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## Article

# South-South migration and elections: Evidence from post-apartheid South Africa

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# South-South migration and elections: evidence from post-apartheid South Africa

## Abstract

Little is known about the political consequences of immigration in Sub-Saharan Africa. In this paper, we estimate the effect of exposure to immigration on election outcomes in South Africa. Our analysis is based on municipality panel data and an instrumental variable (IV) strategy exploiting historical migrant settlement patterns. We find that local immigration concentration has a negative impact on the performance of the incumbent African National Congress, whereas support for the main opposition party, the Democratic Alliance, is found to increase in municipalities with a larger immigrant presence. These effects hold regardless of the skill levels of immigrants in a municipality. In terms of mechanisms, competition over jobs and local public services as well as ethnic diversity and cultural factors influence how immigration affects election outcomes. These findings are robust to a broad range of sensitivity checks. They provide evidence that immigration can be a politically salient issue in migrant-destination Sub-Saharan African countries. They also show that immigration can affect election results even in contexts where there is no single issue anti-migrant party.

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# 1 Introduction

A wave of anti-foreigner sentiment has swept over Europe and the United States in the last few years. This has naturally generated much interest among economists and political scientists, and a flurry of papers on migration, attitudes, and elections have been written on the experience of European countries recently (see e.g., Barone et al., 2016; Halla et al., 2017; Dustmann et al., 2019; Dinas et al., 2019). Despite the lack of international media coverage and limited academic interest thus far, these issues also very much apply to low- and middle-income countries. Sub-Saharan Africa is no exception. Considering that more than half of Africa's international migrants reside within the continent, examining the effect of intra-Africa migration on political outcomes is crucial for gaining a more complete understanding of the implications of South-South migration within the region.

In this paper, we analyze the effect of immigration on the voting behavior of natives in South Africa. The South African case offers a particularly relevant setting for this research question. The country has a long tradition of being an attractive destination for labor migrants from the rest of the continent. However, the scale and nature of immigration has changed quite significantly following the end of apartheid in 1991. While immigrants traditionally used to come from neighboring countries on temporary work contracts, a growing share now comes from outside the Southern African region. At the same time, resentment toward foreigners has been on rise since the transition to full democracy in 1994, and fierce outbursts of violence targeting foreigners have become increasingly common (Facchini et al., 2013).

To examine the effect of immigration on election outcomes and turnout, we bring together data from several population censuses, national and local election results. We construct a novel municipality panel dataset containing detailed information on local socioeconomic characteristics and electoral outcomes. Several features of the dataset help us address our research question. The longitudinal dimension of the data enables us to remove the influence municipality-specific constant factors have on local political outcomes and migration location decisions. To address the non-random nature of international migrant settlement patterns, we use a shift-share IV strategy based on the historical location decisions of immigrants. Our IV relies on the tendency of new migrants to choose locations where there already exist migrant communities (see e.g. Zavodny, 1999; Åslund, 2005). We exploit the 1991 census conducted before the official end of apartheid when immigration was heavily restricted to predict current immigrant destinations. We also use the 1996 census to measure past migrant networks and test the robustness of our IV strategy.

Our findings indicate that immigration has a negative effect on support for the incumbent African National Congress (ANC) party in national elections. On the contrary, the popularity of the main opposition party is found to increase in municipalities with a greater exposure to immigrants. This is consistent with the incumbent party taking the blame for voters' dissatisfaction with the *de jure* immigration policy or *de facto* immigration outcomes. In the absence of a party with a strong anti-migrant agenda in South Africa, voters cast their ballot in favor of the opposition. We find inconclusive evidence on whether immigration encourages voter participation. These results are robust to a wide array of sensitivity tests, including the analysis of provincial and local elections, running the analysis at two territorial division levels, and using two different censuses to define historical migrant networks. Decomposing immigration flows by educational attainment, we find that our results are driven by both low-educated and highly

educated migrants. This is consistent with Biavaschi et al. (2018), who show that immigrants hurt the labor market outcomes of both unskilled and highly skilled South Africans. The local characteristics of municipalities matter in how international migrants influence political preferences. In particular, the effect of immigration appears to depend on access to public services, initial levels of ethnic diversity, and the education level of South African natives (*locals* from here onward). Contrary to most studies on European countries, we find that the impact of immigration on elections tends to be greater in urban areas. Competition for jobs, housing, and local public services happens to be significantly higher in urban areas. Finally, cultural factors matter as well. When decomposing immigration flows based on the racial backgrounds of migrants, we find that our results are driven by migrants self-identifying as Black, Asian, and Colored.

The impact of immigration on attitudes toward migrants and preferences for political parties with different migration policy platforms is ambiguous from a theoretical point of view. On the one hand, the Contact Theory argues that through exposure and positive interactions with foreigners, natives might update their beliefs and revise their prejudice (Steinmayr, 2020). Natives might also become in favor of a more open immigration policy if immigrant labor complements local labor in production and/or spurs innovation and enterprise creation (Hunt and Gauthier-Loiselle, 2010; Peri, 2012; Dustmann and Glitz, 2015). On the other hand, the Group-conflict theory argues that natives' attitudes toward immigrants might become more hostile if migrants are perceived as threats (Dinas et al., 2019). Higher labor market competition; lower access to public services or fear of increased taxation to finance those services; and concerns about national identity, culture, and compositional amenities are all possible sources of resentment toward foreigners identified in the literature (Card et al., 2012; Dustmann et al., 2018; Jaupart, 2018).

The empirical literature on the net effect of immigration on election outcomes is still relatively young. The consensus that seems to emerge from the experience of European countries indicates that in the majority of cases exposure to labor migrants and asylum seekers fuels support for anti-immigration parties. The channels at play depend on local contexts, however. For instance, labor market competition is found to be an important driver in Austria, France, Italy, and Denmark. Access to public services and migrants' welfare state dependency appear to matter in Italy and Denmark. Studies often find some heterogeneity with respect to city size or rural/urban status, with more rural areas experiencing the largest increases in support for anti-migrant parties. Concerns over culture is one of the mechanisms identified in France and Italy (Otto and Steinhardt, 2014; Barone et al., 2016; Halla et al., 2017; Dinas et al., 2019; Harmon, 2018; Dustmann et al., 2019; Edo et al., 2019). One important exception to this body of work is Steinmayr (2020). Examining Upper Austria's experience with refugees in 2014 and 2015, the author finds that in municipalities that hosted refugees and where interactions with locals likely happened, support for the national far-right wing party did not grow as much as in other parts of the region. On the other hand, in municipalities that are only exposed to refugees transiting via Austria on their way to Germany, the anti-migrant Freedom Party recorded important gains in state elections. The conditions under which contact happens are therefore crucial for the direction in which natives' preferences evolve.

This paper contributes to the literature on immigration and elections in several ways. First, we provide empirical evidence on the effect of immigration on elections in South Africa.

Few papers have been written on this topic outside Europe and the United States (see e.g., Altindag and Kaushal, 2017; Jaupart, 2018; Rozo and Vargas, 2018), and none have been written on South-South migration in sub-Saharan Africa. South Africa is a young democracy and an emerging economy. In young democracies, voters have less experience with party politics, and electoral behaviors in those settings are not perfectly understood yet (De Kadt and Lieberman, 2020). Race and ethnicity also play an important role in the political preferences of South Africans (De Kadt and Sands, 2018). Several parties largely appeal to constituencies solely based on ethnic background. It is still debated whether voters respond to local socioeconomic changes or instead express unconditional support to the party that identifies with their ethnic group (Ferre, 2006; Norris and Mattes, 2003; Fedderke and Giannaros, 2017). The mechanisms identified as important drivers of attitudes in Europe might not matter in the South African context. For instance, it is not obvious whether the welfare state taxation channel is relevant in South Africa (Facchini et al., 2013). A sizable segment of the population has only limited access to public services, but due to the presence of high unemployment, a large fraction of the working age population does not pay income taxes. Immigrants also enjoy limited access to the welfare state. As a result, fear of increased taxation might not influence locals' attitudes and preferences. Second, we show that immigration can impact electoral outcomes even when there are no parties with open anti-immigration policy platforms. Despite migration being a very salient issue in the country, no party has taken an explicit anti-migrant stance. This is largely due to historical reasons and the support the political opposition received from neighboring countries during apartheid. In this context, we find solid evidence that higher exposure to immigration hurts the popularity of the incumbent party. Third, our analysis of mechanisms and channels suggests that both Contact and Group-conflict theories can simultaneously explain the nature of the locals' response to immigration.

The rest of this paper is organized as follows. Section 2 describes the South African context. Descriptive evidence from individual opinion survey answers is discussed in Section 3. We present our dataset and explain our identification strategy in Section 4. Our main results, robustness checks, and heterogeneity analyses are discussed in Section 5. The last section concludes.

## 2 Immigration and politics in South Africa

This section provides some background on the historical, economic, and political context of South Africa. Readers mainly interested in the empirical analysis can skim through the section.

### 2.1 International migration history

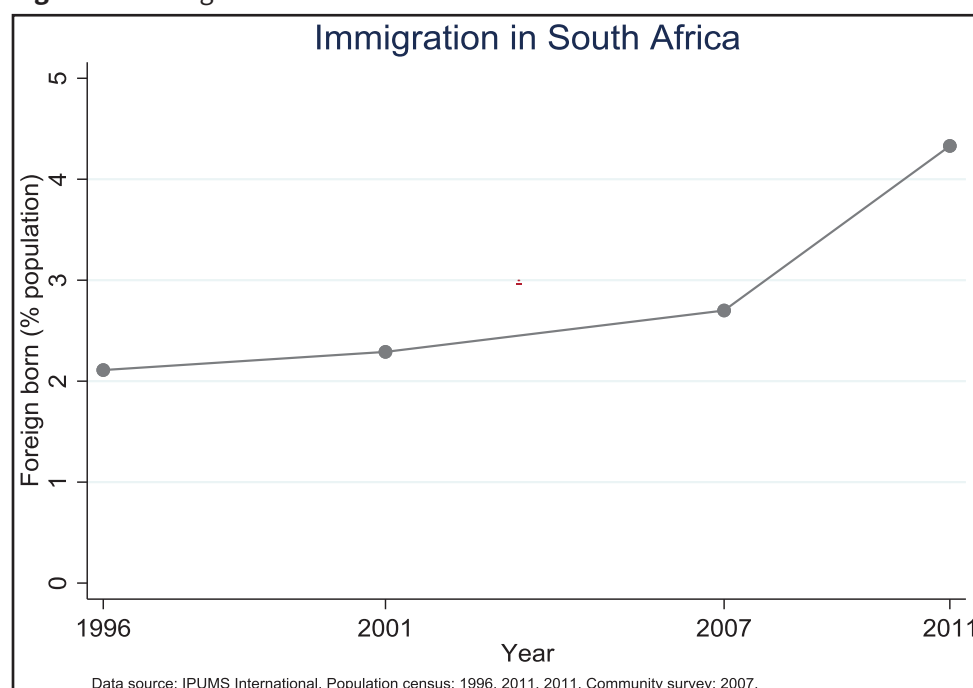
The South African economy has a long history of drawing on migrant labor for key economic activities such as mining or commercial farming (Crush et al., 2005; Kavata Musava, 2015, pp. 21–26). In the 1970s and 1980s, when the mining sector was experiencing significant growth, a large portion of the migrant labor came from other countries in the region, such as Lesotho or Malawi (Crush, 2008a). The new immigration trend that has emerged after the democratic transition has a different nature. The post-apartheid era has been characterized by the growing movement of people from African countries farther away coming to South

Africa in search of better economic opportunities or to escape conflict (Kavata Musava, 2015, pp. 26–27). After a relatively slow and steady increase in the number of immigrants during the first 10 years following the end of apartheid, the second half the 2000s saw a rapid growth in immigration arrivals. In 15 years, the stock of foreign-born individuals in the population more than doubled (Figure 1).

