DISCUSSION PAPER SERIES

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JANUARY 2020

ABSTRACT

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This study estimates and decomposes the unemployment rate gap between former and non-former homeland areas in South Africa. We apply the Oaxaca-Blinder (1973) decomposition technique to the 2011 population census community profiles at main place level to identify the factors underpinning observed spatial patterns in unemployment. Results indicate that former homeland areas suffer from relatively higher rates of unemployment compared to non-former homeland areas. The 24%-point difference is primarily explained by differences in endowments. If main-place observed characteristics are equalised between former and non-former homeland areas, the unemployment gap can be reduced by as much as 80%. Factors driving the endowment effect are area compositional differences in age, gender, race, marital status and education. While the bulk of these factors are structural in nature, interventions that improve education attainment in former homeland areas and those that are sensitive to the challenges faced by black South African youth and women in the labour market will contribute immensely towards alleviating the spatial gap.

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1.   Introduction

The role of historical institutions in explaining contemporary socioeconomic outcomes is increasingly receiving attention globally (e.g. Acemoglu et al., 2001; Banerjee et al., 2005; Nunn, 2008; Dell, 2010). For instance, Acemoglu et al. (2001) investigated the role of European colonial institutions[1] in shaping the rest of the world's income, while Banerjee et al., (2005) examined the effect of past land tenure systems on India's economic performance. In South America, Dell (2010) explored the present-day welfare effects of *mita* – a historic forced labour system instituted by the Spanish government in Peru and Bolivia. Similarly, Nunn (2008) examined the long-term effects of slave trade on Africa's current underdevelopment. An empirical regularity in this literature is that historic institutions play an important role in shaping present-day inequalities in socioeconomic outcomes.

South Africa's economic history is not different from that of other developing regions of the world; it is embedded in a repressive 'colonial' system of apartheid meaning 'apartness'. This system was institutionalised in 1948 to advance white supremacy at the expense of other racial groups, especially blacks (Todes and Turok, 2018). Residential segregation served as a vital pillar of racial discrimination. Noteworthy was the creation of rural Bantustan or homeland areas for the black majority - an administrative mechanism for marginalising blacks from mainstream socioeconomic and political activities (Todes and Turok, 2018). The accompanying battery of repressive policies rendered the homelands as overcrowded and poverty stricken communities devoid of appropriate education, physical infrastructure, economic and labour market opportunities (van der berg and Bhorat, 1999; Todes and Turok, 2018). This promoted temporary labour migration from the homelands for employment opportunities in 'white' areas. However, movement was strictly controlled by pass laws (Klasen and Woolard, 2008). The repressive homeland system was repealed at the ascension of the post-apartheid government to power in 1994, ushering South Africa into a new era of socio-economic transformation.

In a bid to understand the impact of apartheid's spatial policies, Von Fintel (2018) and David et al., (2018) analysed the role of the former homelands system on current regional wage gaps, poverty and inequality in South Africa. These studies allude to the fact that South Africa's poverty and inequality patterns are deeply rooted in the repressive institutions of the apartheid regime. However, unemployment that lies at the heart of these twin problems remains

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[1] These are associated with either European settlement institutions in former colonies with low mortality rates or extractive institutions in former colonies with high settler mortality rates.

unexplored. This leaves a dearth of knowledge on the link between the former homeland system and labour market outcomes (i.e., unemployment) within this growing strand of literature.

Extant enquiries on unemployment in South Africa are mainly at the national level (Kingdon Knight, 2004 and 2007; Banerjee et al., 2008; Davies and Thurlow, 2010; Posel et al., 2014). This research thrust is understandable given the country's high unemployment rate by global standards. In 2018 South Africa's official unemployment rate was 27%. It surpassed other African countries' - e.g. 9.3% for Kenya, 7.2% for Zambia, 6% for Nigeria and 11.4% for Egypt. This extends to its BRICS counterparts' – 12.5% in Brazil, 4.7% in Russia, 4.4% in China, 2.6% in India (ILO, 2019). The seriousness of joblessness in South Africa has situated a need for its reduction in the country's long-term development plan (National Development Plan 2030 - NDP). The NDP aims to reduce unemployment to 14% in 2020 and to a further 6% in 2030. Not surprisingly, job creation was the cynosure for South African political parties' campaign manifestos in the country's sixth general elections held 25 years post-apartheid. This is in order as unemployment has devastating effects on economic well-being of the unemployed, production and human capital. It also fuels social exclusion, crime and social instability in the country (Kingdon and Knight, 2004).

At present, only a few studies have examined South Africa's unemployment problem at the regional level (Kingdon Knight, 2007; Klasen and Woolard, 2008; Ardington et al., 2016; Reddy et al., 2016). Unemployment rates are factually higher in rural than urban areas; with varying magnitudes across provinces. Western Cape, a non-former homeland (NFH) province enjoys the lowest rate followed by Gauteng, which has the smallest share of former homeland (FH) areas. In contrast, provinces that have a higher share of FH areas suffer from higher unemployment rates (Statistics South Africa, 2019). The persistence of these spatial inequalities is worrisome given post-apartheid policies and strategies aimed at redressing past imbalances (e.g. Black Economic Empowerment, social grants, housing, education and public health policies). Such persistence possibly reflects the superficial erasure of FH areas as administrative units but not a re-configuration of their structural elements such as composition and ingrained disadvantage (Jensen and Zenker, 2015).

Against this background, this study follows the rising global literature on the role of historical institutions in shaping modern-day socioeconomic outcomes. We investigate the unemployment rate gap between FH and NFH areas in South Africa and explore the underpinning factors. There are three possible reasons why unemployment could be higher in former compared to NFH areas. First, labour demand is relatively lower in FH areas. New economic geography theory posits that historically densely populated areas become more industrialised due to possibility of

increasing returns to scale (Krugman, 1991; von Fintel, 2018). However, institutional failure under apartheid interrupted the 'natural' industrial agglomeration process that could have occurred in FH areas (von Fintel, 2018). Second, the human capital theory predicts a positive correlation between an individual's amount of human capital and their chances of employment. Relative to NFHs, residents of FH areas suffer acutely from a human capital deficit; a feature shaped by apartheid policies that deliberately rationed education opportunities for blacks. This low knowledge infrastructure generally discourages economic activity in FHs, coupled with low physical infrastructure. Third, selection of more capable individuals out of FHs since the elimination of pass-laws potentially contributed to observed unemployment spatial patterns. Arguably, motivated individuals of the working-age equipped with human capital, networks and financial support out-migrated to areas with higher employment opportunities. Consequently, this left a pool of discouraged workers with little human capital and financial resources in FH areas. In addition, ongoing in-migration of unsuccessful job seekers from NFH areas partly contributes to increasing unemployment in FHs (Banerjee et al., 2008; Klasen and Woolard, 2008). In view of this, the present study seeks to enhance our understanding of whether the contemporary unacceptably high rate of unemployment is partly due to structural rigidities associated with FH policies.

The remainder of this paper is structured as follows: Section 2 discusses the institutional setting and reviews the extant literature on unemployment in South Africa. Section 3 presents the data and methodology; section 4 presents and discusses the results while section 5 concludes.

