduced or diminished in former Bantustans. The conceptual framing can be applied in other contexts, nationally and globally, to examine how increases to wealth vary across the distribution and between different groups. Disaggregating the gains of housing inflation can be applied in other contexts such as the UK where housing affordability has become a growing concern. Although Cape Town is used as a case study, the findings are situated in global socioeconomic themes such as class mobility, stratification, and spatial inequality.

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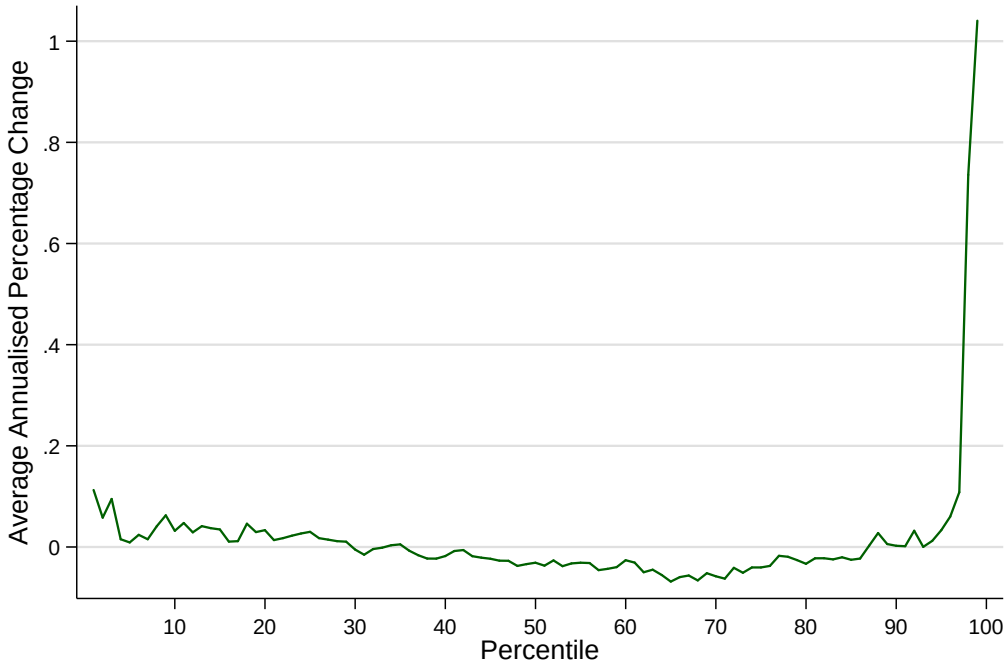
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Appendix

Figure A. Growth Incidence Curve for earnings in Cape Town (2011-2016)



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