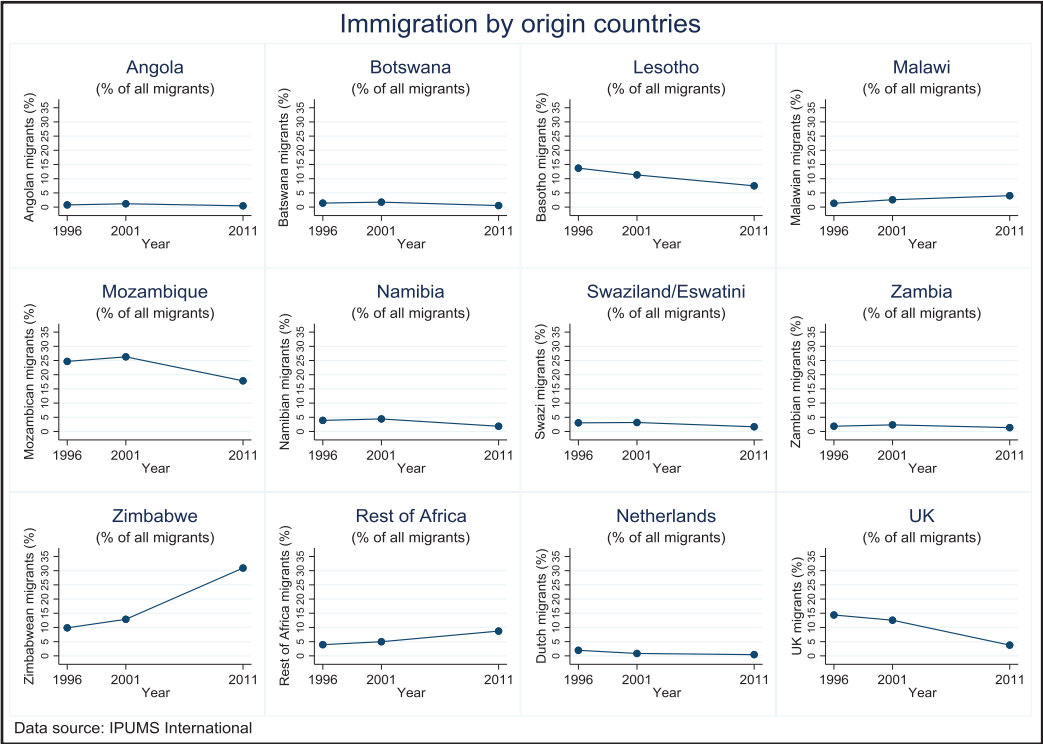
Apart from the pull factors manifested in a free and relatively economically advanced South Africa, there are also push factors driving migrants away from their home countries. For instance, the economic crisis in Zimbabwe that was triggered by land seizures and attendant sanctions on the country was behind the massive exodus of Zimbabweans to South Africa in the early 2000s (Crush and Williams, 2010). Even earlier than the Zimbabwean crisis, the political turmoil unfolding in the Great Lakes region of Africa and the breakout of the Somali civil war caused the displacement of people from Burundi, the Democratic Republic of Congo, Rwanda, and Somalia. These events occurred around the same time as South Africa was opening up, making it easier for people from those places to migrate to South Africa (Crush et al., 2005). The composition of immigrants in terms of origin countries has changed quite significantly over the course of the last decade as a result (Figure 2).

Most of the migrants and refugees usually end up in big metros such as Johannesburg, Durban, and Cape Town (Figure 3). Refugees and asylum seekers are not required to live in designated areas. They are not required to apply for work permits before they can start working either (Crush et al., 2005). A considerable percentage of foreigners also settle in smaller towns, where they set up small businesses or join the informal sector serving low-income communities. They often rely on their social and ethnic networks for loans and other support that sometimes make it easier for them to succeed in business activities than South Africans. As these migrants coexist with impoverished locals, their ability to quickly get traction in business has often been a source of resentment (Polzer, 2010; Charman and Piper, 2012; Steinberg, 2015, pp. 268–272).

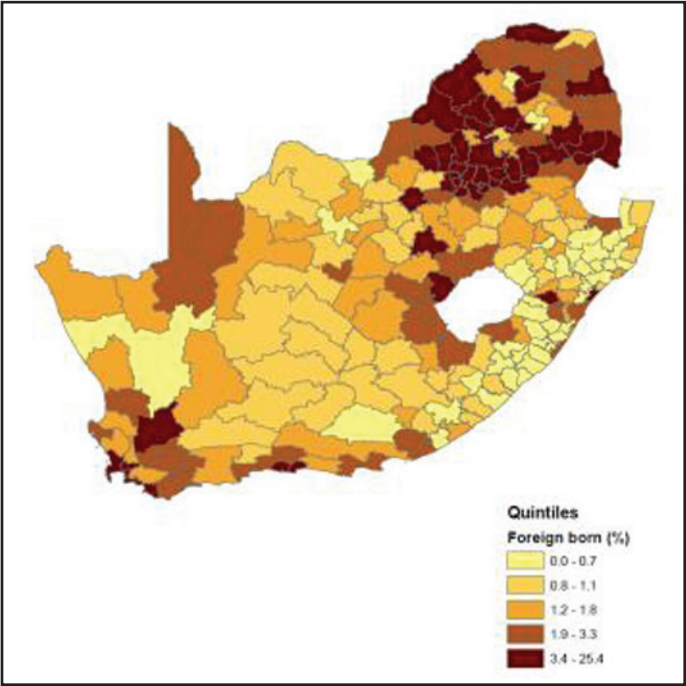
**Figure 1** Immigration in South Africa.



**Figure 2** Immigrants’ origin countries.



**Figure 3** Spatial distribution of immigrants (2011 census data).



For the most part of the 20th century, the South African immigration policy was characterized by a “two-gate policy” system. Qualified immigrants with ample financial resources from European countries were encouraged to immigrate to South Africa (i.e. *the front gate*). The *back gate* had the double objective of preventing unwanted migrants from entering the country and letting in only docile cheap labor on a temporary basis under bilateral agreements to fulfill the needs of the domestic economy. The entry of Black foreigners into the South African territory was severely restricted. Family reunification was forbidden, and migrants had



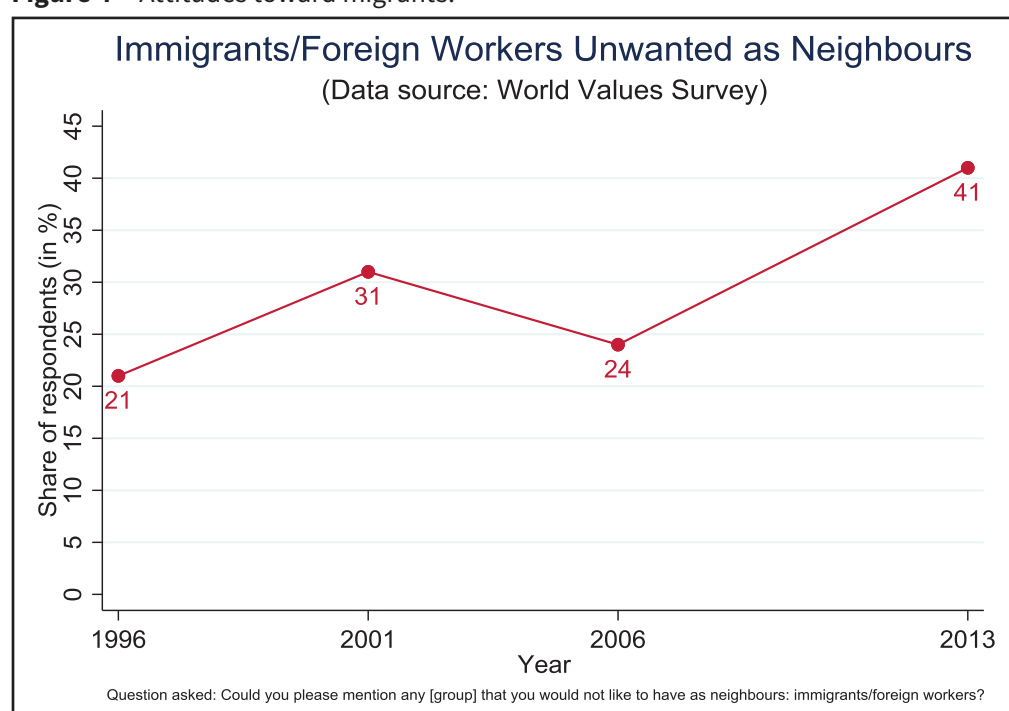
very little basic rights (Wa Kabwe-Segatti, 2006). The 1991 Aliens Control Act, “apartheid’s last act,” became the cornerstone of South Africa’s immigration policy during the 1990s and survived for more than eight years after the 1994 democratic transition. The 1991 law hardened the restrictive and selective immigration policy stance. The Aliens Control Act became increasingly controversial during the late 1990s and was ultimately declared unconstitutional (Biavaschi et al., 2018).

Throughout our study period, the South African immigration policy is regulated by the 2002 Immigration Act and subsequent amendments. The new legal framework is a significant break from its control-oriented and coercive predecessor. The act laid out a more immigration-friendly framework on the whole. It also committed the government to take measures, albeit unspecified, against xenophobia in society (Crush, 2008a). The act has facilitated temporary entry but does not encourage permanent immigration. It does not encourage family members to accompany labor migrants to South Africa either. The new immigration policy still puts the emphasis on recruiting high-level skills from abroad and is suspected to foster brain drain from supplier countries in the region (Crush and Williams, 2010).

## 2.2 Attitudes toward immigrants

Attitudes toward immigrants in South Africa have become increasingly hostile over the last decades (APRM, 2007; Facchini et al., 2013). Migrants are often viewed as carriers of disease, takers of jobs, and perpetrators of crime (Crush et al., 2005). Figure 4 shows how the share of respondents that report they would not like to have immigrants as neighbors in the World Values Surveys has increased over time. Starting with a baseline of 21% in 1996, the share rose by 20 percentage points to reach 41% in less than 20 years (approximately a 100% increase). Figure 5 provides another piece of evidence of that rising trend in anti-foreigner