2. Institutional setting: Homelands and unemployment in South Africa

2.*1 Apartheid homeland policy*

Post-apartheid South Africa's regional disparities in unemployment are rooted in the country's pre-democratic racial discrimination policies. Although started during colonialism, race-based spatial segregation in South Africa was made more forceful by the apartheid system. White settlers' competing demand for cheap labour in the agriculture and mining sectors weakened black African peasantry (Todes and Turok, 2018). The 1913 and 1936 Land Acts confined the majority black population to 13% of the country's land. Ensuing loss of subsistence farming opportunities forced blacks into waged farm labour. Black men also entered into circular migration as cheap mine workers while their families stayed behind in the reserves (Todes and Turok, 2018; von Fintel, 2018). This migrant labour system was bolstered by the 1923 Native

Urban areas Act which classified blacks as temporary residents in towns and disallowed them to buy or rent land in white areas (Todes and Turok, 2018).

In 1948, the Nationalist Party ascended into power and institutionalised the apartheid system. This promoted separate development among the country's racial groups but maintaining white hegemony. Importantly, the Bantustan or homelands policy was enacted to remove blacks from white urban areas to their 'official' residence in rural areas. The homelands[2] only spanned the geographic area demarcated for blacks by the 1913 and 1936 Land Acts (von Fintel, 2018). Administratively, the Bantu Authority Act (1951), Bantu Self-Government Act (1959) and Bantu Homelands Citizenship Act (1970) allowed the homelands to be independent self-governing units. That is, blacks were marginalised from the country's mainstream socioeconomic and political systems as they were declared homeland citizens (von Fintel, 2018). They also received poor quality education, public services and infrastructure than whites under the Bantu Education Act (1953) and the Reservation of separate amenities Act (1953).

Local unemployment was rife in homelands owing to non-existent formal economic opportunities. Agriculture was not a viable option due to poor soils and high population density. Apartheid policies on industrialisation also disallowed industrial development (von Fintel, 2018). Instead, homelands bordered on large cities or towns such that blacks had to commute long distances to work in surrounding industries and farms; reinforcing the migrant labour system (Todes and Turok, 2018). This movement into white areas was however restricted bypass laws under the Black (Natives) Laws Amendment Act (1952). Within towns, the Group Areas Act (1950) further segregated non-whites to townships located at the towns' periphery. At the dawn of democracy in 1994, the apartheid system was abolished and homelands were re-incorporated into South Africa's nine provinces. Since then the post-apartheid government has designed several policies and programmes to reconstruct and transform the country. Regardless, spatial disparities in economic activities and well-being still saddle socioeconomic development in South Africa (David et. al., 2018). This calls for studies that shed light on the factors perpetuating apartheid-engineered spatial patterns to inform policy.

2.2 Previous studies of unemployment in South Africa

To date, much literature on unemployment in South Africa has been pitched at national level (e.g. Kingdon Knight, 2004 and 2007; Banerjee et al., 2008; Davies and Thurlow, 2010; Posel et

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[2] Ten homelands were established from the 1950s to the 1990s to each accommodate a certain ethnic group; Transkei, Bophuthatswana, Ciskei, Venda, Gazankulu, KaNgwane, KwaNdebele, KwaZulu, Lebowa, and QwaQwa.

al., 2014). Some studies have focused on a contextualised definition of unemployment for the country (Kingdon Knight, 2006; Posel et al., 2014). Such studies regularly find that South Africa's unemployment burden extends beyond the ILO's official definition. The latter only counts active job-searchers within a given reference period, yet in South Africa there are non-searchers who are genuinely available for work – discouraged workers. For individuals in rural areas, this inactivity is partly spurred by poverty and high job search costs linked to spatial inequity of job opportunities and places of residence (Kingdon Knight, 2007; Banerjee et al., 2008; Ardington et al., 2016). Thus, a broader definition of unemployment which relaxes the active job search criterion gives a better characterisation of unemployment in South Africa. Excluding discouraged workers from the unemployed may understate the incidence by about 10% points (Posel et al., 2014).

The South African incongruity of high involuntary unemployment coinciding with a very small non-farm informal sector, by African standards, has also attracted attention in the literature (Kingdon Knight, 2004 and 2007; Nattrass and Walker, 2005; Banerjee et al., 2008; Davies and Thurlow, 2010). This follows as the unemployed tend to be less happy (worse-off) than the informally employed (Kingdon Knight, 2004). Uncovered reasons for the small informal sector include barriers to entry due to high crime, lack of credit, high start-up costs for small businesses, and a low spirit of entrepreneurship deliberately cultivated during apartheid (Banerjee et al., 2008). Davies and Thurlow (2010) further established that formal-informal sector linkages partly explain the inability of the unemployed to enter informal labour markets. While some formal sector policies (e.g. trade liberalisation and wage subsidies) increase formal sector employment, they tend to lower informal sector production and employment.

Enquiry has also been accorded towards uncovering broad reasons for high and rising unemployment in South Africa. Distinguished reasons include slow economic growth, slow growth in labour demand relative to labour supply, labour market rigidities associated with institutions and legislation (Kingdon Knight, 2007; Banerjee et al., 2008; Hodge, 2009). For instance, labour legislation relating to hiring and firing of workers is stringent which deters investment, and labour unions preclude wage decline to absorb excess labour (Banerjee et al., 2008). Another reason has been an influx of unskilled labour in the job market, e.g. black women, which occurred concurrently to a decline in demand for such skills. The latter rested on a decline in unskilled labour intensive industries such as mining and agriculture coupled with an increase in skill-biased sectors such as finance (Banerjee et al., 2008). Skill biased technical change associated with trade liberalisation further reduced demand for unskilled labour in South Africa (Banerjee et al., 2008).

Other studies investigated the heterogeneity of unemployment across South African demographic groups (e.g. Kingdon Knight, 2007; Banerjee et al., 2008; Klasen and Woolard, 2008). A racial ladder of unemployment experiences subsists in South Africa. Africans suffer from the highest share of unemployment followed by coloureds, Indians and whites, respectively (Kingdon Knight, 2007). This result is partly underlain by the country's unequal distribution of human capital among the population groups. Unfortunately, South Africa's racial unemployment spread further manifests itself in the country's high poverty and deep inequality profiles. For the gender group, women suffer from higher unemployment when compared to men. The incidence of unemployment is, however, worrisomely high and increasing among young compared to older people in South Africa, young graduates are also not being spared (Bhorat, 2004; Ardington et al., 2016). This implies an urgent need to place young people into jobs as they inform the health of the country's current and future labour forces.

Inspired by apartheid policies of spatial mismatch between residential areas and employment opportunities, some studies have considered the regional distribution of unemployment in South Africa. However, much focus has been on the rural-urban divide where unemployment is found consistently higher in rural than urban areas (Banerjee et al., 2008; Kingdon and Knight, 2007; Klasen and Woolard, 2008). This rural-urban unemployment gap is partly explained by very few economic activities in rural than urban areas, and the need to survive unemployment without state support. Some unemployed youth in rural areas delay leaving homes of family and friends as they attach themselves to those who receive state old age pension, which serve as a private safety net (Klasen and Woolard, 2008). However, this works to delay their job finding process and pull the households into poverty (Banerjee et al., 2008; Klasen and Woolard, 2008). It is notable that the contrary may also occur, Ardington et al. (2016) maintain that state old age pension may fund rural-urban job search for some prime aged men.

