

Urbanization of Previously Marginalized Races, the Quality of Jobs and Poverty Reduction in the City of Johannesburg, South Africa

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We examine how the urbanization of non-White races relates with poverty reduction in the city of Johannesburg using a panel dataset comprising the city's 7 municipalities (Midrand, Randburg, Roodepoort, Soweto, Alexandra, Johannesburg central and Orange Farm) observed annually between 1994 and 2023. Our identification strategy exogenizes the urbanization of non-White races using variation in unemployment differentials between the city's 7 municipalities and the national unemployment rate. We observe two key findings. Firstly, the urbanization of Black Africans increases poverty in Johannesburg, but the effect is mitigated when urbanization is accompanied by high 'quality' jobs. In the absence of high-quality jobs, the urbanization of Black Africans is found to aggravate poverty. Secondly and interestingly, the urbanization of Indian and Coloured races is associated with a decrease in poverty even in the absence of decent jobs in the city. These results demonstrate that, despite the end of Apartheid in 1994, the effects of urbanization on poverty reduction in South Africa are still unevenly influenced by the country's racial profile. It is therefore necessary for policies that complement the country's rapid urbanization to acknowledge these racial disparities to achieve more equitable outcomes.

Keywords: *urbanization, poverty reduction, economic development, job quality*

Introduction

Urbanization, defined as the increasing proportion of a population residing in urban areas, has become a common feature in the developing world whose effects on poverty reduction have attracted policy interest. Often driven by rural-to-urban migration, natural population growth in cities, and the expansion of economic activities, urbanization has been associated with economic growth, industrialization, and the expansion of services. In developing countries such as South Africa where poverty is most prevalent, urbanization is seen both as an opportunity for economic advancement and a potential risk in the absence of conditioning factors. This paper examines how the urbanization of non-White races and the creation of good jobs influences poverty reduction in the city of Johannesburg, the country's main economic hub.

South Africa went through an Apartheid regime between 1948 and 1994. During this period, the country was governed by an all-white government which prohibited minority races, including Black Africans, from working in central cities together with White people. Non-white South Africans (Black Africans, Indians and Coloured

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people) were compelled to live separately from the White minority race. Black Africans were particularly required to live in overcrowded townships which were primarily a source of cheap labour for nearby cities. These unwelcoming circumstances meant that poverty was disproportionately high among Black Africans who represented the majority race.

Since the end of Apartheid in 1994, the number of non-white races living in urban areas has increased significantly. For Johannesburg, in particular, Black African households living in urban centers have more than doubled, rising from 479 thousand in 1994 to approximately 1.3 million in 2023 (Quantec 2024). This progress has, however, been undermined by a rather disappointing increase in the number of people living below the international poverty line from 930 thousand in 1994 to approximately 1.1 million in 2023. When narrowed down to South Africa's food poverty line¹, the number of poor households in Johannesburg stood at 1.5 million in 2023, up from 987 thousand in 1994 (Quantec 2024).

While the above background has motivated several studies seeking to link urbanization with poverty alleviation in developing countries (Christiaensen et al. 2013, Chen et al. 2019, Ha et al. 2021, Wang et al. 2022, Mwiinde & Munshifwa 2024), the specific channels through which urbanization affects poverty remain unclear. This paper contributes to this literature by considering how the 'quality' of jobs influences the impact of urbanization on poverty reduction in the city of Johannesburg. Rodrik and Sabel (2020) and Rodrik (2022) have argued the need for building a 'good jobs' economy to sustain economic growth and development. Is a 'good jobs' local economy vital for urbanization to lift people out of poverty?

In theory, the relationship between urbanization, the labour market, and poverty reduction is grounded in Lewis' dual economy model. In this theory, urbanization, driven by rural-urban migration, is closely linked to industrialization and productivity growth in modern cities. As labor moves from agriculture to industry, productivity increases, leading to higher incomes, improved living standards and a decrease in poverty. Complementing Lewis' ideas are endogenous growth theories which emphasize the role of cities as centres of innovation, knowledge exchange, and infrastructure development, all of which contribute to economic growth and poverty reduction.