**Figure 4** Attitudes toward migrants.

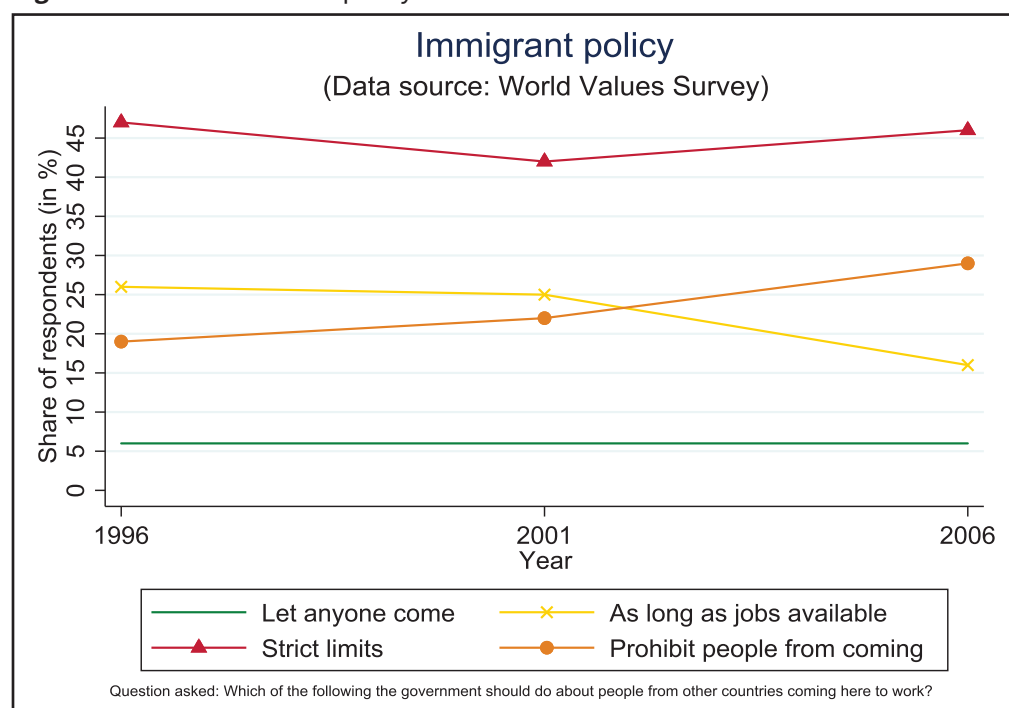




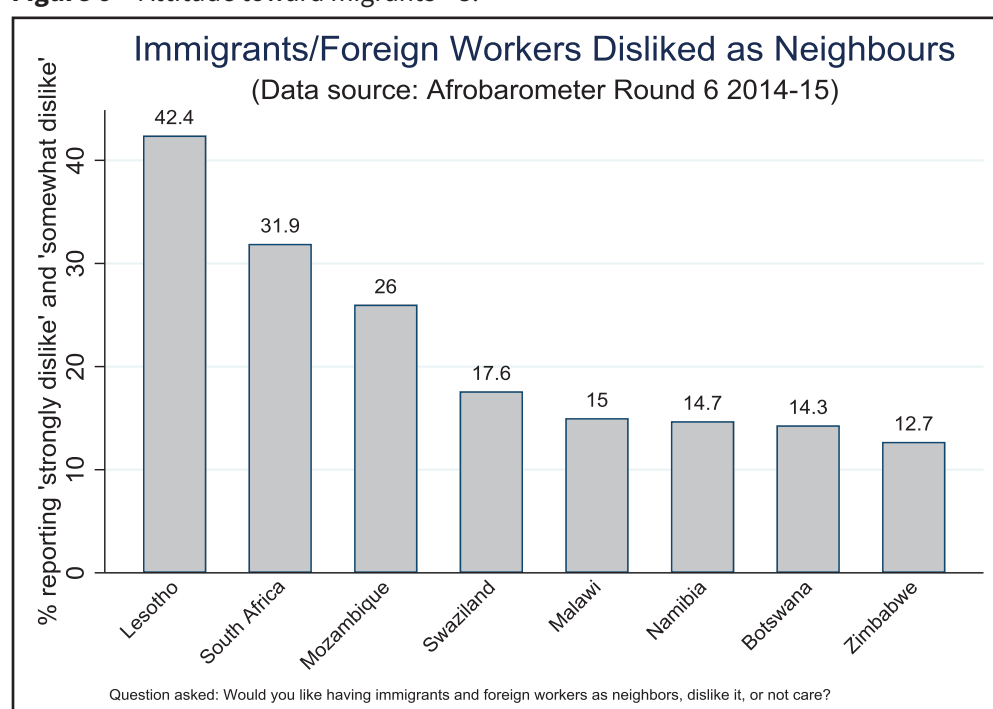
sentiment using the same data source. Between 1996 and 2006, the share of people believing that the South African government should prohibit foreigners to come to work increased by 50%.

From a regional perspective, South Africa appears to be one of the countries with the least open views toward immigrants. Using data from the Afrobarometer Round 6 (2014–2015), Figure 6 displays the share of individuals that would not like to have immigrants as neighbors

**Figure 5** Attitudes toward policy.



**Figure 6** Attitude toward migrants—3.



in the countries of the Southern African region. Second to Lesotho, South Africa displays a high share of 32% of respondents claiming that they would somewhat or strongly dislike having foreign workers as neighbors.

Such negative perceptions of immigrants do not always remain just opinions and increasingly manifest themselves in a violent manner. Xenophobic attacks on immigrants have become common phenomena over the last two decades. In May 2008, the nationwide violence stirred by anti-immigrant sentiments left at least 62 people dead including South African citizens (Crush, 2008b; Landau, 2010; Polzer, 2010). In many cases, immigrants living in impoverished communities have been an easy scapegoat target caught in the midst of long-standing tensions between the government and the population because of high unemployment and deficient public service delivery (Landau, 2010). The attacks are not usually targeted against one nationality. Malawians, Pakistanis, Somalis, and Zimbabweans have all been targeted by xenophobic violence for instance.

### 2.3 Elections and political parties

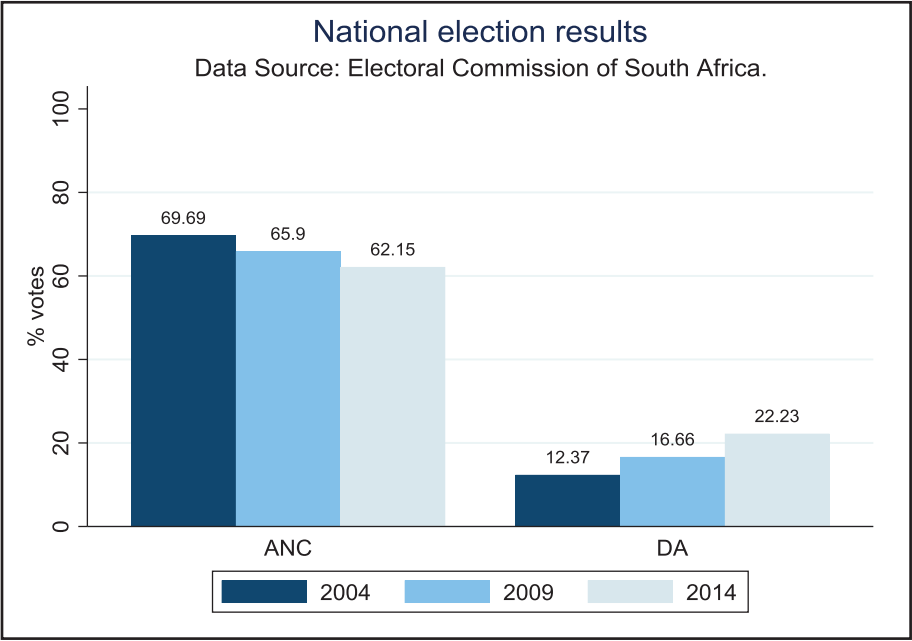
South African elections take place at two levels. General and provincial elections are held every five years. National and provincial parliamentary composition is decided by proportional representation. Local government elections are also held every five years and two years following general/provincial elections. Voters elect municipal council members using a mixed-member system, in which some seats are allocated by proportional representation and others by ward-level simple majority (De Kadt, 2019; IEC, 2019). Only South African citizens are allowed to vote in elections. Immigrants and permanent residents cannot. The majority of cross-border migrants to South Africa are temporary or circular migrants (Crush et al., 2005). This implies that those migrants will not stay long enough in South Africa to become naturalized. Rights of permanent residence and settlement are also quite difficult to obtain.

South African politics in the post-apartheid era has been characterized by a strong, albeit declining, influence of the African National Congress (ANC). The main opposition party, the Democratic Alliance (DA), has gradually gained popularity. It is still often seen as a pro-business party with strong support among the white middleclass (Lemon, 2005; Lemon, 2009; De Kadt and Sands, 2018).

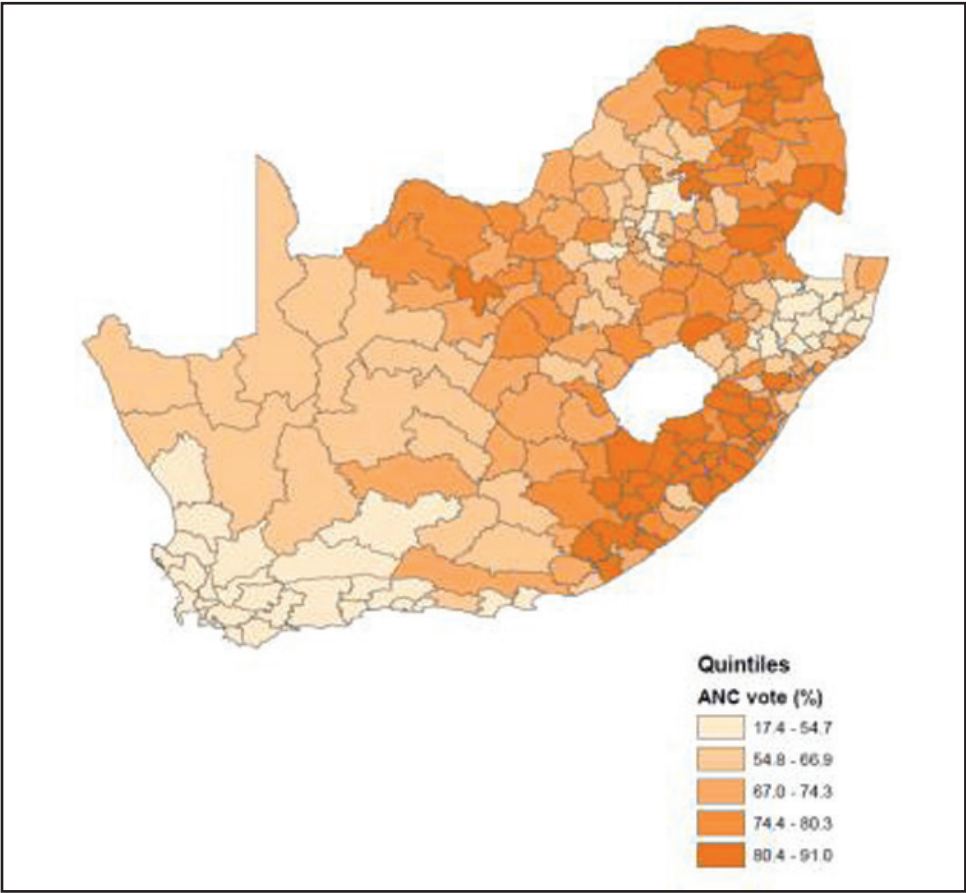
The general elections that take place every five years have become more competitive over the years with the ANC's vote share declining from a high of 69.7% in 2004 to 62% in 2014 (Figure 7). Even if the ANC remains considerably more dominant at the national level, trends in local election results reveal that the party is losing ground in major metros. In 2016, the ANC lost control of Johannesburg, Pretoria (Tshwane), and Nelson Mandela Bay on top of Cape Town, which was already under the control of the DA. Figures 8 and 9 display the performance of the ANC and DA at the municipal level in the 2014 general election. Support for ANC and DA tends to be spatially concentrated in the Eastern and Western part of the country, respectively.

The peculiarity of South African politics with regard to the issue of immigration is that, unlike in many other places such as western Europe, there is no obvious right-left divide among the parties on the issue of immigration (Lemon, 2005; Lemon, 2009).