Provincial level disparities in unemployment have also emerged in the literature. Reddy et al. (2016) reported significant variations in economic activities across South Africa's nine provinces. For instance, in 2014 Gauteng contributed close to a third of the country's gross domestic product - GDP. A similar proportion was contributed by KwaZulu-Natal and Western Cape combined, while the remainder was collectively contributed by Eastern Cape, Limpopo, Mpumalanga, North West, Free State and Northern Cape provinces. This regional contribution to GDP synchronises with the shares of the employed population by province. Unemployment is also evident in all provinces, albeit with varying magnitudes. For instance, during the first quarter of 2019, the official (broad) unemployment rate for the Western Cape was 19.5% (22.7%); Gauteng 28.9% (33.6%); Eastern Cape 37.4% (48.3%); Limpopo 18.5% (43.1%)

(Statistics South Africa, 2019). There is, however, a need to unpack the root cause of these spatial differences. To some extent, it appears as if provinces that carry a larger proportion of FH areas have higher unemployment rates than those that do not. Hence, a 'scarring effect' associated with the historic burden of FH areas could be at play. However, available evidence does not educate us on whether post-apartheid reconstruction and development policies managed to bridge the gap in unemployment between former and NFH areas in South Africa. This study seeks to fill this gap.

3. Methodology and data

3.1 Methodology

We estimate and decompose the unemployment rate gap between FH and NFH areas using the Oaxaca (1973) and Blinder (1973) decomposition approach. This approach allows us to gain a full understanding of the factors underpinning unemployment gaps by disentangling the effect of differences in and returns to observed characteristics. The decomposition is possible by comparing actual and counterfactual unemployment distributions across areas. This requires a first step estimation of the following unemployment functions by OLS:

$$U_{i,k,d} = X'_{i,k,d}\beta_{k,d} + u_{i,k,d} \tag{1}$$

$$\text{for } k \; \epsilon \{NFH, FH\} \text{ and } \forall \; d \leq 1, 2, \dots, 30^+\text{km}.$$

where $U_{i,k}$ is the unemployment rate of main place i classified as a NFH or FH area located at distance d from the closest FH boundary; X is a set of main place covariates (i.e., composition by age, race, gender, education, marital status, urban and provincial location) and u is the error term. Effectively, we estimate 30 regressions for each k. In the second step, we compute the unemployment gap for FH vs NFH areas using estimates from equation (1) and decompose it into the endowment and coefficient effects as follows (c.f. Jann, 2008):

$$\bar{\bar{U}}_{FH,d} - \bar{\bar{U}}_{NFH,d} = \bar{X}'_{FH,d}\left(\hat{\beta}_{NFH,d} - \hat{\beta}_{FH,d}\right) + \left(\bar{X}_{NFH,d} - \bar{X}_{FH,d}\right)'\hat{\beta}_{NFH,d}$$

$$\text{for } \forall \; d \leq 1, 2, \dots, 30^+\text{km} \tag{2}$$

where $\overline{U}_{FH,d}$ is the predicted average unemployment rate for FH areas at the corresponding distance threshold; similarly $\overline{U}_{NFH,d}$ is the predicted average unemployment rate for NFH areas at the corresponding distance; $\bar{X}$ are the average values of all characteristics for NFH and FH areas while $\hat{\beta}$ is a vector of returns to these characteristics estimated by OLS. The first component on the right-hand side is the part of the unemployment rate gap that is due to differences in returns to main place characteristics (i.e., coefficient effect). This identification is enabled by comparing FH's actual and counterfactual unemployment distributions. The counterfactual distribution captures the rates of unemployment that would have prevailed in FH areas if they maintained their characteristics but had the returns of NFH areas. To isolate the contribution of differences in main place characteristics across areas, we compare NFH's actual and counterfactual unemployment distributions. The counterfactual distribution is the unemployment rate that would have prevailed in NFH areas if they had characteristics of FH areas. This yields the second component (i.e., endowment effect).

To gain insights on factors underpinning the unemployment gap, we further decompose the total or 'raw' gap to obtain detailed contributions of each set of predictors (i.e., gender, age, education, employment status and location). The individual predictor contributions are easily retrieved using equation (3) since the total explained component is simply a sum of the individual predictor contributions (c.f. Jann, 2008):

$$(\bar{X}_{FH,d} - \bar{X}_{NFH,d})'\hat{\beta}_{NFH,d} = (\bar{X}_{1,NFH,d} - \bar{X}_{1,FH,d})'\hat{\beta}_{1,NFH,d} + (\bar{X}_{2,NFH,d} - \bar{X}_{2,FH,d})'\hat{\beta}_{2,NFH,d} + \cdots \quad (3)$$

where d, *FH* and NFH are as previously defined, $\bar{X}_1$ and $\bar{X}_2$ are the means of the single regressors and $\hat{\beta}_1$, $\hat{\beta}_2$ are the corresponding coefficients; the first and second summands are the contributions of area differences in X_1 and X_2, respectively. The coefficient effect is also decomposed in the same way with due consideration given to the parameter invariance problem (see Yun, 2005). Given the spatial nature of the dataset, robust standard errors are clustered by municipality to account for possible spatial correlation.

Notably, the analysis is conducted by distance as it provides us an opportunity to obtain deeper insights into the factors underpinning the observed spatial gap. In light of apartheid policies, main places that are further off from FH areas are most likely to be systematically different from those relatively closer. Thus, inclusion of all main places in the analysis is expected to result in

the endowment effect predominantly explaining the unemployment gap. Truncating the analysis by distance allows us to refine the sample to that composed of main places that have more or less similar observed characteristics. In this case, the unemployment rate gap is more likely to be explained by the coefficient effect since there will be small differences in main-place characteristics. The distance limiting 'experiment' allows us to compare main places just-inside and just-outside FH area boundaries which enables us to identify the existence of a 'scarring effect' i.e., the effect of the FH status on unemployment. Admittedly, this cannot be interpreted as a *pure* causal effect as the coefficient effect also captures main place unobservable characteristics. Nevertheless, a small coefficient effect would suggest a weak 'scarring effect' implying that there is room for reducing the plight of FH areas by interventions aimed at improving their endowments. If the coefficient effect is considerable, then the possibility of 'scarring' cannot be ruled out. In this case, addressing the unemployment problem in FH areas with the usual policies targeted at observable compositional characteristics of FH areas will yield limited results.

3.2   Data

This study uses cartographic data and the 2011 population census community profiles at the main-place level from Statistics South Africa (StatsSA). Cartographic data consists of two maps; one with FH area geography and the other for the 2011 South African administrative boundaries. Using geographic information system techniques, we overlay the FH area map onto the 2011 South African map. We then compute the share of a main place that constitutes a FH area. In the 2011 South African geography there are 14 039 main places[3]; these are geographic units which largely correspond to towns, small cities, regions of large cities or tribal areas. Using the share of a main-place that is a FH area, we identify 2,179 (16%) main places that fall completely outside FH areas. This is what we refer to as NFH areas. Main places that fall completely inside 10,280 (73%) or partially inside 1,580 (11%) former homelands are collectively referred to as FH areas. For each main place (centroid), we calculate distance (in kilometres) from the closest FH boundary.

The second data source is the 2011 population census community profiles. It contains information on main place demographic and socio-economic characteristics (e.g., age, race, gender, education, marital status, employment status, rural/urban classifications, and access to telephone) for the 14,039 main places in the 2011 geography. Main place profiles and

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[3] See Figure A.1 in the Appendix for a description of the 2011 South African geography.

cartographic information are merged using the unique main place identifier. Our key variable, unemployment rate, is the percentage of working age individuals in a given main place that are unemployed. For the main results, we use the expanded/broad definition of unemployment i.e., percentage of the workforce that is unemployed and is either actively searching for employment or not. The 'strict'/official definition of unemployment i.e., percentage of the workforce that is unemployed but is willing and able to work and is actively seeking employment is used for robustness checks. Intuitively, the expanded definition is more relevant to our analysis as it includes discouraged workers – a phenomenon more likely to be prevalent in former relative to non-former homeland areas. For the analysis, we drop 352 (2.5%) main places with missing information on our key variables; this includes natural reserves. We drop the Western Cape Province due to its peculiarity of being a purely NFH area. This drops an additional 322 main-places. The data delimiting process leaves 13 365 main places (95%). Descriptive statistics for the final data are presented in Table 1.