The dual economy, however, highlights the downside of urbanization in the absence of complementary policies. In particular, without supportive policies, rapid urbanization may result in urban slums, informality, increased inequality and high crime rates. In South Africa, majority of urban immigrants in big cities are trapped in low-paying informal activities. This contrasts China's experience where rapid urbanization was instrumental in lifting millions of people out of poverty. The government's investment in infrastructure, housing, and social services facilitated this transition. In India, urbanization has had a more mixed impact on poverty reduction. Cities such as Bangalore and Mumbai have become economic powerhouses,

¹Stats SA employed an internationally recognised approach - the cost-of-basic-needs approach - to produce three poverty lines, namely the food poverty line (FPL), the lower-bound poverty line (LBPL), and the upper-bound poverty line (UBPL). These lines capture different degrees of poverty and allow the country to measure and monitor poverty at different levels. The FPL is the rand value below which individuals are unable to purchase or consume enough food to supply them with the minimum per-capita-per-day energy requirement for adequate health.

yet rural migrants often face challenges related to housing, employment, and access to basic services. The proliferation of slums in major urban areas highlights the uneven benefits of urbanization.

Empirically, Ha et al. (2021) analyze the impact of urbanization on poverty reduction in Vietnam. Using Driscoll and Kraay's method and D-GMM method to estimate the provinces' panel data in the period 2006–2016, they confirm a U-shape relationship between the level of urbanization and the poverty level in Vietnam. Aroui et al. (2017) use data from household surveys to examine the impact of urbanization on poverty. Their results show that urbanization helps decrease the expenditure poverty rate of rural households, albeit by a small magnitude. Literature has little documentation on urbanization and poverty reduction in South Africa. Turok and Borel-Saladin (2014) explore the relationship between urbanisation and living conditions in South Africa over the last decade and find urbanization associated with the growth of informal settlements. We compliment their work by focusing on the urbanization of previously marginalized races and proceed to examine how the availability of good jobs influences the impact of urbanization on poverty in the city of Johannesburg.

We hypothesize that labour markets are crucial in shaping how urbanization affects poverty among the previously marginalized races. We argue that the rural-urban migration is more effective in lifting previously marginalized races out of poverty when accompanied by policies that create good and well-paying jobs in modern cities. In the absence of decent jobs, urbanization may exacerbate poverty, create urban slums, encourage criminality, informality and increase socio-economic disparities. We define 'good jobs or high-quality jobs' in the narrow sense of occupations for skilled workers. These include professional, semi-professional and technical occupations, managerial appointments, executives, administrators, and transport occupations such as pilot navigator. We apply a panel dataset that comprises the city's 7 local municipalities namely Midrand, Randburg, Roodepoort, Soweto, Alexandra, Johannesburg central and Orange Farm. Since urbanization is largely endogenous, we exogenize its variation using the unemployment differentials between each municipality and the national unemployment rate. We argue that a higher national unemployment rate relative to each municipality encourages the migration of job seekers towards Johannesburg which increases urbanization and ultimately affects poverty.

Using the control function approach, our results show that the urbanization of Black African households reduces poverty in Johannesburg areas that create 'high quality' jobs. In the absence of good jobs, the urbanization of Black Africans exacerbates poverty. Secondly and interestingly, the urbanization of Indian and Coloured races is associated with a decrease in poverty even in the absence of decent jobs in the city. These results demonstrate that, despite the end of Apartheid in 1994, the effects of urbanization on poverty reduction in South Africa are still unevenly influenced by the country's racial profile. Regional growth is found to exacerbate poverty in the city for Black Africans highlighting their marginalization from economic development. Additional specifications that consider the alternative measures of poverty reach similar conclusions. We find the urbanization of Black Africans associated with an increase in urban slums (squatter settlements) and a decrease in the income of the bottom ten.

The rest of the paper is organized as follows. Section 2 describes the data and variables used in the analysis. Section 3 outlines the estimation strategy and specifies the empirical models. Section 4 presents the empirical results. Section 5 provides the conclusion and policy recommendations.