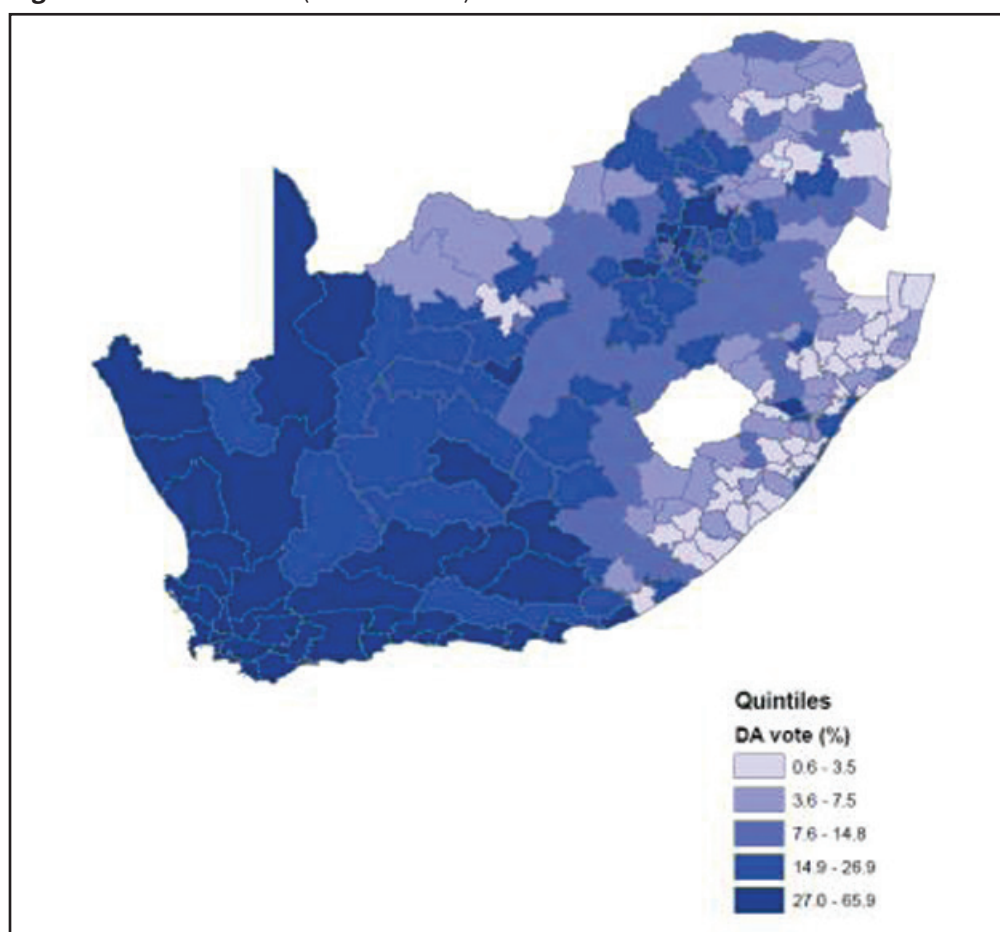
**Figure 7** National elections results.



**Figure 8** ANC vote share (2014 election).



This is despite the fact that immigration is seen by many as very salient issue. As a country with deep-running racial and economic fissures internally, policy positions on immigration are often overshadowed by other intensely contested differences. If anything, the ANC has

**Figure 9** DA vote share (2014 election).

historically been considered sympathetic toward immigration from other African countries due to the support it received from many countries in the continent during the struggle against apartheid.

Evidence from the Manifesto Project Dataset (2019) suggests that the policy preferences of the ANC and the DA have remained pretty constant during our study period. No reference is made to immigration in the ANC 2004 election manifesto, for instance. In 2014, only one pledge among more than 700 deals with migration policy: “Our border controls will be strengthened to improve security and manage immigration effectively, while promoting regional cooperation on border security.” The DA presented immigration in a favorable way in 2004: “the DA will raise skills levels and make our economy more productive by: Abolishing immigration quotas and other unnecessary restrictions on skilled immigrants, and actively encouraging the immigration of skilled people.” However, it did not address the issue of immigration management at all in its 2014 party manifesto.

In the absence of political parties running with immigration as a prominent part of their platform, the ANC often takes the blame for failing to take action as incumbent (Crush, 2008b). For example, at a press meeting in the run-up to the 2019 general and provincial elections, the DA Member of Parliament Jacques Julius was quoted saying: “The DA is the only party capable of fixing immigration and border security which has crumbled under the failing ANC government.”<sup>1</sup>

1 Selisho, Kaunda. (2018, October 15). *The DA comes down hard on undocumented migrants*. Retrieved from <https://citizen.co.za/news/south-africa/2022869/the-da-comes-down-hard-on-undocumented-migrants/>

At a panel discussion on the social issues of xenophobia and migration, South African human rights activist Sharon Ekambaram said: “2008 happened; more than 60 people died. For me it goes back to the government. They have to show leadership and be categorical about the problems in our country. [...] they [ANC government] are not addressing and implementing their policies that they have been given the power to implement.”<sup>2</sup>

It remains to be seen if individual dissatisfaction with immigration affects party choices and overall polling outcomes. Race has played an important role in explaining electoral results since the end of apartheid. Some go as far as describing South African elections as a racial census where voters support the party with which they share a common ethnic identity (Fedderke and Giannaros, 2017). Using individual opinion data, Norris and Mattes (2003) show that even after controlling for socioeconomic and attitudinal control variables, ethnicity stays a strong and significant predictor of party support. Ferree (2006) argues that the strong correlation between race and party support observed in South Africa is likely due to two other reasons: common policy preferences within racial groups and the identity of parties being used by voters with limited information to predict the behaviors of candidates once in office.

The voting behavior of South Africans has been shown to be quite complex. For instance, De Kadt and Lieberman (2020) find that improvements in service provision are negatively correlated with the electoral performance of the ANC. The authors find evidence suggesting that exposure to corruption during basic service installation is one mechanism likely to explain the negative correlation they uncover. The enduring popularity of the ANC as a liberation party, combined with the lack of confidence that immigration can have a political solution, seems to have sometimes led people to lose interest in politics and instead take matters into their own hands, leading to protests and on occasion riots and hate crimes (Landau, 2010).

### 3 Evidence from individual opinion survey answers

In this section, we analyze individual opinion survey answers and show that larger exposure to immigrants in one's municipality is associated with higher anti-foreigner attitudes and opposition to the ANC.

#### 3.1 The Afrobarometer survey

Afrobarometer is a non-partisan, pan-African research institution conducting public attitude surveys on democracy, governance, the economy and society topics in more than half of Africa's countries. We use the Afrobarometer round 4 survey, which surveyed 2,400 South African men and women in 2008. This survey contains a number of questions dealing with attitudes toward foreigners living in South Africa and opinions toward the incumbent ANC government.

2 Dlamini, Palesa. (2019, May 2). *Foreigners are pawns in politicians' 'dangerous, misleading' blame game*. Retrieved from <https://city-press.news24.com/News/foreigners-are-pawns-in-politicians-dangerous-misleading-blame-game-20190502>

We link individual opinions and socioeconomic characteristics with municipality-level immigrant presence from the 2011 census using the residential information provided in the survey data. We dichotomize the attitude and opinion answers provided by respondents and estimate logit models linking exposure to foreigners and individual attitudes. We control for a fairly standard range of individual socioeconomic characteristics that likely to affect beliefs (see e.g. Norris and Mattes, 2003; Jaupart, 2018). Appendix C provides detailed information on the variables' definitions and coding as well as summary statistics.

### 3.2 Correlations

The Afrobarometer data we use indicates that immigration is a salient issue in South Africa. In our sample, 85% of the respondents report not trusting foreigners living in South Africa. Another 69% believe the ANC government is mismanaging immigration. In addition, 66% of the interviewed individuals believe foreigners' entry should be prohibited or strictly restricted (Table C2 of Appendix C).

Our regression results are presented in Table 1. In the first four columns, we examine the correlation between exposure to foreigners and individual attitudes and opinions. We report marginal effects showing the change in probability when the independent variable of interest increases by one unit. We find that being exposed to more immigrants (as a share of municipality population) is associated with less favorable attitudes toward foreigners with South Africans being more likely to be in favor of prohibiting foreigners' entry and report distrust. Only the correlation with entry prohibition is statistically significant. The size of the association suggests that holding individual characteristics constant, a one percentage point (pp) increase in immigrant presence is associated with a 1.1% increase in the probability of wanting to prohibit foreigners from entering South Africa. The results in the third column show that higher exposure to immigration is strongly associated with believing that the ANC mismanages immigration to the country. The correlation is statistically significant at the 5% level. In the fourth column, we report a negative correlation with the probability to report to vote for the ANC if national elections were held the next day. The association is significant at the 1% level and implies that for every 1 pp increase in foreigner presence, the probability a South African individual votes for the ANC falls by 0.9 pp. Looking at the covariates, our descriptive correlations indicate that individual skills (education) are not associated with immigration attitudes. Facchini et al. (2013) find similar results using World Values Survey data for 2007. Interestingly, respondents living in neighborhoods with a higher share of informal housing tend to be more opposed to immigration.

In Table 2, we look at the correlation with wishing to prohibit foreigner entry and support for the government. We find that individuals wishing to prohibit foreigner entry are more likely to believe the government is mismanaging immigration. These individuals are also less likely to vote for the ANC. In the last two columns we look at the effects of having no trust in foreigners on the same variables. We find that individuals who distrust immigrants are more likely to believe the government mismanages immigration and less likely to vote for the ANC. Overall, we get a fairly consistent picture showing that higher exposure to immigrants is associated with anti-foreigner attitudes and lower support for the ANC.



**Table 1** Individual opinion survey—part 1

Dependent variable	(1)	(2)	(3)	(4)
	Prohibit foreigners	Distrust foreigners	Govt mismanages immigration	Would vote ANC
Foreign born (% pop)	0.0105* (0.00604)	0.00421 (0.00541)	0.0143** (0.00608)	-0.00902*** (0.00309)
Age	-0.00637** (0.00319)	-0.00373 (0.00284)	0.00562 (0.00481)	0.00754** (0.00329)
Age squared	0.0000514 (0.0000388)	0.0000469 (0.0000350)	-0.0000522 (0.0000530)	-0.000105*** (0.0000367)
Female	-0.0232 (0.0200)	-0.0178 (0.0134)	-0.0288 (0.0214)	-0.00442 (0.0154)
Language—English	-0.103* (0.0597)	0.0225 (0.0270)	-0.0626 (0.0415)	-0.131*** (0.0401)
Language—Afrikaans	-0.0417 (0.0946)	0.0269 (0.0336)	0.0483 (0.0542)	-0.269*** (0.0445)
Language—Xhosa	-0.0848 (0.0707)	0.0690* (0.0352)	-0.0957** (0.0378)	-0.183*** (0.0408)
Education—less than primary	0.102*** (0.0358)	-0.0139 (0.0270)	-0.0646 (0.0416)	0.0471 (0.0367)
Education—secondary completed	0.0378 (0.0340)	0.000322 (0.0252)	-0.0387 (0.0375)	-0.00819 (0.0272)
Education—tertiary	-0.0571 (0.0432)	-0.00792 (0.0332)	0.0174 (0.0397)	0.0172 (0.0342)
Employed	-0.00424 (0.0303)	-0.0246 (0.0209)	-0.0124 (0.0307)	0.00891 (0.0237)
Piped water in house	0.0609* (0.0353)	-0.0372 (0.0300)	0.0758* (0.0452)	-0.0971*** (0.0279)
Informal housing (%)	0.000937** (0.000370)	0.000198 (0.000511)	0.000328 (0.000659)	0.00152*** (0.000517)
Urban	-0.0135 (0.0385)	0.0139 (0.0285)	0.00295 (0.0436)	-0.0172 (0.0364)
Observations	2,279	2,271	2,164	2,331

Notes: Robust standard errors in parentheses clustered at the municipality level. Individual opinion survey answers from Afrobarometer round 4 (2008). Census data for 2011 (IPUMS International). Logit model with marginal effects reported.

\* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ .



**Table 2** Individual opinion survey—part 2

Dependent variable	(5)		(6)		(7)		(8)	
	Govt mismanages immigration	Would vote ANC	Govt mismanages immigration	Would vote ANC	Govt mismanages immigration	Would vote ANC	Govt mismanages immigration	Would vote ANC
Prohibit foreigners	0.0814*** (0.0265)	–0.0400 (0.0455)			0.0762 (0.0476)			–0.0561 (0.0393)
Distrust foreigners					0.00628 (0.00481)			0.00681** (0.00324)
Age	0.00687 (0.00484)	0.00753** (0.00330)			–0.0000618 (0.0000534)			–0.0000968*** (0.0000369)
Age squared	–0.0000653 (0.0000530)	–0.000105*** (0.0000374)						
Female	–0.0287 (0.0223)	–0.00880 (0.0154)			–0.0245 (0.0213)			–0.00703 (0.0160)
Language—English	–0.0408 (0.0409)	–0.155*** (0.0413)			–0.0588 (0.0393)			–0.131*** (0.0388)
Language—Afrikaans	0.0636 (0.0534)	–0.281*** (0.0450)			0.0513 (0.0534)			–0.268*** (0.0458)
Language—Xhosa	–0.109*** (0.0408)	–0.185*** (0.0431)			–0.114*** (0.0397)			–0.168*** (0.0416)
Education—less than primary	–0.0551 (0.0414)	0.0450 (0.0378)			–0.0517 (0.0403)			0.0400 (0.0387)
Education—secondary completed	–0.0459 (0.0362)	–0.0133 (0.0271)			–0.0337 (0.0365)			–0.0138 (0.0253)
Education—tertiary	0.0279 (0.0398)	0.00820 (0.0336)			0.0198 (0.0388)			0.0207 (0.0354)
Employed	–0.00688 (0.0319)	0.00780 (0.0266)			–0.00466 (0.0331)			–0.00238 (0.0261)
Piped water in house	0.0762 (0.0477)	–0.0973*** (0.0268)			0.0847* (0.0481)			–0.104*** (0.0278)
Informal housing (%)	0.000393 (0.000702)	0.00148*** (0.000521)			0.000358 (0.000700)			0.00162*** (0.000536)
Urban	0.0350 (0.0510)	–0.0452 (0.0361)			0.0355 (0.0519)			–0.0433 (0.0352)
Observations	2,124	2,279			2,114			2,271

Notes: Robust standard errors in parentheses clustered at the municipality level. Individual opinion survey answers from Afrobarometer round 4 (2008). Census data for 2011 (IPUMS International). Logit model with marginal effects reported.

\* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ .

## 4 Data and methodology

In this section, we present our data sources, empirical methodology, and identification strategy. Having found evidence of an association between exposure to immigrants, individual attitudes toward foreigners, and opposition to the government, we aim to test whether we find a similar association with data defined at the municipality level.

### 4.1 Data sources and descriptive statistics

We bring together data from three primary sources to create a municipality panel dataset spanning one decade and two time periods. We exploit the micro-level data collected by Statistics South Africa and made available by IPUMS International to obtain information on municipality characteristics and immigrant populations. We use the 2001 and 2011 Population Censuses (10% and 8.6% sample extracts, respectively). The two datasets provide information on nativity (native-born or foreign-born) and the country of origin of respondents. We define as immigrants all the foreign-born individuals.<sup>3</sup> We systematically use the individual sampling weights provided by IPUMS International to calculate representative statistics.

We collect election outcome statistics from the Electoral Commission of South Africa. We primarily focus on the general elections for the national parliament held in 2004 and 2014. To test the robustness of our main findings, we also analyze the outcomes of the elections for the provincial legislatures. Those are held at the same time as the national elections. The gap between censuses and elections imply that we relate political party performances to municipality characteristics that are dated by 2–3 years. This is fairly common in the literature on the political economy of migration (see e.g., Barsbai et al., 2017). We also analyze the outcomes of the local municipal elections of 2000 and 2011, which we match with the 2001 and 2011 censuses, respectively.

The primary administrative divisions of South Africa are its nine provinces. The provinces are divided into eight metropolitan municipalities and 44 districts, with the districts being further divided into local municipalities. Our unit of observation is the municipality: metropolitan and local municipalities. Municipality boundaries have stayed reasonably constant over our study period (Amodio and Chiovelli, 2018). Nonetheless, we have been careful in making sure that the geographic area included in each municipality is kept approximately constant over time. We work with a balanced panel dataset of 215 municipalities (eight metros and 207 locals), some of which we have merged to avoid issues stemming from municipality mergers or splits between the different censuses.

Table A1 of Appendix A presents summary statistics for the variables we use. On average in our sample, immigrants represent 1.9% of the municipality population. There is fair amount of variation in that variable and in a few municipalities foreigners account for more than a fifth of the residents. The table makes it clear that the ANC is the dominant political party in South Africa. The average vote share that party received in the general elections we study stands at 67.8%. For comparison, the average vote share of the DA is equal to 12.8%.

3 This approach is also followed by Biavaschi et al. (2018).

## 4.2 Baseline model

Our estimates are based on the following first difference (FD) regression model:

$$\Delta Y_m^p = \beta_1^p (\Delta M_m / P_{t-1}) + \Delta X_m' \beta_2^p + \Delta \varepsilon_m^p, \quad (1)$$

where  $\Delta Y_m^p$  denotes the change in the vote share of political party  $p$  in municipality  $m$  between the election years  $t$  and  $t-1$ .  $\Delta M_m$  is the change in the total number of immigrants living in municipality  $m$  between the census years  $t$  and  $t-1$ . It is expressed relative to the municipality's total population in census year  $t-1$ . Our parameter of interest is  $\beta_1^p$ , measuring the effect of a one pp change in the presence of immigrants in the population on the vote share of political party  $p$ .  $\Delta X_m$  is a vector of covariates defined at the municipality level.<sup>4</sup> We weight regressions by municipality native population size<sup>5</sup> to account for differences in local population size. Municipality fixed effects are eliminated by the FD model specification. We cluster our standard errors at the district level due to serial correlation in the error term.

In our baseline model we control for a fairly extensive list of municipality covariates to address omitted variable concerns. The control variables are defined as a share of the relevant native population size. They include the urbanization rate, female population share, unemployment rate, internal migration rate, ethnic diversity (proxied with a Herfindahl-Hirschman index - HHI - based on languages spoken), access to electricity, and the share of the adult population with no education. All those socioeconomic covariates are likely to be important confounders, in particular, unemployment and internal migration. During the last two decades leading to the end of apartheid, internal migration began to increase. The number of internal migrants then boomed with the repeal of the Pass Laws in 1986 and the end of apartheid in 1991 (Reed, 2013; Bakker et al., 2019).

To visualize the bivariate correlation between the increase in total immigrants as a share of the population and the share of ANC and DA votes, we plot the data weighted by municipality population size in Figures 10 and 11. The correlation is negative for the ANC and positive for the DA.

To shed light on the mechanisms driving the electoral responses observed, we examine whether municipal characteristics mitigate or exacerbate the effect of local immigration. We extend Equation 1 and include interaction terms between municipality characteristics at baseline (2001) and the change in immigrant presence between two election cycles (see Equation 2).

$$\Delta Y_m^p = b_1^p (\Delta M_m / P_{t-1}) + b_2^p (\Delta M_m / P_{t-1}) \cdot X_{m,t-1} + \Delta X_m' b_3^p + \Delta \varepsilon_m^p. \quad (2)$$

The municipal characteristic variables  $X_{m,t-1}$  are normalized to have a mean of 0 and a standard deviation of 1 based on the 2001 census distribution across municipalities. The non-interacted normalized municipality characteristics are time-fixed and therefore canceled out by the FD model specification.

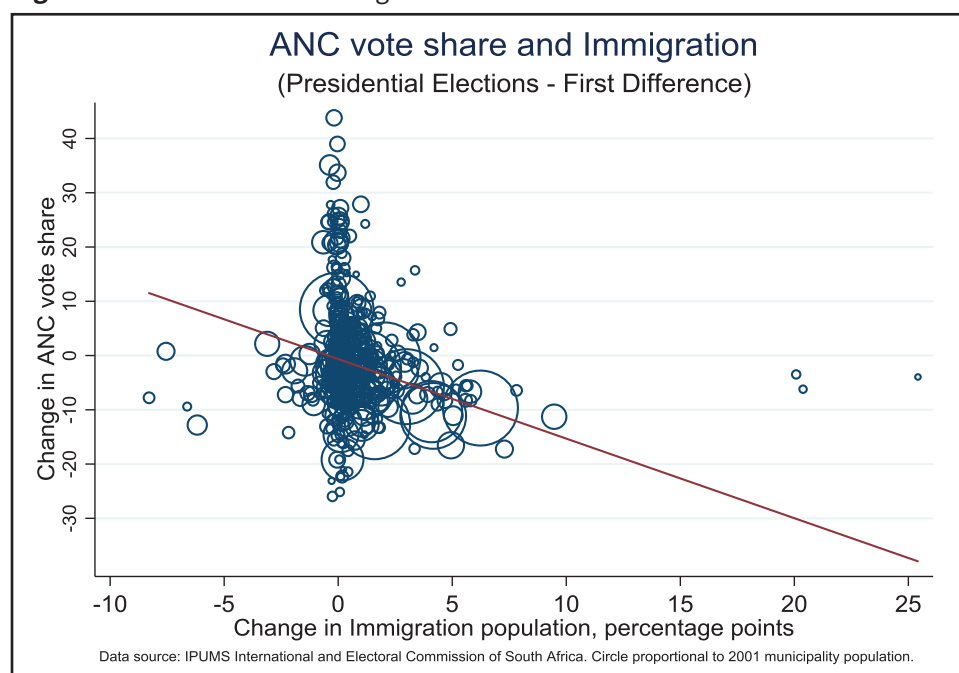
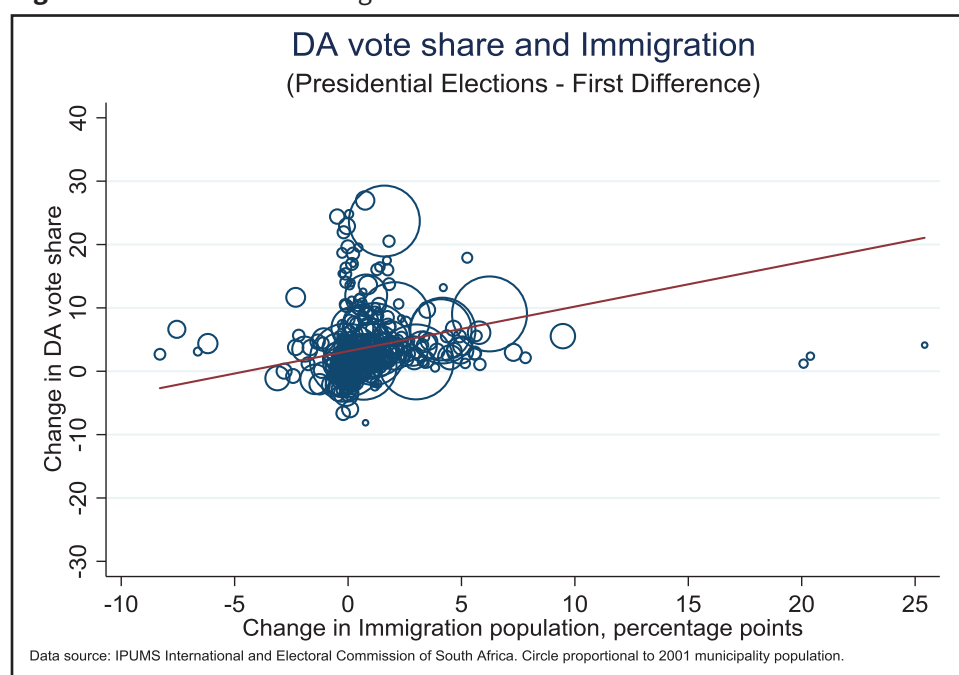
## 4.3 Identification strategy

In Equations 1 and 2, first differencing cancels the influence of municipality idiosyncratic constant factors on local election outcomes and migration patterns.<sup>6</sup> To remove the potential

4 District and metropolitan municipalities ( $n = 52$ ) or local and metropolitan municipalities ( $n = 215$ ).

5 We use local native population size measured in the 2001 census as weights.

6 The municipality fixed effects is removed by the FD specification.

**Figure 10** ANC vote and immigration.**Figure 11** DA vote and immigration.

confounding effect of unobserved time varying municipality confounders correlated with the attractiveness of immigrant destinations and affecting local political dynamics (e.g. local economic booms or slumps, public services provision, or housing conditions), we implement an IV strategy exploiting the historical settlement patterns of immigrants. Newly arrived immigrants often choose to settle in localities where a large ethnic and linguistic diaspora is already established (Bartel, 1989; Munshi, 2003; Damm, 2009; Tabellini, 2020). In South Africa, Crush et al. (2005) show that a quarter or more of current migrants from Botswana, Lesotho, Mozambique, and Namibia have grandparents who had worked in South Africa. This IV approach has now

been widely used in labor economics to examine the labor market impact of immigration on natives (see e.g. Altonji and Card, 1991; Dustmann et al., 2005; Jaeger et al., 2018).