Statistics indicate that the average share of FH areas in main places is 83% overall, 0% in NFH area main places (by definition) and 95% in FH area ones. Under the strict definition, overall unemployment rate is 32%. Disaggregation by FH status reveals that FH areas have higher levels of unemployment (33%) relative to NFH areas (24%). The 9% point difference is statistically significant. Including discouraged workers amplifies the overall unemployment rate to 59%. We observe that the discouraged worker problem is a national issue. However, it is acute in FH areas where the unemployment rate increases by 28% points compared to the 14% points for NFH areas.

To explore the spatial distribution of unemployment in South Africa[4], Figure 1 maps the unemployment rates highlighting the location for FH areas. Evidently, FH areas display high levels of unemployment relative to NFH areas. The spatial distribution also shows considerable heterogeneity across and within FH areas. We observe that FH areas in the Eastern Cape and KwaZulu Natal provinces have relatively higher concentrations of unemployment compared to those in Northern Cape and North-West provinces.

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[4] Note that the map includes Western Cape Province which is excluded in the final estimations.

Table 1: Descriptive statistics

	All		Former homeland		Non-Former homeland		t-test	
	Av.	SD.	Av.	SD.	Av.	SD.	Diff.	*p*-value
% Share of former homeland	82.74	36.15	95.38	17.32	0.00	0.00	95.38	0.00
% Unemployed (strict)	32.09	21.84	33.30	22.33	24.21	16.27	9.09	0.00
% Unemployed (expanded)	58.51	23.92	61.66	22.41	37.86	23.25	23.80	0.00
% Aged: 15-25 yrs	40.90	8.86	42.36	7.74	31.34	9.73	11.02	0.00
26-35 yrs	19.91	5.72	19.25	5.37	24.23	6.08	-4.98	0.00
36-45 yrs	14.75	4.33	14.16	3.94	18.62	4.74	-4.46	0.00
46-55 yrs	13.43	4.07	13.18	3.93	15.06	4.54	-1.89	0.00
56-65 yrs	11.02	4.67	11.06	4.47	10.75	5.80	0.30	0.01
% Female	54.73	6.41	55.45	5.94	50.00	7.31	5.45	0.00
% Black	95.89	15.03	99.17	4.60	74.39	32.16	24.78	0.00
% Coloured	1.60	9.60	0.21	1.48	10.70	24.20	-10.48	0.00
% Indian	0.38	2.98	0.17	1.53	1.79	7.03	-1.62	0.00
% White	2.13	9.68	0.45	3.52	13.12	22.04	-12.67	0.00
% Married	35.44	9.83	34.18	8.40	43.73	13.67	-9.56	0.00
% No schooling	19.17	14.69	20.14	14.91	12.85	11.32	7.29	0.00
% Primary	28.47	12.51	29.41	12.44	22.28	11.13	7.13	0.00
% Incomplete secondary	32.21	10.16	32.16	10.33	32.53	8.97	-0.37	0.15
% Complete secondary	16.70	10.34	15.45	9.57	24.93	11.42	-9.48	0.00
% National technical certificate	2.03	2.89	1.71	2.27	4.09	4.92	-2.38	0.00
% Tertiary education	1.43	3.12	1.14	2.18	3.32	6.18	-2.18	0.00
% Cellphone access	80.94	13.28	80.45	13.41	84.21	11.91	-3.76	0.00
Rural	0.89	0.32	0.97	0.18	0.38	0.49	0.58	0.00
Eastern Cape	0.46	0.50	0.51	0.50	0.15	0.35	0.36	0.00
Northern Cape	0.02	0.16	0.01	0.11	0.11	0.31	-0.09	0.00
Free State	0.02	0.15	0.01	0.10	0.10	0.31	-0.09	0.00
KwaZulu Natal	0.23	0.42	0.22	0.42	0.28	0.45	-0.06	0.00
North West	0.05	0.22	0.05	0.21	0.07	0.25	-0.02	0.00
Gauteng	0.02	0.13	0.00	0.04	0.12	0.33	-0.12	0.00
Mpumalanga	0.04	0.19	0.03	0.17	0.09	0.29	-0.06	0.00
Limpopo	0.16	0.36	0.17	0.37	0.08	0.27	0.09	0.00
N	13,365		11,593		1,772			

Figure 1: Spatial distribution of unemployment (expanded) in South Africa, 2011
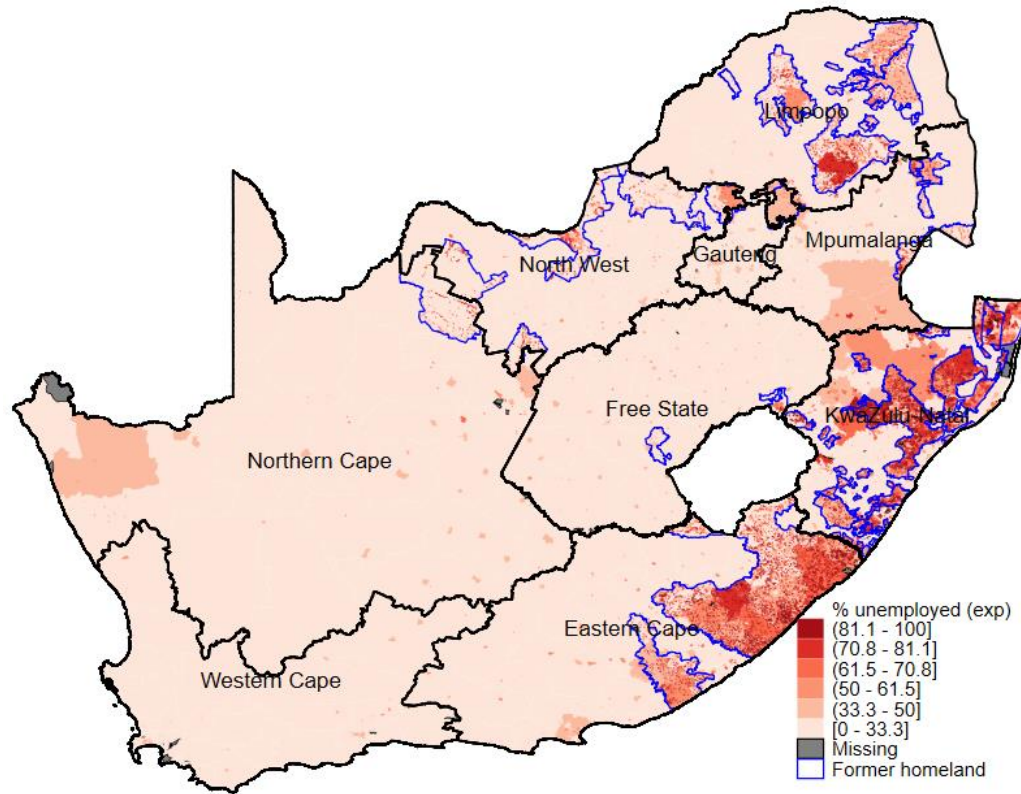
Turning to demographic composition, we observe that South Africa's population is youthful; the 15-35 years age group accounts for the highest proportion of the country's work force. The share of young (15-25 years) and likely inexperienced workers is 11% points higher in FH relative to NFH areas. On the contrary, NFH areas have a higher share of older and perhaps more experienced workers. In terms of gender composition, FH areas have a statistically significant higher share of women (5% points) compared to NFH areas. This could be reflective of the continued migratory worker system characterised by an outflow of men from FH to NFH areas in search for work.