Data Description

South Africa has 257 metropolitan, district and local municipalities. This number comprises eight metropolitans (Buffalo City (East London), City of Cape Town, Ekurhuleni Metropolitan Municipality (East Rand), City of eThekweni (Durban), City of Johannesburg, Mangaung Municipality (Bloemfontein), Nelson Mandela Bay Metropolitan Municipality (Gqeberha) and City of Tshwane (Pretoria)), 44 district and 205 local municipalities. We focus on 7 local municipalities which collectively form the City of Johannesburg metropolitan municipality. These municipalities are Midrand, Randburg, Roodepoort, Soweto, Alexandra, Johannesburg central and Orange Farm. Johannesburg, home to the 7 seven municipalities and nicknamed ‘Egoli’ (Place of Gold), is the capital city of Gauteng province and a major economic hub of the country. Being the central hub of economic activities makes it a popular destination for job seekers. Our sampling period stretches from 1995 to 2023 which makes a panel dataset comprising 203 annual observations as $T=29$, $N=7$ and $29*7=203$. The sampling period is dictated by data availability on trade variables which form part of our control variables. Data on trade variables at local municipality level are only available from 1995. Our baseline dependent variable is the number of people living below the international poverty datum line. In additional specifications, we consider the income of the bottom ten and the number of households living in squatter camps. The independent variables of interest are the number of urban Black African households, Coloured and Indian races, and the number of workers employed in high ‘quality’ jobs. As alluded to earlier, we define high ‘quality’ jobs as skilled occupations such as professional, semi-professional and technical occupations, managerial appointments, executives, administrators, and transport occupations such as pilot navigator. Our specifications control for the share of imports on total output also referred to as import penetration, population growth, and output growth. Data on all our variables are sourced from Quantec, a local firm based in Pretoria. This is a reliable data source whose data has been used in prominent work on the South African economy including Rodrik (2008).

Estimation Strategy

We consider the following specification.

$$y_{it} = \beta_0 + \beta_1 m_{it} + \beta_2 n_{it} + \beta_3 m_{it} \times n_{it} + \delta' z_{it} + \varepsilon_{it} \quad (1)$$

where i and t denote area and year, respectively, y is the number of people living below the poverty line, m is the log number of non-White households living in urban

areas of Johannesburg, n is the log number of skilled workers, $m \times n$ is their interaction so that β_3 captures how good jobs influence the impact of urbanization on poverty, z is a vector control variables which include the log of output, the share of imports on output and the log of population. From this specification, the appropriate estimation strategy is primarily based on two considerations namely the count nature of the dependent variable and the endogeneity of urbanization. On the first consideration, the discrete nonnegative nature of our dependent variable suggests that a count data model should be used (Cameron and Trivedi 1998, Winkelmann 2000). Under count data models, there are broadly two types of models to be considered: the Poisson regression model and the Negative Binomial. The former assumes equality of the mean and the variance also known as equidispersion while the latter accommodates deviation from this assumption i.e., under and overdispersion. Customarily, validity of the equidispersion (i.e., mean=variance) assumption is first checked as deviation from this assumption potentially leads to biased estimates of the variance-covariance matrix which invalidates the statistical inference performed on the model (Guimaraes & Lindrooth 2005). In cases of overdispersion, which is common, the Negative Binomial regression is usually chosen over a Poisson regression (Lord 2006, Chin and Quddus 2003). It has been argued, however, that a Poisson regression model with robust standard errors is more consistent than the Negative Binomial regression² if one is interested in the conditional mean even in the presence of under or overdispersion (Wooldridge 1999). Notwithstanding the Negative Binomial's ability to address overdispersion and the Poisson model's ability to produce consistent estimates of the conditional mean when estimated with robust standard errors, both approaches do not handle idiosyncratic endogeneity (i.e., the correlation of urbanization and the omitted time-varying variables nested in the error term). At best, the Poisson model with fixed effects addresses heterogeneity endogeneity which arises from the correlation between urbanization and unobserved time-invariant heterogeneity. It is well-documented that urbanization endogenously reacts to economic factors such as job opportunities hence methods that treat right-hand side variables as exogenous may be biased.

Dealing with idiosyncratic endogeneity is straightforward in linear regression but less so in non-linear regression methods. Within a Poisson cross sectional regression framework, the Generalised Method of Moments (GMM) can be applied with appropriate instruments as discussed in Wooldridge (2010). This approach is problematic however and mullied by scepticism in panel data Poisson regression given two additional challenges that panel data brings; unobserved heterogeneity and period effects often controlled by N-1 and T-1 dummies respectively both which have a tendency of violating order conditions as the structural equation is likely to have more parameters than instruments.