Our identification strategy also addresses estimation issues stemming from reverse causation. Immigrants are unlikely to choose as destinations the municipalities most opposed to foreigners and those experiencing a rapid increase in anti-foreigner opinions. For example, Friebel et al. (2013) show that migration intentions of Mozambicans fell after the series of xenophobic attacks in 2008 in South Africa. In Italy, Bracco et al. (2018) find that the election of a mayor from the anti-immigration party Lega Nord discourages immigrants from moving into the affected municipality. Measurement error is another possible empirical issue addressed by the IV strategy. The South African statistical service makes a particular effort to cover undocumented migrants during national census exercises (Statistics South Africa, 2012). Given the technical difficulties involved in implementing national census data collection and the informal nature of some international migration flows to South Africa, the number of immigrants living in the country may still be imprecisely measured (Facchini et al., 2013).

Our IV strategy is based on historical migration patterns and exploits the 1991 national census that preceded the end of apartheid.<sup>7</sup> Our instrument  $Z_{dt}$  predicting the number of migrants  $M_{mt}$  in each period  $t$  is constructed as follows:

$$Z_{dt} = \sum_{c=1}^N \omega_{dc} M_{ct}, \quad (3)$$

where  $\omega_{dc}$  is the share of immigrants from origin country  $c$  living in district  $d$  in 1991.  $M_{ct}$  is the total number of immigrants from country  $c$  in year  $t$  (2001 and 2011).  $N$  stands for the number of origin country groupings in South Africa.<sup>8</sup> We instrument a municipality-level variable with a district-level variable for data reasons.<sup>9</sup> Due to the change in the territorial organization of South Africa in the wake of the end of apartheid, we can only reliably build our instrument at the district level.<sup>10</sup> Since Statistics South Africa did not publish data for the former Transkei homeland, we lose observations for five municipalities when we run our IV regressions.

The instrument defined in Equation 3 exploits two sources of variation. Cross-sectional variation comes from the spatial distribution of foreign-born individuals from different origin country groups across districts in 1991 (the “shares”). Time series variation is driven by changes in the country of origin mix of each immigration wave (the “shifts”).

#### 4.4 Validity of the instrument

First stage regression results in Table 3 show that our instrument meets the relevance condition. We find a strong association between our predicted immigration flows and observed ones (column 1). The coefficient is positive, statistically significant, and of the right sign. This association is robust to the inclusion of municipality covariates (column 2). The point estimates imply that a 1 pp increase in predicted immigration causes immigration to increase by 1.3 pp.

<sup>7</sup> Census enumeration took place between March 7 and 8, 1991. Apartheid legislation was repealed on June 17, 1991, and fully democratic elections took place on April 27, 1994.

<sup>8</sup> We set  $N$  equal to 16: Angola, Botswana, Lesotho, Mozambique, Malawi, Namibia, Swaziland (Eswatini), Zambia, Zimbabwe, Rest of Africa, Netherlands, United Kingdom, Rest of Europe, America, South Asia (Bangladesh, India, Pakistan), Rest of Asia, and Oceania.

<sup>9</sup> Our sample contains 215 municipalities that fall within 52 districts.

<sup>10</sup> See Appendix B for more details on the construction of the IV.

**Table 3** First stage results

	(1)	(2)
<b>Dependent variable: Immigration</b>		
IV predicted immigration	1.249*** (0.277)	1.286*** (0.342)
Urban population		0.0249 (0.0519)
Female population		−0.327 (0.208)
Unemployment rate		−0.0520 (0.0473)
Internal migration		0.0687 (0.143)
Ethnic diversity (HHI)		0.0532 (0.0366)
Electricity access		−0.0319** (0.0142)
No schooling		0.0510 (0.0606)
Observations	210	210
Adjusted $R^2$	0.610	0.625
Weighted	Yes	Yes
Estimator	FD	FD
F-statistic IV predicted immigration	20.40	14.18

Notes: Robust standard errors clustered at the district level in parentheses. Census data for 2001 and 2011 (IPUMS International). First differenced regressions. Covariates defined at the municipality level and as a share of the relevant native population include urban population, female population, unemployment rate, internal migration, ethnic diversity measured as the Herfindahl index based on languages spoken, access to electricity, and adult illiteracy (no schooling). Immigration is instrumented with a shift-share Bartik instrument using the 1991 census data.

\* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ .

The identifying assumption of the instrument is that there are no time persistent economic and political shocks affecting initial settlement patterns and contemporaneous political outcomes. In other words, the instrument assumes that municipalities that hosted more immigrants during apartheid are not on different political trajectories (Borusyak et al., 2018; Goldsmith-Pinkham et al., 2018; Tabellini, 2020). We believe our IV is likely to meet the exogeneity condition for four main reasons: the radical change of political system after apartheid, South Africa's immigration policy features, the structural break in the South African economy after 1994, and the instability of international migration inflows of recent years.

The South African political system experienced a drastic transformation in the early 1990s. Until 1994, the ANC and IFP were not allowed to run in general elections, whereas the DA and EFF were created in 2000 and 2013, respectively (Johnston, 1995; Lodge, 2014; Amodio and Chiovelli, 2018). Most White dominated parties disappeared after apartheid. The National Party that was in government between 1948 and 1994 was disbanded in 1997. As a result, time persistent local political trends are not very likely to persist to this day and be associated with our instrument.

The location decisions of immigrants were fairly restricted during the time the oppressive regime prevailed, and particularly after 1970 (Biavaschi et al., 2018). Migrants were usually given short- to medium-term employment contracts at specific mining or industrial sites and their freedom of movement within South Africa was quite constrained. The South African economy experienced a structural break after apartheid. The country implemented numerous

economic policy reforms, and economic growth accelerated after 1994 (APRM, 2007). South Africa re-entered the global economy, and manufacturing exports soon picked up (Bosker and Krugell, 2008; Naudé et al., 2010). During the 1990s, the South African mines experienced major downsizing and cutbacks. Interestingly, local workers were laid off at a faster rate than foreign workers (Crush et al., 2005). Overall, those economic condition changes ensure that the location choices of immigrants in 1991 were relatively exogenous with respect to present-day South African economic circumstances. Moreover, the structural evolution of the national economy likely limits the potential for past apartheid-era supply and demand shocks to persist to this day through dynamic adjustment processes.

Since the fall of apartheid, the size of immigration flows has increased dramatically (see Figure 1). There have also been important changes in the country-of-origin composition of immigrant inflows at the national level. This is clearly shown in Figure 2 with Zimbabwean and African migrants coming from places outside the Southern African region occupying a growing share among the total foreign-born population. Conflicts and political and economic conditions in the home country are the main determinants of these immigration flows (Crush et al., 2005).

To empirically deal with the abovementioned potential exclusion restriction violation concerns and indirectly test the identification assumption, we run IV regressions controlling for the 1991 economic characteristics. We include proxies for the importance of the agriculture and mining sectors using employment shares in 1991 defined at the district level. Those two sectors were the two main employers of immigrant labor from bordering countries during apartheid, and they are likely to have attracted migrants. We show that our results are not affected when we add those control variables (Table A8 of Appendix A). We postpone the discussion of those results to the next section.

Using data from the United States, Jaeger et al. (2018) show that the shift-share instrument might predict both recent arrivals and arrivals in a previous decade. In consequence, the IV estimator may measure not only the short-term response to recent immigrant arrivals but also the longer-term one. Jaeger and co-authors propose to use a multiple instrument estimation procedure to address that issue. That approach demands at least three consecutive census datasets with precise geographic and country of origin information. We unfortunately cannot apply that approach due to data constraints. The 1996 census uses different geospatial units (magisterial districts) that no longer exist with boundaries not aligning with current municipalities. The 2007 Community Survey did not collect data on origin countries. This shift-share instrument critique might not apply to our setting though. During our study period, there were substantial political crises in source countries that led to important changes in the migrant origin mix. Figure A2 plots the serial correlation in the share of immigrant groups in the total foreign-born population at the national level. There have been significant changes in the main sending countries over time. In consequence, our IV may not predict past immigration inflows. We still cannot entirely rule out that our IV estimates capture a compound short- and long-run effects. However, given the nature of our outcome variables (political outcomes), this means that we are likely to underestimate the effect of immigration on election results. The initial adverse economic impacts and political reactions brought by immigration are likely to fade away as the economy adjusts and positive interactions with foreigners occur. One way to interpret our IV coefficients is to view them as conservative estimates as a result.



## 5 Findings and discussion

We begin by documenting our main results based on our FD model. Our ordinary least squares (OLS) and IV results show a negative association between immigration and ANC performance. The popularity of the DA opposition party is higher in places with more migrant exposure, however. We then assess the robustness of our results to several tests. While we find solid evidence that migration impacts the ANC and DA vote shares, we do not find much evidence that turnout is affected by immigration. In the last part, we investigate transmission channels.

### 5.1 Main results

We find evidence that immigration affects negatively the popularity of the ANC and positively that of the DA in both national and provincial elections. Results for national elections based on the FD model described in Equation 1 are shown in Table 4. We present in the first four columns the effect of a one pp increase in immigration on the vote share of the African National Congress (ANC). In columns 5–8, we focus on the performance of the DA. For each political party, we estimate Equation 1 without and including covariates. The OLS FD estimated coefficients reported in columns 1 and 3 suggest the presence of a strongly significant and negative correlation between immigrant presence and the ANC vote share. Our point estimates suggest that a 1 pp increase in immigration presence is correlated with a 2.0 pp reduction in the popularity of the ANC over our study period. On the contrary, the performance of the DA is positively and statistically significantly correlated with the presence of immigrants (columns 5 and 7).

These results are likely to suffer from a number of endogeneity-related issues. First of all, the local presence of immigrants might be measured with imprecision. As a consequence of such measurement error, the coefficients discussed earlier might be downward biased and underestimate the true size of the relationship between immigrants and political party vote shares. A second source of concern comes from reverse causality. To the extent that immigrants are aware of local political dynamics, they are unlikely to settle in the municipalities most opposed to immigrants or those municipalities where opposition to migrants is rapidly growing (Bracco et al., 2018). This would tend to underestimate the effect of immigration on ANC support and other electoral outcomes if the Group-conflict theory prevails. If instead the South African context is better described by the contact hypothesis, our FD estimates would tend to overestimate the effect of immigrant exposure. Finally, some unobserved and time varying shocks (e.g. a local industrial or mining boom) might be driving where immigrants locate and also affect local political outcomes. Such omitted variable factors would bias the estimated coefficients in an unpredictable direction. To address those valid identification concerns, we now turn to our IV results.