Despite the dismantling of apartheid, FH areas have maintained their original racial structure. In contrast, we observe a racial mix in NFH areas that broadly reflects the South African racial structure. Notably, the Indian/Asian and White population has maintained residence in NFH areas. On average, 35% of South Africans are married/cohabiting. The share of married/cohabiting persons is relatively larger in NFH (44%) than FH areas (34%). As a proxy for social cohesion and stability – these statistics suggest that FH areas perform poorly on these attributes. The share of individuals with at least complete secondary and tertiary education is 12% points higher in NFH compared to FH areas. In contrast, FH areas have a 14% points higher share of individuals with no schooling, primary and incomplete secondary education. Clearly, the education distribution is inferior in FH relative to NFH areas. Access to cellphone is generally high in South Africa (81%), although persons in FH have a slightly lower access than those in NFH areas. Statistics affirm that FH areas are predominantly rural while NFH areas are mostly urban. Lastly, Eastern Cape, Limpopo and KwaZulu Natal provinces have the highest share of main places in FH areas compared to other provinces.

4. Results

This section presents and discusses our main results. The first step OLS results are presented in Table A.1 in the Appendix, while Figure 2 and Table 2 present the decomposition results. We also present results for some robustness checks; using an alternative definition of unemployment (i.e., the strict definition) and a restricted definition of FH areas (i.e., main places that fall completely inside FH areas). We report robust standard errors clustered by municipality to account for possible spatial correlation.

Main results

Figure 2 provides a visual illustration of the 'raw' unemployment rate gap between FH and NFH areas, as well as the endowment and coefficient effects by distance from FH boundaries. Note that the 30km+ distance is a top-coded value that includes all main places located thirty or more kilometres from the closest FH border. Table 2 presents point estimates for selected distances. The overall 'raw' unemployment gap of 24% points indicates that FH areas have significantly higher levels of unemployment relative to NFH areas. The gap narrows as distance from a FH border decreases; from the overall 24% to 10% points within a 5km radius. The gap further decreases to 7% points when distance is restricted to main places within 2km of a FH border. The existence of a significant unemployment rate gap, even within smaller distances 2-5km, highlights the disadvantaged position of FH areas within their purlieu.

Figure 2: Decomposition results of unemployment gap between FH and NFH areas
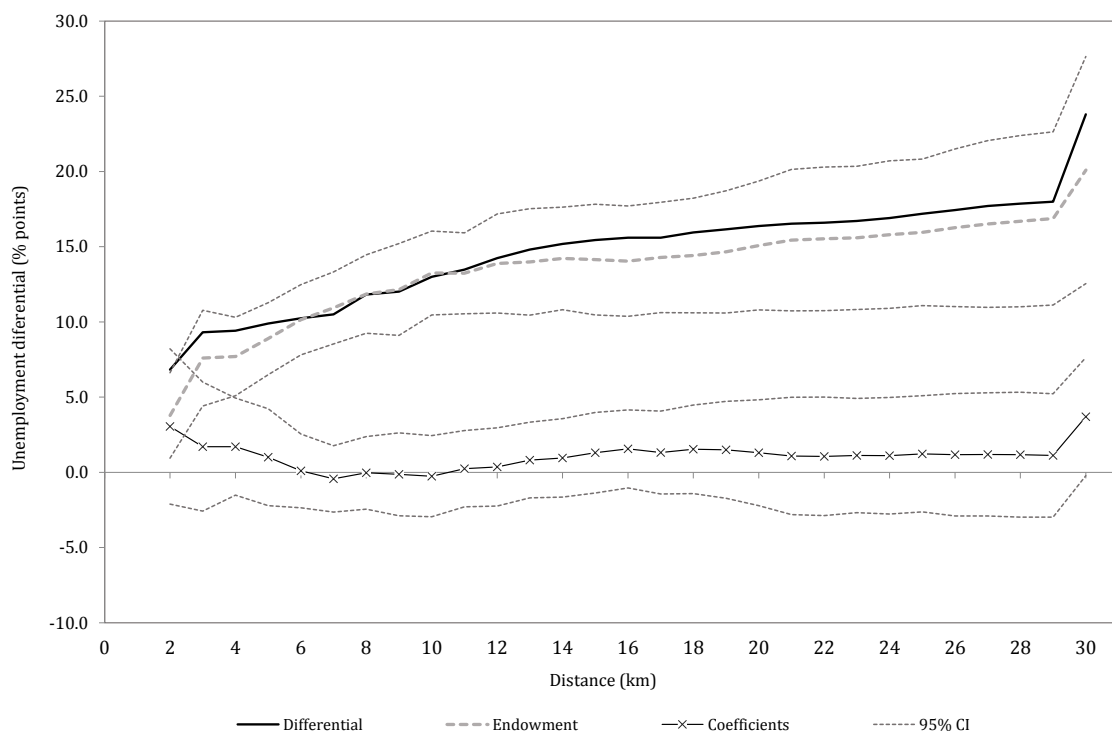
Decomposition of the 'raw' unemployment rate gap provides some insights into the mechanism underpinning the gap. We find that 84% of the 'raw' gap (i.e., 20% points) is due to differences in observed main place characteristics. The remainder of the 'raw' gap (i.e., 4% points or 16%) is attributable to differences in coefficients. Intuitively, as distance from FH areas truncated, the role of differences in endowments tends to decrease consistently.

Table 2: Overall and detailed decomposition results for unemployment between NFH and FH areas (baseline)