Given the above challenge, a solution proposed Papke and Wooldridge (2008) and recently modified by Lin and Wooldridge (2019) involves the use of a control function (CF) procedure. This method proceeds in two stages. Firstly in this context, it estimates the expected number of people living below the international food poverty line conditioned on an endogenous urbanization variable (y_{it2}), exogenous

²The Negative Binomial Regression in panel data is also criticized for its inadequacy of removing time-invariant factors correlated with the explanatory variables (see Allison and Waterman 2002).

variables (\mathbf{z}_{it1}), area-specific effects i.e., unobserved heterogeneity (c_{i1}) and time-varying omitted factors (r_{it1}) as follows.

$$\begin{aligned} \ln \lambda_{it} &= E(y_{it1} | \mathbf{y}_{it2}, \mathbf{z}_i, c_{i1}, r_{it1}) = E(y_{it1} | \mathbf{y}_{it2}, \mathbf{z}_{it1}, c_{i1}, r_{it1}) \\ &= c_{i1} \exp(\mathbf{x}_{it1} \theta_1 + r_{it1}), \quad (2) \end{aligned}$$

and

$$\mathbf{x}_{it1} = (\mathbf{y}_{it2}, \mathbf{z}_{it1})$$

where vector \mathbf{z}_{it1} also includes $T - 1$ time dummies. The first step estimates the reduced form equation for the endogenous regressor (\mathbf{y}_{it2}) by the fixed effects (FE) approach and obtains the FE residuals. In the reduced form equation, a valid instrument is needed, and we require a variable that (i) is correlated with urbanization (ii) and likely to affect poverty only through urbanization. An appealing candidate is the unemployment differential between each municipality and the national unemployment rate. A higher national unemployment rate relative to each municipality is likely to encourage the migration of job seekers towards Johannesburg which increases urbanization and ultimately affects poverty. This instrument is included in the first step regression along with fixed effects and other control variables that appear in the structural equation. FE residuals are then computed as,

$$\widehat{u}_{it2} = \ddot{y}_{it2} - \ddot{\mathbf{z}}_{it} \widehat{\Pi}_2$$

where the hat denotes predicted values and the two upper dots signal time averages i.e.,

$$\ddot{y}_{it2} = \mathbf{y}_{it2} - T^{-1} \sum_{r=1}^T \mathbf{y}_{ir2}, \quad \ddot{\mathbf{z}}_{it} = \mathbf{z}_{it} - T^{-1} \sum_{r=1}^T \mathbf{z}_{ir}$$

and, in the second stage, plugged in the FE Poisson regression mean specification (with bootstrapped standard errors) given by,

$$E(y_{it1} | \mathbf{z}_{it1}, y_{it2}, \widehat{u}_{it2}, c_{i1}) = c_{i1} \exp(\mathbf{x}_{it1} \theta_1 + \widehat{u}_{it2} \rho_1)$$

in which robust Wald test of ρ_1 will be a test for exogeneity with respect to idiosyncratic shocks. We hypothesise that the effect of urbanization on poverty in cities depends on the ability of the labour market to provide good and well-paying jobs. In the absence of good jobs, urbanization may aggravate poverty in cities.

Empirical Results

Table 1 presents summary statistics. The number people living below the international poverty line averaged 153 thousand annually in the 7 Johannesburg

municipalities. The number of urban households was highest among Black Africans on average followed by the Coloured and Indian races. This is consistent with the country's racial profile as Black Africans are the majority race. The rate of unemployment was lower in the 7 Johannesburg municipalities on average, 21 percent, compared to the national average, 26 percent. Skilled workers were slightly above 57 thousand on average ranging from about 25 thousand to approximately 102 thousand.

Table 1. Summary Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Poverty headcount	203	152836.67	47109.704	68596	302960
Urbanization - Black African Race	203	130713.67	72002.084	22032	329942
Urbanization – Coloured Race	203	7635.177	3707.241	768	14179
Urbanization – Indian Race	203	6943.507	4082.294	1234	15526
Skilled workers	203	57181.194	17042.199	24753	101701
Unemployment	203	20.466	9.177	3.268	43.761
S.A. Unemployment Rate	203	25.367	3.617	20.421	34.582
Output	203	129029.01	42965.878	45433	222497
Population	203	544792.25	251318.3	200684	1252530
Share of imports	203	0.378	0.344	0.025	1.503

Table 2 presents main regressions results from the structural equations. We estimated three regression variants, control function one (CF1), control function two (CF2) and control function three (CF3). The first, second and third variants are for Black African urbanization, Coloured and Indian races, respectively. Variables u_1 , u_2 and u_3 are residuals from the reduced form equations. They all enter significantly across the three specifications validating the endogeneity of urbanization and the necessity to apply an instrumental variable approach. Apart from the residuals, all variables are lagged once to allow a one-year delay in their marginal effect on poverty.