	All		±5km		±10km		±15 km		±20km	
	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.
Former Homeland	61.66	(0.70)	58.88	(0.88)	60.07	(0.81)	60.60	(0.78)	60.93	(0.75)
Non-Former homeland	37.86	(1.42)	48.98	(2.39)	47.07	(2.58)	45.16	(2.36)	44.55	(2.24)
Difference	23.80	(1.49)	9.90	(2.26)	13.00	(2.45)	15.45	(2.27)	16.38	(2.18)
Endowment effect:										
Total	20.10	(1.80)	8.89	(2.10)	13.25	(2.35)	14.14	(2.24)	15.08	(2.21)
Age	4.49	(1.22)	1.41	(1.22)	3.65	(1.11)	3.17	(1.15)	3.47	(1.15)
Gender	4.17	(0.64)	2.31	(0.81)	2.55	(0.72)	2.86	(0.71)	2.97	(0.72)
Race	4.59	(0.74)	0.87	(0.82)	1.64	(0.81)	1.80	(0.86)	2.22	(0.86)
Marital status	3.29	(0.68)	1.20	(0.70)	1.16	(0.65)	1.23	(0.65)	1.17	(0.58)
Education	3.12	(0.82)	1.24	(0.74)	2.48	(0.90)	3.22	(0.97)	2.79	(0.91)
Rural	0.48	(0.57)	1.01	(0.64)	0.53	(0.62)	0.66	(0.54)	1.29	(0.56)
Communication	0.31	(0.28)	-0.05	(0.13)	-0.16	(0.19)	-0.19	(0.23)	-0.09	(0.25)
Province	-0.36	(0.71)	0.91	(0.71)	1.40	(0.74)	1.41	(0.75)	1.25	(0.81)
Coefficient effect										
Total	3.70	(1.42)	1.01	(1.37)	-0.25	(1.17)	1.31	(1.37)	1.30	(1.42)
Age	2.70	(10.23)	-24.42	(17.87)	-14.77	(15.39)	-17.48	(14.54)	-11.28	(14.62)
Gender	-24.90	(6.95)	-21.82	(11.90)	-24.18	(10.54)	-24.08	(9.86)	-24.29	(9.65)
Race	17.53	(9.47)	30.72	(13.88)	27.26	(10.70)	28.61	(10.78)	26.18	(10.84)
Marital status	5.70	(2.71)	7.77	(6.12)	3.46	(4.84)	3.27	(4.52)	2.24	(3.92)
Education	73.37	(16.08)	26.79	(42.97)	60.53	(20.77)	50.83	(20.39)	57.56	(18.73)
Rural	3.91	(1.31)	0.12	(2.48)	2.37	(2.20)	2.72	(1.78)	1.38	(1.67)
Communication	-1.56	(5.92)	-14.91	(9.19)	-16.34	(7.41)	-15.57	(7.12)	-10.46	(6.92)
Province	2.53	(1.10)	4.25	(2.53)	4.99	(1.97)	5.29	(1.61)	5.27	(1.51)
Constant	-75.57	(22.69)	-7.49	(42.10)	-43.58	(34.57)	-32.28	(31.51)	-45.30	(28.89)
N	13 365		4 906		7 052		8 513		9 610	
NFH|FH area	1771|10046		301|4 605		540|6 512		683| 7 830		798| 8 812	

Notes: Robust standard errors in brackets are clustered by municipality.

Table 2 shows a decline from the endowment effect from 20% points to 9% points within the 5km radius. A further distance truncation to main places within the 2km radius (results not presented here) leaves a smaller endowment effect (4% points) which remains statistically significant. The result contrasts with that for the coefficient effect, which is relatively small (at most 4% points) and is statistically insignificant, except when all main places are included. Accordingly, our results indicate that the unemployment rate gap between FH and NFH areas is primarily due to differences in observed main place characteristics. This result implies that the observed spatial unemployment rate gap can be reduced to single-digit by bringing to parity FH and NFH area characteristics.

Although overall decompositions provide insights on the composite endowment and coefficient effects, it does not shed light on the contribution of each main place characteristic. This information is retrieved via detailed decompositions (equation 3) and results are presented in Table 2. Generally, our results show considerable heterogeneity in the importance of the different main place characteristics in shaping both the endowment and coefficient effects. Pertaining to the endowment effect, overall results indicate that differences in age, gender and racial composition are the key factors that serve to widen the unemployment rate gap with each accounting for about a fifth of the 'raw' gap. Also important are differences in marital status and education composition that account for 13% of the unemployment gap. In contrast, differences in access to communication tools, rural and provincial locations are statistically insignificant.

Truncating the analysis by distance from FH border shows that compositional differences in gender, marital status and education are significant contributors to the unemployment rate gap, albeit with varying intensities by distance. For this set of factors, compositional difference in gender is generally the highest contributor followed by education and then marital status. Collectively these factors account for 45-53% of the endowment effect. Differences in age and racial composition also contribute to the unemployment rate gap; however, their influence is statistically insignificant within the 5km radius. Thus, disparities in these factors become evident the further main places are from former homeland areas. We find statistically insignificant effects for differences in access to communication tools while results for rural and provincial location are not robust.

As for the coefficient effect, it is only statistically significant for the overall analysis where it accounts for 16% of the 'raw' unemployment rate gap. Although the overall coefficient effect is statistically insignificant, detailed decompositions reveal some instances where it is significant. Detailed analysis shows that returns associated with gender tend to reduce the unemployment

gap – a result that is robust regardless of distance. Returns for access to communication tools also reduces the unemployment rate gap, however, the importance of this factor is not robust by distance. We find that differences in returns to education, race and province tend to increase the unemployment rate gap while returns to rural location and marital status widen it. Overall, our main finding is that the unemployment rate gap between FH and NFH areas is mostly explained by differences in endowments; the role of coefficients is minimal.

Robustness checks

We conduct some robustness checks for our results to alternative definitions of FH area status and unemployment. Under baseline estimates, a main place is classified as a FH area if its share of FH area is greater than zero. However, there is great heterogeneity in the share of FH area across main places ranging between 0% and 100%. This potentially dampens the estimated unemployment gap since main places that are partially FH areas are more likely to be better off compared to those that are complete FH areas. To assess the sensitivity of our results, we re-estimate the unemployment gap and decomposition using a sub-sample of main places that are entirely FH areas. This excludes main places that are partially FH areas from the analysis (i.e., strict FH areas definition). The second robustness check examines sensitivity of our results to the definition of unemployment. Baseline estimates are based on the expanded/broad definition that includes discouraged workers. In the robustness check, we use the strict/official definition of unemployment that excludes discouraged workers. Table 3 and Figure A.2 in the Appendix present the results.

Table 3: Robustness checks

	Baseline		Robust I: Strict FH areas		Robust II: Strict unemp.	
	All	±5km	All	±5km	All	±5km
FH area	61.66	58.88	62.82	61.27	33.30	32.97
	(0.70)	(0.88)	(0.67)	(0.86)	(0.55)	(0.60)
NFH area	37.86	48.98	37.86	48.98	24.21	28.20
	(1.42)	(2.39)	(1.42)	(2.39)	(0.68)	(1.49)
Gap	23.80	9.90	24.96	12.29	9.09	4.77
	(1.49)	(2.26)	(1.53)	(2.48)	(0.83)	(1.47)
Endowment	20.10	8.89	20.97	10.95	8.47	3.59
	(1.80)	(2.10)	(1.89)	(2.34)	(0.94)	(1.34)
Coefficient	3.70	1.01	3.99	1.35	0.62	1.18
	(1.42)	(1.37)	(1.56)	(1.54)	(0.98)	(1.32)
N	13365	4906	11816	3357	13365	4906
N: NFH| FH area	1 772|11593	301|4605	1772|10044	301|3056	1771|10046	301|4605

Notes: Robust standard errors in brackets are clustered by municipality.

Exclusion of main places that are partial FH areas results in a marginal increase in the FH area unemployment rate from 62 to 63% points. For the overall and 5km radius, we find very small changes in the endowment and coefficient effect estimates suggesting that our results are robust. This stability is also evident at various distances (see Figure A.2). Pertaining to the sensitivity check for an alternative measure of unemployment, we find considerably lower levels of unemployment in both FH and NFH areas. The large differences in unemployment rates between the strict and expanded definition highlights the problem of discouraged workers in South Africa. When ignoring discouraged workers, the unemployment gap between FH and NFH areas is modest (9% points). This is in comparison to 24% points when the expanded definition is used. Regardless of unemployment definition used, we find that the endowment effect dominates the coefficient effect and the latter is statistically insignificant. This result is robust to distance truncation as depicted in (Figure A.2). Reassuringly, our results are robust to choice of FH area and unemployment definition.

Discussion of results

Our results uncover a considerable unemployment rate gap mainly explained by differences in endowments between FH and NFH areas. Detailed decompositions for the entire sample indicate that main place compositional differences in age, gender, race, marital status and education are the principal factors explaining over 80% of the observed gap. Truncating the analysis by distance reduces the unemployment gap but statistically significance is maintained. The endowment effect also shrinks with a decrease in distance from a FH boundary; however, it remains statistically significant even at 2-5km distances. The existence of a significant endowment effect in localities that are very close to former homeland borders highlights the strong heterogeneity characterising South Africa's landscape and show the disadvantaged position of FH relative to NFH areas. Age and racial compositional differences become insignificant in localities closer to FH boundaries suggesting that these factors play a crucial role the further removed main places are from FH areas. Noteworthy is the issue of discouraged workers. Indeed, the problem is evident in both FH and NFH areas; however, it is acute in the former.

Our findings have important implications for policy. The unemployment rate gap between FH and NFH areas can be alleviated effectively by interventions that address the poor endowments characterising FH areas. Interventions that improve FH area educational outcomes to similar levels as those in NFH areas would reduce the observed gap by 12-21%. Compositional differences along the gender, age and racial dimensions are largely structural and difficult to equalise across space. However, given that these factors collectively account for 50-60% of the

observed gap dampening their effect will immensely contribute to the reduction of the gap. This can be achieved by carefully designed interventions that improve employability of black South Africans, especially the youth and women. In addition, programmes that promote the growth of industries that can absorb women and youth can immensely contribute towards narrowing the spatial unemployment rate gap. Finally, innovative programmes that address the problem of discouraged workers in FH areas are essential.

5.   Conclusion

In this paper, we examine the extent and nature of the unemployment rate gap between FH and NFH areas in South Africa. Using the 2011 community profiles at the main place level we estimate the unemployment gap and characterise it using the Oaxaca-Blinder (1973) decomposition technique. Results indicate that FH areas suffer from higher levels of unemployment relative to NFH areas. Differences in main place endowments primarily explain the observed unemployment gap while the coefficient effect is relatively small. These results are robust to distance truncations. Detailed decompositions show that the key factors driving the endowment effects are age, gender, race, marital status and education. Thus, initiatives that are sensitive to the structural composition of FH areas are likely to be effective in addressing the plight of FH areas. Comparing unemployment gaps uncovered for the strict and expanded definition of unemployment shows that the problem of discouraged workers is severe in FH areas. Consequently, any policies that seek to reduce this regional unemployment gap should be sensitive to the challenges faced by discouraged workers.

Importantly our findings attest to the role of historical institutions in shaping spatial heterogeneities in contemporary South Africa. This partly hinders the effectiveness of post-apartheid development policies broadly targeted at historically disadvantaged groups, as some require higher dosages of assistance than others. Moreover, developing countries with similar economic history to South Africa should be sensitive of the lasting effects of colonisation on their present-day socio-economic development paths.

This study is not without limitations. The decomposition technique applied enables us to identify whether the regional unemployment gap is due to differences in endowments or coefficients. It also allows us to identify the specific factors underpinning the gap. However, the mechanisms shaping observed endowments across FH and NFH areas remain a black box. For instance, it is unclear why educational attainment in FH areas remains lower than that of NFH areas despite many government interventions. It is also not clear if the over-representation of

youth and women in FH areas is due to contemporary sorting or reflective of the historical migrant worker system. Future studies can shed further insights by investigating these issues.

References

Acemoglu, D., Johnson, S. and Robinson, J.A. (2001). The colonial origins of comparative development: An empirical investigation. *American economic review*, 91(5):1369-1401.

Ardington, C., Barnighausen , T., Case, A. and Menendez, A. (2016). Social Protection and Labour Market Outcomes of Youth in South Africa. *International Labour Review*, 69 (2): 455-470.

Barnajee, A., Galiani, S., Levinsohn, J., McLaren Z. and Woolard, I. (2008). Why has unemployment risen in new South Africa? *Economics of Transition*, 16 (4): 715-740.

Bhorat, H. (2004). Labour market challenges in post-apartheid South Africa. *South African Journal of Economics*, 72(5): 940-977.

Blinder, AS. (1973). Wage discrimination: Reduced form and structural estimates. *The Journal of Human Resources*, 8: 436–455.

Davies, R. and Thurlow, J. (2010). Formal- Informal linkages and unemployment in South Africa. *South African Journal of Economics*, 78 (4): 437-459.

Dell, M. (2010). The persistent effects of Peru's mining mita. *Econometrica*, 78(6):1863-1903.

Nunn, N. (2008). The long-term effects of Africa's slave trades. *The Quarterly Journal of Economics,* 123(1):139-176.

Hodge, D. (2009). Growth, Employment and Unemployment in South Africa. *South African Journal of Economics*, 77 (4): 488-504.

Hino, H., Leibbrandt., M Ratjomose Machema., Shifa, M., and Soudien C. (2018). Identity, inequality, and social protection in the post-apartheid South Africa. Saldru Working Paper 233. University of Cape Town.

ILO. (2019). Unemployment rate by sex and age - ILO modelled estimates, November 2018. Accessed on 3 September 2019 from ILOSTAT.

Jann, B. (2008). The Blinder–Oaxaca decomposition for linear regression models. *The Stata Journal*, 8(4), pp. 453–479.

Jensen, S. and Zenker, O. (2015). Homelands as Frontiers: Apartheid's Loose Ends – An Introduction. *Journal of Southern African Studies*, 41(5): 937-952.

Kingdon, G. and Knight, J. (2004). Unemployment in South Africa: The nature of the beast. *World Development*, 32(3): 391-408.

Kingdon, G. and Knight, J (2007). Unemployment in South Africa, 1995-2003: Causes, Problems and Policies. *Journal of African Economies*, 16 (5): 813-843.

Klasen, S. and Woolard, I. (2008). Surviving unemployment without state support: Unemployment and household formation in South Africa. *Journal of African Economies*, 18 (1): 1-51.

Natrass, N. and Walker, R. (2005). Unemployment and Reservation Wages in working class Cape Town. *South African Journal of Economics*, 73(3): 498-509.

Oaxaca, R. (1973). Male-female wage gaps in urban labor markets. *International Economic Review*, 14: 693–709.

Reddy, V., Powell, H., Visser, M. and Arends, A. (2016). Skills supply and demand in South Africa, LMIP Publication, Human Sciences Research Council, Pretoria.

Statistics South Africa. (2019). Quartley Labour Force Survey, Quarter 1 2019. Statistical Release P0211, Pretoria, South Africa.

Todes, A. and Turok, I. (2018). Spatial inequalities and policies in South Africa: Place-based or people centered? *Progress in Planning*, 123: 1-31.

van der Berg, S. and Bhorat H. (1999). The present as a legacy of the past: The labour market poverty and inequality in South Africa. Working Paper 01/29. Development Policy and Research Unit, University of Cape Town.

Von Fintel, D. (2018). Long-run spatial inequality in South Africa: early settler patterns and separate development. Stellenbosch Economic working papers: WP16/2018.

Yun, MS. (2005). A simple solution to the identification problem in detailed wage Decompositions. *Economic Inquiry*, 43: 766-72.