The results in the first variant (CF1) indicate a positive and significant (at 10 percent) impact of Black African urbanization on poverty. It's interaction with the number of skilled workers in each municipality is negative and statistically significant at one percent level indicating that the urbanization of Black Africans is associated with an increase in poverty but that the impact is mitigated by the existence of skilled jobs. This result supports the assertion raised in Turok and Borel-Saladin (2014) that access to meaningful employment is vital for income security and material well-being by affording the necessities of life in food, clothing and shelter. Our result shows that unless the labour market is able to provide good jobs, the urbanization of Black Africans is associated with an increase in poverty in the city of Johannesburg. This is consistent with Rodrik's (2022) call for industrial policies that promote the creation of good jobs to sustain economic development.

Interestingly in variants two (CF2) and three (CF3), the coefficients associated with the urbanization of Coloured and Indian races are both negative, sizeable and statistically significant at one percent level indicating that, unlike for Black Africans, the urbanization of Coloured and Indian races generally reduces poverty in the city of Johannesburg. This result suggests that South Africa's racial profile still disproportionately affects economic development and poverty reduction in particular. Their interaction with the number of skilled workers is surprisingly positive and statistically significant

at one percent. This observation indicates that the urbanization of Coloured and Indian races is associated with a reduction in poverty even in Johannesburg areas where skilled jobs are limited. This result suggests that poverty reduction in the city is achievable through the urbanization of Coloured and Indian races even in the absence of decent jobs demonstrating a clear existence of racial disparities in the manner in which urbanization relates with poverty reduction in the city of Johannesburg.

Table 2. *Urbanization, Skilled Jobs and Poverty*

	(1)	(2)	(4)
	CF1	CF2	CF3
	Black African Race	Coloured Race	Indian Race
L.logurban_coloured		-7.711*** (0.0460)	
L.logskilled	1.562*** (0.0374)	-4.525*** (0.0500)	1.241*** (0.0946)
L.logurban_colouredlogskilled		0.620*** (0.00356)	
L.logpopulation	0.336*** (0.0170)	-0.740*** (0.0164)	-0.119*** (0.00946)
L.logoutput	3.357*** (0.0177)	-0.457*** (0.0128)	-1.400*** (0.0151)
L.imports_share	0.103*** (0.00229)	0.120*** (0.00220)	0.0842*** (0.00223)
u2		3.985*** (0.0383)	
L.logurban_blackafrican	0.0721* (0.0431)		
L.logurban_africanlogskilled	-0.149*** (0.00309)		
u1	0.450*** (0.0297)		
L.logurban_indian			-4.932*** (0.0300)
L.logurban_indianlogskilled			0.334*** (0.00437)
u3			0.200*** (0.00304)
Time effects	yes	yes	yes
Observations	196	196	196
Number of ID	7	7	7

Bootstrapped standard errors in parentheses

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

Regarding the control variables, the coefficient on output is significantly positive for Black Africans and significantly negative for Coloured and Indian races. This suggests that growth in output may have been exclusive to Black Africans and inclusive to Coloured and Indian races. Similarly, the coefficient on population growth is positive in the first variant and negative in the second and third variants possibly indicating

the marginalization of Black Africans from formal economic gains. Imports penetration enter positively and significantly across all the three regression variants. A possible explanation for this observation is that imports displace domestic production and result in jobs losses which lead to poverty. This explanation draws support from Ewards and Jenkins (2015) who find South African manufacturing output lower in 2010 owing to the displacement of domestic production by Chinese imports.

In Table 3, we use income of the bottom ten as the dependent variable. This measure allows us to infer how urbanization relates with income of the very poor. Most importantly, it allows us to understand the importance of urbanization and the quality of jobs on inclusive development. We extract data on the bottom ten from Quantec's income and living conditions surveys. These surveys rank households from low to high income and then group them into 10 equally sized household distributions. Since the dependent variable is not discrete, we use the instrumental variable fixed effects (IV-FE) with robust standard errors. The coefficient of urbanization is negative, sizeable and highly significant in the case of Black Africans. This result shows that the urbanization of Black Africans is associated with a decrease in the income of the bottom ten in Johannesburg. Its interaction with skilled workers is positive and statistically significant at one percent level demonstrating that good jobs mitigate the negative effect of urbanization on income of the very poor. For the Coloured and Indian races, the coefficients of urbanization are positive, sizeable and statistically significant at one percent level corroborating the results reported earlier that urbanization is generally detrimental to Black Africans compared to Coloured and Indian races. From the results in Table 4.4, the urbanization of Coloured and Indian races raises income of the very poor even with limited skilled job opportunities.