Appendix

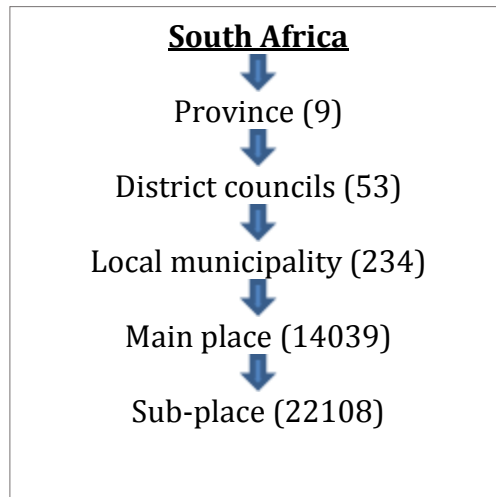Figure A.1: Description of South African Geography (2011)

South Africa

Province (9)
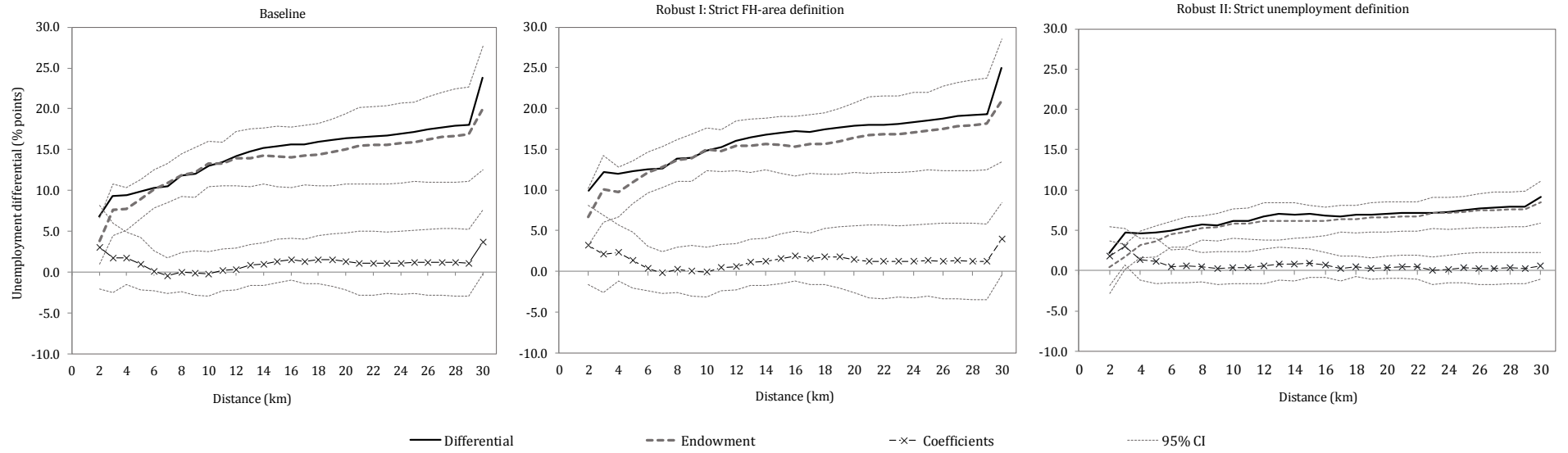
District councils (53)

Local municipality (234)

Main place (14039)

Sub-place (22108)

Figure A.2: Robustness checks

Table A.1: OLS results of unemployment (expanded definition) function (baseline)

| | ALL | | | | ±5km | | | | ±10km | | | |
| | NFH area | | FH area | | NFH area | | FH area | | NFH area | | FH area | |
	Coef.	S. E.	Coef.	S. E.	Coef.	S. E.	Coef.	S. E.	Coef.	S. E.	Coef.	S. E.
% Aged: 15-25 yrs	0.00	(0.05)	-0.05	(0.09)	0.06	(0.08)	0.10	(0.28)	0.01	(0.07)	0.19	(0.20)
26-35 yrs	-0.43	(0.06)	-0.51	(0.10)	-0.60	(0.09)	0.10	(0.26)	-0.54	(0.07)	-0.33	(0.19)
36-45 yrs	-0.41	(0.07)	-0.50	(0.11)	-0.58	(0.10)	-0.63	(0.30)	-0.59	(0.09)	-0.65	(0.22)
46-55 yrs	-0.29	(0.08)	-0.13	(0.13)	-0.41	(0.12)	0.28	(0.38)	-0.42	(0.10)	-0.13	(0.27)
% Female	0.32	(0.04)	0.77	(0.06)	0.56	(0.05)	0.96	(0.19)	0.44	(0.05)	0.88	(0.14)
% Black	0.42	(0.06)	0.24	(0.03)	0.41	(0.07)	0.10	(0.14)	0.41	(0.07)	0.13	(0.08)
% Coloured	0.18	(0.15)	0.13	(0.04)	0.19	(0.15)	-0.11	(0.29)	0.16	(0.16)	-0.14	(0.15)
% Indian/Asian	0.19	(0.15)	0.02	(0.05)	0.19	(0.13)	-0.02	(0.16)	0.18	(0.14)	-0.01	(0.09)
% Married	-0.18	(0.03)	-0.34	(0.05)	-0.14	(0.04)	-0.37	(0.15)	-0.16	(0.03)	-0.27	(0.11)
% No schooling	1.09	(0.11)	0.50	(0.09)	0.81	(0.14)	0.54	(0.43)	0.86	(0.12)	0.37	(0.20)
% Primary	1.11	(0.11)	0.17	(0.10)	0.79	(0.14)	0.51	(0.43)	0.84	(0.12)	0.18	(0.21)
% Incomplete sec.	1.12	(0.11)	0.43	(0.08)	0.76	(0.14)	0.51	(0.42)	0.86	(0.12)	0.21	(0.19)
% Complete sec.	0.90	(0.11)	0.17	(0.09)	0.72	(0.15)	0.41	(0.42)	0.73	(0.13)	0.14	(0.20)
% NTC	0.24	(0.17)	0.01	(0.17)	0.12	(0.24)	-0.07	(0.83)	0.10	(0.21)	-0.75	(0.40)
% Cellphone	-0.10	(0.02)	-0.08	(0.04)	-0.08	(0.03)	0.10	(0.11)	-0.11	(0.02)	0.09	(0.08)
Rural	4.87	(1.18)	0.83	(0.91)	4.22	(1.27)	4.09	(2.99)	4.27	(1.26)	1.78	(2.09)
Northern Cape	1.80	(1.77)	0.01	(1.77)	-1.35	(2.57)	-3.48	(13.18)	-0.05	(2.26)	-3.34	(9.80)
Free-State	0.04	(1.98)	-0.54	(1.42)	-1.84	(2.24)	-6.30	(17.02)	0.10	(1.88)	-1.66	(6.30)
KwaZulu Natal	3.74	(0.61)	-1.16	(1.28)	0.12	(0.86)	-8.22	(3.35)	2.07	(0.75)	-7.27	(2.50)
North West	-0.05	(0.99)	-0.66	(1.63)	0.74	(1.20)	-1.01	(4.84)	0.90	(1.07)	-0.27	(3.83)
Gauteng	0.15	(4.64)	2.01	(1.50)	-2.14	(4.31)	-3.14	(8.28)	0.02	(4.32)	-8.02	(5.38)
Mpumalanga	-0.40	(1.23)	-3.07	(1.57)	-3.38	(1.37)	-8.90	(6.81)	-1.66	(1.28)	-7.47	(5.30)
Limpopo	2.86	(0.65)	-4.99	(1.63)	-2.56	(0.99)	-4.94	(4.08)	-0.68	(0.85)	-7.14	(2.93)
Constant	-75.82	(12.55)	-0.25	(12.31)	-55.36	(16.08)	-47.87	(48.78)	-50.41	(14.34)	-6.83	(27.70)

Notes: Dependent variable: % unemployed (expanded definition). Robust standard errors are clustered by municipality. NTC is national technical certificate.