Table 3. *Urbanization, Skilled Jobs and Bottom Ten Income*

	(1)	(2)	(3)
	IV-FE	IV-FE	IV-FE
	Black African Race	Coloured Race	Indian Race
logurban_blackafrican	-4.580** (1.907)		
logskilled	-7.835*** (1.843)	2.096*** (0.385)	1.607*** (0.335)
logurban_africanlogskilled	0.624*** (0.165)		
L.logpopulation	-1.656*** (0.588)	-0.228*** (0.0630)	-0.0908 (0.0621)
L.logoutput	1.377*** (0.218)	0.0735*** (0.0275)	0.000431 (0.0266)
L.imports_share	0.150 (0.159)	0.00022 1 (0.0265)	0.0127 (0.0293)
logurban_coloured		1.224*** (0.320)	
logurban_colouredlogskilled		0.179*** (0.0369)	
logurban_indian			1.351***

			(0.367)
logurban_indianlogskilled			0.132***
			(0.0325)
Constant	70.71***	20.96***	18.55***
	(25.16)	(3.748)	(3.725)
Time effects	yes	yes	yes
Observations	196	196	196
Number of ID	7	7	7

Robust standard errors in parentheses

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

In Table 4, we use a material measure of poverty namely the number of households living in urban slums. We proxy slums by squatter settlements that are not in the backyard. Data on this variable are sourced from Quantec under household facilities and urbanization. Since the dependent variable is discrete, we use the baseline Poisson model estimated via the control function with bootstrapped standard errors. We observe a positive, sizeable and highly significant coefficient of urbanization for Black Africans. The positive and significant coefficient implies that the number of squatter settlements in the city of Johannesburg increases with the urbanization of Black Africans. Its interaction with skilled workers is negative indicating that the existence of good occupations ameliorates the effect of urbanization on squatter settlements. Interestingly this time, the positive coefficient of urbanization also shows up for the Coloured race although relatively small. These results show that the urbanization of Black Africans and the Coloured race is associated with urban slums and creating good jobs seems to moderate the association. For the Indian race, the coefficient on urbanization is negative and statistically significant. This demonstrates that squatter settlements decrease with the urbanization of the Indian community.

Table 4. *Urbanization, Skilled Jobs and Urban Slums*

	(1)	(2)	(3)
	CF1	CF2	CF3
	Black African Race	Coloured Race	Indian Race
L.logurban_blackafrican	5.213***		
	(0.159)		
L.logskilled	0.822***	-1.886***	-11.03***
	(0.198)	(0.168)	(0.128)
L.logurban_africanlogskilled	-0.487***		
	(0.0137)		
L.logpopulation	1.785***	1.856***	2.600***
	(0.0455)	(0.0518)	(0.0448)
L.logoutput	4.454***	-5.414***	-3.143***
	(0.0655)	(0.0673)	(0.0796)
L.imports_share	-0.0600***	0.103***	0.233***
	(0.00801)	(0.00799)	(0.00854)
u1	-1.543***		
	(0.0826)		

u2		-0.435***	
		(0.0378)	
u3			-0.0285***
			(0.001)
L.logurban_coloured		0.222**	
		(0.111)	
L.logurban_colouredlogskilled		-0.215***	
		(0.0126)	
L.logurban_indian			-8.471***
			(0.132)
L.logurban_indianlogskilled			0.755***
			(0.0122)
Time effects	yes	yes	yes
Observations	196	196	196
Number of ID	7	7	7

Standard errors in parentheses

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

Evidence further shows that population growth is associated with an increase in squatter settlements. This result supports the notion that population growth in cities puts pressure on economies resources and creates informal settlements. Output growth reduces squatter settlements in the Coloured and Indian races. In the specification for Black Africans, output enters positively and significantly suggesting the marginalization of Black Africans from economic development.

The main results primarily suggest that the urbanization of Black Africans is associated with increased poverty particularly in the absence of formal decent jobs in the city of Johannesburg. Urbanization of Coloured and Indian races is associated with a decrease in poverty. This finding needs to be interpreted with caution. The first possible explanation is the argument that race still dictates the inclusiveness (or lack thereof) of urbanization in South African cities. It might be argued that economic opportunities are disproportionately limited for Black Africans compared to Coloured and Indian races. The lack of economic opportunities for Black Africans in South African cities is a multifaceted issue with deep historical, structural, and socio-political roots. Several factors contribute to this disparity, ranging from the legacy of colonialism to systemic racism, lack of access to education, and ongoing discrimination in the labor market. Given the history of Apartheid whose effects remain persistent it is not inconceivable that Black Africans are still subjected to prejudice based on their colour, ethnicity and socioeconomic status, which can limit their ability to secure quality employment or build wealth. This is particularly true in urban centres such as Johannesburg where competition for jobs is intense, and systemic biases may favour other privileged groups. Compounding this, Black Africans, particularly those from rural or low-income backgrounds, often find themselves excluded from informal job networks which ultimately marginalizes them from access to job opportunities.

The second possible explanation could be that the city of Johannesburg has simply not kept pace with the rapid immigration of Black Africans. The city may have particularly struggled to create enough jobs to accommodate the influx of Black Africans who represent the majority race. Like most cities in Africa,

Johannesburg has been largely overburdened by insufficient infrastructure, inadequate housing, and limited access to basic services. The informal sector, which many Black Africans, including undocumented foreign nationals, rely on for employment, tends to dominate the urban economy, with jobs that are low-paying, unregulated, and insecure. This creates a cycle of economic instability, as many people in the informal sector lack access to formal social protections, credit, or the skills needed for higher-paying jobs.

Thirdly, unlike the Black majority race, the Coloured and Indian races do not primarily rely on skilled jobs to earn a living. It could well be that the Indian race in particular is particularly accustomed to the running of businesses. A reliance on business would help explain why the urbanization of Indian and Coloured races is associated with a decrease in poverty even in the absence of skilled jobs in the labour market. A third possible reason is that unlike the Coloured and Indian races, Black Africans have disproportionate financial burdens and dependence in remote areas of the country. It could be that most of them migrate to cities and remit much of their income back home leaving themselves worse-off. Given too that the estimated models do not account for such spatial and spillover effects, it could be that the urbanization of Black Africans reduces poverty elsewhere through remittances.

Conclusion and Policy Recommendations

We have examined how good jobs influence the impact of urbanization on poverty among South Africa's three previously marginalized races in the city of Johannesburg and reached several conclusions. Firstly, we conclude that racial dynamics appear to have shaped how urbanization influenced poverty reduction in the city of Johannesburg between 1995 and 2023. Secondly, the urbanization of Black Africans raises poverty if government does not put in place policies aimed at creating good jobs. Thirdly, the urbanization of Coloured and Indian races correlates negatively with poverty. Several policy recommendations can be drawn from these conclusions. The important recommendation is the need for racially inclusive hiring practices in the labour market. The city of Johannesburg municipality could benefit from implementing policies that encourage inclusive hiring practices, particularly in industries that are growing rapidly and are capable of generating well-paying jobs. Such policies could include incentivizing employers to hire from historically disadvantaged groups to achieve equitable outcomes and ensure that good jobs are available to all segments of the population. Given the importance of good jobs as a mitigating factor for Black Africans in all our regressions, it is additionally important for the city of Johannesburg to embark on public-private partnerships that seek to create more decent jobs for Black Africans. The results particularly suggested that, with good jobs in place, urbanization could be a way of breaking the poverty cycle among Black Africans. Cross country evidence suggests that the creation of good jobs is achievable through, among other things, supporting small businesses and improving access to capital for entrepreneurs. Small businesses and entrepreneurs play a significant role in creating good jobs, particularly in urban areas. They form part of the supply chains and therefore require skilled labour ranging from logistics

experts, supply chain managers to accountants. Access to capital can take the form of low-interest loans and grants that could be conditioned on the creation of good jobs for less-privileged groups. In addition, as the city of Johannesburg thrives to combat climate change, investments in green infrastructure—such as renewable energy, energy-efficient buildings, and sustainable waste management—can create a new generation of well-paying jobs for Black Africans. Local governments can, in this regard, consider tax credits or grants to companies that specialize in green technology, as well as invest directly in sustainable infrastructure projects that provide decent jobs for Black Africans. Future studies might consider a spatial analysis which accounts for spillover effects of urbanization.

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