Our main two-stages least squares (2SLS) results based on our shift-share instrument exploiting historical pre-apartheid settlement patterns are reported in columns 2, 4, 6, and 8 of Table 4. Statistics South Africa did not release the 1991 census data for the former Transkei homeland. We lose five municipalities as a consequence when we run our 2SLS estimations. Starting with the ANC, the 2SLS estimates without and with covariates are negative and statistically significant at the 1% level. The coefficient in column 4 from the specification with controls indicates that in municipalities experiencing a 1 pp increase in immigration

**Table 4** Main results—national elections

Dependent variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	ANC vote share			DA vote share				
Immigration	-1.903*** (0.282)	-2.097*** (0.504)	-1.982*** (0.447)	-2.898*** (0.965)	1.698*** (0.545)	2.260*** (0.815)	1.126** (0.471)	1.863** (0.898)
Urban population			-0.538*** (0.168)	-0.593*** (0.161)			-0.247 (0.196)	-0.203 (0.175)
Female population			-2.479** (1.212)	-2.091* (1.092)			0.412 (0.889)	0.0987 (0.936)
Unemployment rate			0.483* (0.287)	0.276 (0.305)			0.361 (0.372)	0.528 (0.400)
Internal migration			0.148 (0.345)	0.265 (0.383)			0.204 (0.246)	0.109 (0.313)
Ethnic diversity (HHI)			0.0116 (0.217)	0.0646 (0.218)			0.768** (0.330)	0.725** (0.320)
Electricity access			0.161 (0.116)	0.0311 (0.125)			-0.226*** (0.0583)	-0.121 (0.0840)
No schooling			-0.197 (0.305)	-0.367 (0.320)			-0.422*** (0.156)	-0.285* (0.161)
Observations	210	210	210	210	210	210	210	210
Adjusted $R^2$	0.273	.	0.338	.	0.334	.	0.493	.
Weighted	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Estimator	FD	FD-2SLS	FD	FD-2SLS	FD	FD-2SLS	FD	FD-2SLS
KP $F$ -statistic	.	20.40	.	14.18	.	20.40	.	14.18

Notes: Robust standard errors clustered at the district level in parentheses. Census data for 2001 and 2011 (IPUMS International). National election results from 2004 and 2014 (Electoral Commission). First differenced regressions. Covariates defined at the municipality level and as a share of the relevant native population include urban population, female population, unemployment rate, internal migration, ethnic diversity measured as the Herfindahl index based on languages spoken, access to electricity, and adult illiteracy (no schooling). Immigration is instrumented with a shift-share Bartik instrument using 1991 census data.

\* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ .

exposure, the ANC vote share falls by 2.9 pp. The size of the 2SLS coefficient in column 4 is larger in absolute values than its FD counterpart in column 3. This is consistent with attenuation bias and host municipality selection biasing the FD estimates. Migrants are likely to settle in municipalities with attractive economic opportunities, decent housing conditions, and access to public services. In those places, the ANC is likely to gain or at least preserve some support among the electorate. In columns 6 and 8 we report our coefficients for the DA. The estimated effects of immigration are positive and significant at the 5% level for both models. The 2SLS coefficients are larger than the FD ones by the order of half a pp. Our findings very much hold if we express the number of votes received by each party as a share of registered voters instead of valid votes cast (Table A2 of Appendix A).

While voters have the possibility to vote at any station countrywide during national elections, only the residents of the province may vote in the election of a provincial legislature. The results in Table 5 based on provincial elections are highly similar. We find effect estimates of the same order of magnitude indicating that immigration hurts the performance of the ANC but boosts that of the DA. The 2SLS coefficients are larger in absolute value and remain statistically significant at the 5% level. On the whole, those results are very close to those we find for national elections. This is not surprising given that national and provincial elections are held simultaneously but finding different results would have been worrisome.

## 5.2 Robustness tests

To test the robustness of our 2SLS results, we begin by assessing the sensitivity of our estimates to the exclusion of economically large provinces. In the first two columns of Table A3 of Appendix A, we exclude from our sample the municipalities from the Western Cape where Cape Town is. We then exclude in columns 3 and 4, the Gauteng province where Johannesburg and Pretoria are. KwaZulu-Natal is excluded from the last two columns. We report the OLS and 2SLS effects of immigration on the ANC and DA vote shares, respectively. Panel A concentrates on national election outcomes and Panel B focuses on provincial elections. The negative immigration effect we have previously reported for the ANC is robust to the exclusion of those provinces. Across samples and panels, the estimated effect of immigrants is negative, fairly stable, and highly statistically significant. The strength of our IV weakens when we exclude the Western Cape or Gauteng (columns 2 and 4), but it builds up if we drop KwaZulu-Natal (column 6). In terms of magnitude, the 2SLS coefficients are always larger in absolute value than the FD ones. The results reported for the DA are in line with our previous findings. Across samples, we find that higher immigration leads to an increase in the DA vote share. While our coefficients remain statistically significant and positive throughout columns, the size of the point estimates fluctuate to some extent. In Table A4 of Appendix A, we divide the country into two parts, the East and the West. The results show that our results hold in each sample and despite the ANC (DA) drawing the bulk of its support from the Eastern (Western) region.<sup>11</sup> Our findings are also robust to dropping municipalities in the tails of the immigration distribution<sup>12</sup> (Table A5 of Appendix A).

<sup>11</sup> The Eastern region is defined as comprising the provinces of Limpopo, Mpumalanga, Kwazulu-Natal, Gauteng, and Free State. The Western region comprises the Western Cape, Northern Cape, Eastern Cape, and North-West provinces.

<sup>12</sup> We exclude the bottom 5% and top 95% municipalities in the immigration distribution defined over our sample period.

**Table 5** Main results—provincial elections

Dependent variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	ANC vote share			DA vote share				
Immigration	-1.989*** (0.288)	-2.204*** (0.514)	-2.048*** (0.452)	-2.985*** (0.967)	1.936*** (0.580)	2.573*** (0.883)	1.289** (0.502)	2.115** (0.958)
Urban population			-0.538*** (0.167)	-0.594*** (0.159)			-0.264 (0.208)	-0.214 (0.187)
Female population			-2.409** (1.197)	-2.012* (1.074)			0.432 (0.928)	0.0816 (0.975)
Unemployment rate			0.493* (0.287)	0.281 (0.302)			0.364 (0.388)	0.551 (0.415)
Internal migration			0.183 (0.363)	0.303 (0.399)			0.191 (0.273)	0.0856 (0.346)
Ethnic diversity (HHI)			0.0474 (0.221)	0.102 (0.223)			0.785** (0.340)	0.737** (0.330)
Electricity access			0.178 (0.117)	0.0451 (0.125)			-0.265*** (0.0625)	-0.147* (0.0888)
No schooling			-0.164 (0.308)	-0.338 (0.323)			-0.492*** (0.163)	-0.338** (0.166)
Observations	210	210	210	210	210	210	210	210
Adjusted $R^2$	0.291	.	0.354	.	0.370	.	0.526	.
Weighted	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Estimator	FD	FD-2SLS	FD	FD-2SLS	FD	FD-2SLS	FD	FD-2SLS
KP $F$ -statistic	.	20.40	.	14.18	.	20.40	.	14.18

Notes: Robust standard errors clustered at the district level in parentheses. Census data for 2001 and 2011 (IPUMS International). Provincial election results from 2004 and 2014 (Electoral Commission). First differenced regressions. Covariates defined at the municipality level and as a share of the relevant native population include urban population, female population, unemployment rate, internal migration, ethnic diversity measured as the Herfindahl index based on languages spoken, access to electricity, and adult illiteracy (no schooling). Immigration is instrumented with a shift-share Bartik instrument using 1991 census data.

\* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ .

In Table A6 of Appendix A, we run the analysis at the district level. This serves three purposes. It first tests whether our results are sensitive to the level of administrative territorial division. Changes in empirical findings arising from the choice of a specific zoning system is known as the Modifiable Areal Unit Problem, or MAUP (Briant et al., 2010). Second, it addresses concerns related to *native flight*. Neighborhoods of growing immigrant settlement may become relatively less attractive to locals (Borjas, 2006; Saiz and Wachter, 2011; Sá, 2015). Native flight might bias our results if immigration-driven changes in local population are correlated with the political preferences of locals (Jaupart, 2018; Edo et al., 2019). Third, running the analysis at the district level takes care of local spillover concerns. Immigration flows in a single location could also affect surrounding municipalities (Barone et al., 2016). Our results in Table A4 suggest that these sources of concern do not affect our conclusions. Despite working with a much smaller sample, we still find that increases in immigration are associated with a reduction in the vote share of the ANC. Conversely, the main opposition party does gain strength in districts experiencing positive inflows of foreigners. The first stage *F*-statistic falls from 14.18 to 12.76, but it remains relatively strong. This can be explained by the smaller size of the sample we work with.

For the identification assumption to hold, municipalities more exposed to immigrants in 1991 must not be on different economic and political trends. To provide evidence in support of this assumption, in Table A7 of Appendix A we control for the share of the active population employed in agriculture and mining in 1991. These two sectors were the primary employers of foreign labor from neighboring countries during apartheid. The two covariates are defined at the district level. The results are very qualitatively similar with the main findings for both national and provincial elections. The size, sign, and statistical significance of the coefficients remain largely unchanged.

As an additional sensitivity check on those results, we use the 1996 census instead of the 1991 census to define historical migrant locations and construct our shift-share Bartik IV. One might worry that old migration networks broke down in the post-apartheid period. In addition, the available 1991 census does not contain any information for the former Transkei homeland. Moreover, few small localities were not surveyed in the rest of the territory (Bakker et al., 2019). We discuss the methodology we use to construct the instrument based on this later census in Appendix B. First stage regression results are shown in Table B1 of Appendix B. In Table A8 of Appendix A, we report for national and provincial election types negative and significant coefficients for the association between exposure to immigration and support for the incumbent ANC (columns 1 and 2). However, the top challenger DA party does benefit from increased immigrant concentration (columns 3–4). The results we find using the 1996 immigrant spatial distribution as source of exogenous variation strengthens the confidence we have in our previous findings.

To further address concerns that stem from the fact that during national elections voters have the possibility to vote at any station countrywide, we focus on the outcomes of the 2000 and 2011 municipal elections. In municipal elections, voters can only vote in the voting district in which they are registered. Table 6 focuses on municipal elections of 2001 and 2011. In these two political races, only the ANC ran for office in every municipality of the country. For this reason, we only investigate the impact of immigration on the share of votes the ANC received. We match municipality statistics from the 2001 census to the 2000 election outcomes.

**Table 6** Local election results

	(1)	(2)	(3)	(4)
<b>Dependent variable: ANC vote share</b>				
Immigration	-0.684** (0.279)	-0.676 (0.542)	-0.708** (0.281)	-1.102** (0.536)
Urban population	-0.371** (0.167)	-0.370** (0.154)	-0.350** (0.162)	-0.376** (0.154)
Female population	-1.074 (0.962)	-1.077 (0.905)	-0.842 (0.949)	-0.683 (0.934)
Unemployment rate	0.00826 (0.266)	0.0101 (0.284)	-0.0547 (0.266)	-0.140 (0.265)
Internal migration	0.145 (0.410)	0.144 (0.378)	0.107 (0.402)	0.160 (0.400)
Ethnic diversity (HHI)	0.140 (0.232)	0.140 (0.220)	0.208 (0.232)	0.230 (0.233)
Electricity access	0.0751 (0.0827)	0.0763 (0.107)	0.0925 (0.0834)	0.0369 (0.101)
No schooling	-0.445* (0.251)	-0.443 (0.270)	-0.401 (0.256)	-0.475* (0.269)
Observations	210	210	215	215
Adjusted $R^2$	0.258	.	0.288	.
Weighted	Yes	Yes	Yes	Yes
Estimator	FD	FD-2SLS	FD	FD-2SLS
IV	1991 census		1996 census	
KP F-statistic	.	14.18	.	15.17

Notes: Robust standard errors clustered at the district level in parentheses. Census data for 2001 and 2011 (IPUMS International). Local election results from 2001 and 2011 (Electoral Commission). First differenced regressions. Covariates defined at the municipality level and as a share of the relevant native population include urban population, female population, unemployment rate, internal migration, ethnic diversity measured as the Herfindahl index based on languages spoken, access to electricity, and adult illiteracy (no schooling). Immigration is instrumented with a shift-share Bartik instrument using 1991 or 1996 census data.

\* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ .

Municipality characteristics from 2011 census are matched with the 2011 local elections. In the first column of the table, we present our estimate from our baseline FD model. The coefficient is negative and significant at the 5% level. Its size suggests that a 1 pp increase in immigration translates into a 0.7 pp reduction in the popularity of the ANC. In column 2, we show that this correlation is robust to instrumenting immigration with the 1991 census-based IV. While the coefficient hardly moves in terms of magnitude, standard errors increase, and we lose statistical significance. In columns 3 and 4, we present our FD and 2SLS estimates based on the 1996 census IV and the full sample of municipalities. The effect we find is negative in the two columns and significant at the 5% level. The coefficients we obtain for municipal elections tend to be moderately smaller in size compared to those from national elections. This might be explained by the significantly lower turnout for local elections.

To sum up, we find solid evidence that local exposure to immigration has a negative and significant effect on support for the ANC. The DA, on the other hand, appears to benefit from the presence of immigrant populations. This indicates the prevalence of protest votes against the establishment party.

### 5.3 Turnout

An alternative way by which immigration can impact electoral outcomes is through turnout. Dissatisfied voters might feel invigorated to go to vote to express their grievances. On the flip



side, such voters may feel discouraged with the political system and abstain from casting their ballots. Given the ambiguity as to what the expected response of South Africans is in terms of electoral participation, we focus in Table 7 on turnout in national elections defined as the ratio of total cast votes over the number of registered voters. In the first four columns of the table we present our FD and 2SLS results based on the 1991 census-based IV sample. In the last four columns we do the same for the full sample and the 1996 census-based IV. The estimates suggest that immigration does not have much of an effect on participation. Across columns, the immigration effect changes sign, greatly varies in size, and is statistically significant on one occasion only. All in all, we do not find very strong evidence that immigration affects turnout as our results are not robust to alternative specifications and instrumentation strategies.

## 5.4 Channels

Having established a strong and robust effect of immigration on election outcomes, we analyze the possible heterogeneity of municipality responses to immigration with the aim to shed light on the mechanisms driving the previous results. We interact changes in local immigrant presence with municipal characteristics measured at baseline in levels. We focus on a broad set of municipality indicators capturing aspects related to sociodemographic factors, labor market competition, access to local public services, and previous exposure to diversity. The urban population share, female population share, and the internal migration rate are our main sociodemographic characteristics measures. We include the unemployment rate to proxy for local economic conditions. Access to local services and housing conditions are proxied with access to electricity, the share of the adult population with no primary schooling, and piped water supply within the household. Finally, we use ethnic diversity and racial composition to quantify the effect (if any) of initial diversity. We standardize all these variables based on the 2001 census distribution so that the baseline coefficient of the change in immigrant exposure is interpreted as the effect at the mean of the interacted variables (see Equation 2). As the initial level variables are time invariant, they are canceled out in the FD equation.

We present our results related to how municipality features affect electoral responses to immigration in Table 8 (column 1) and Table A9 of Appendix A. The impact of immigration on ANC support is found to depend on access to local services and initial exposure to diversity. In accordance with the Contact Theory, we find that in places with greater ethnic diversity the size of the sanction effect of immigration is lower. In municipalities with diversity being one standard deviation higher than the mean, the effect of a 1 pp increase in immigration is equal to a 2.8 pp reduction in the ANC vote share. This is consistent with Facchini et al. (2013). In their studies of individual attitudes, the authors find that cultural diversity tends to have a positive effect on immigration attitudes. The effect of immigration is more negative in areas with better access to electricity. Connection to the grid is correlated with urbanization, and we cannot exclude that this interaction term picks up more than electricity access.

The heterogeneous effects of immigration across municipality characteristics on the vote share of the DA are shown in column 2 of Tables 8 and A10 of Appendix A. The urbanization rate interaction is positive and significant (in Appendix A). In municipalities with an urbanization rate one standard deviation higher than the mean, the effect of a one pp increase in immigration is equal to a 0.9 pp increase in the DA vote share. It is commonly believed that in South



**Table 7** Turnout

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Dependent variable: Turnout							
	FD		FD-2SLS		FD		FD-2SLS	
Immigration	-0.187 (0.176)	0.175 (0.153)	-0.353 (0.360)	0.856** (0.392)	-0.193 (0.179)	0.173 (0.153)	-0.976 (0.729)	-0.125 (0.371)
Urban population		-0.269* (0.135)		-0.228* (0.137)		-0.259* (0.134)		-0.278** (0.127)
Female population		-1.047* (0.623)		-1.336** (0.651)		-1.026* (0.608)		-0.906 (0.580)
Unemployment rate		0.186 (0.133)		0.340*** (0.124)		0.182 (0.126)		0.117 (0.153)
Internal migration		0.138 (0.208)		0.0503 (0.243)		0.148 (0.205)		0.188 (0.197)
Ethnic diversity		0.102 (0.108)		0.0626 (0.106)		0.0900 (0.103)		0.107 (0.110)
Electricity access		-0.161** (0.0615)		-0.0636 (0.0662)		-0.180*** (0.0596)		-0.222*** (0.0823)
No schooling		0.193 (0.124)		0.319*** (0.121)		0.182 (0.125)		0.125 (0.128)
Observations	210	210	210	210	215	215	215	215
Adjusted $R^2$	0.005	0.444	.	.	0.005	0.481	.	.
Weighted	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
IV	.	.	1991 census	.	.	1996 census	.	.
KP $F$ -statistic	.	.	20.40	14.18	.	.	16.34	15.17

Notes: Robust standard errors clustered at the district level in parentheses. Census data for 2001 and 2011 (IPUMS International). National election results from 2004 and 2014 (Electoral Commission). First differenced regressions. Covariates defined at the municipality level and as a share of the relevant native population include urban population, female population, unemployment rate, internal migration, ethnic diversity measured as the Herfindahl index based on languages spoken, access to electricity, and adult illiteracy (no schooling). Immigration is instrumented with a shift-share Bartik instrument using 1991 census data.

\* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ .

**Table 8** Heterogeneity analysis

Dependent variable	(1)	(2)
	ANC vote share	DA vote share
Immigration	−4.980*** (1.646)	1.736** (0.662)
x Urban population	−0.670 (0.696)	−0.283 (0.455)
x Female population	−0.549 (0.353)	−0.0525 (0.222)
x Internal migration	0.0436 (0.497)	−0.890*** (0.305)
x Unemployment rate	−0.742 (1.107)	0.194 (0.557)
x Electricity access	−2.104** (1.036)	−0.417 (0.627)
x No schooling	0.559 (0.888)	−1.142 (0.803)
x Piped water access	1.578 (1.488)	−0.608 (0.845)
x Ethnic diversity	2.140** (0.827)	0.336 (0.475)
x Black population	0.226 (0.665)	−3.876*** (0.573)
x White population	−0.670* (0.345)	−0.249 (0.259)
x Asian population	1.072*** (0.221)	−0.351** (0.172)
Observations	215	215
Adjusted $R^2$	0.428	0.838
Weighted	Yes	Yes
Covariates	Yes	Yes
Estimator	FD	FD

Notes: Robust standard errors clustered at the district level in parentheses. Census data for 2001 and 2011 (IPUMS International). National election results from 2004 and 2014 (Electoral Commission). First differenced regressions. Covariates defined at the municipality level and as a share of the relevant native population include urban population, female population, unemployment rate, internal migration, ethnic diversity measured as the Herfindahl index based on languages spoken, access to electricity, and adult illiteracy (no schooling). Immigration is instrumented with a shift-share Bartik instrument using 1991 census data.

\* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ .

African localities with poorer service delivery and insalubrious housing conditions, hostility toward migrants is larger as competition for local public resources and decent housing intensifies (Silverman and Zack, 2008; Landau, 2010). This result is in stark contrast with the evidence from Western Europe, where opposition to immigration is usually found to be higher in more rural areas (see e.g. Barone et al., 2016; Dustmann et al., 2018). Interestingly, in municipalities where the population is more educated, the positive effect of immigration on DA popularity is larger. This is consistent with existing evidence showing that education can lead to unfulfilled expectations and more grievances in South Africa (Bedasso and Obikili, 2016). Higher initial exposure to internal migration reduces the positive immigration effect on opposition party popularity. This is consistent with the initial ethnic diversity channel discussed earlier.

In Table 9, we analyze whether the effect of immigration on election outcomes depends on immigrants' educational attainment. We decompose the effect of immigration across skill level and re-estimate Equation 1. We define the foreign-born individuals that did not complete secondary education as low-skill immigrants. High-skill immigrants are defined as having at least completed secondary education. Our results in Table 9 show that our findings are driven by both low- and high-skill immigrants. In columns 1–4, the effect of both immigrant types on

**Table 9** Immigrant skill level

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent variable	ANC vote share			DA vote share				
Low-skill immigration	-2.770*** (0.590)	-5.420*** (2.044)			1.285** (0.489)	3.485* (1.859)		
High-skill immigration			-6.692*** (1.624)	-7.733*** (2.292)			4.840** (2.131)	4.972** (2.124)
Observations	210	210	210	210	210	210	210	210
Adjusted $R^2$	0.299	.	0.371	.	0.451	.	0.575	.
Estimator	FD	FD-2SLS	FD	FD-2SLS	FD	FD-2SLS	FD	FD-2SLS
Covariates	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Weighted	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
KP F-statistic		10.05		19.23		10.05		19.23

Notes: Robust standard errors clustered at the district level in parentheses. Census data for 2001 and 2011 (IPUMS International). National election results from 2004 and 2014 (Electoral Commission). First differenced regressions. Covariates defined at the municipality level and as a share of the relevant native population include urban population, female population, unemployment rate, internal migration, ethnic diversity measured as the Herfindahl index based on languages spoken, access to electricity, and adult illiteracy (no schooling). Immigration is instrumented with a shift-share Bartik instrument using 1991 census data.

\* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ .

ANC votes is found to be negative and statistically significant. Coefficients of the opposite sign are found for the DA (columns 5–8). These results are found in OLS and IV regressions. This is consistent with Biavaschi et al. (2018), who show that immigration harms the labor market outcomes of both low- and high-skill South African locals.

Finally, in Table 10, we examine whether the effect of immigration differs across the racial background of immigrants. Using self-reported information from the censuses, we decompose immigration into inflows of Blacks, Whites, and Other foreigners (Colored, Asians, and others). Our results show the race of immigrants matter. While White immigrants do not have any effect on support for the ANC or the DA, Black and Other immigrants do influence election outcomes. Larger inflows of Black and Other immigrants in a municipality lead to a higher reduction in ANC vote shares. The coefficient in column 3 indicates that a one standard deviation increase in Asian and Colored immigrants is associated with a 0.3 standard deviation reduction in support for the ANC. The opposite holds for DA popularity. On the whole, these findings indicate that racial and cultural dimensions are part of the mechanisms driving the results found. These results also reinforce the argument that economic anxiety might be playing a significant role for anti-immigrant sentiments given that Black and Other migrants are more likely to be perceived to compete for jobs with the majority Black local population.

## 6 Conclusion

In this paper, we analyze the impact of immigration on the political preferences of South African locals. We use a municipality panel dataset containing the outcomes of national and provincial elections as well as detailed local socioeconomic information. We address the endogenous location decisions of immigrants with an IV strategy based on historical pre-apartheid settlement patterns. Our results show that in municipalities that are more exposed to immigrants, the electorate is more likely to vote against the incumbent ANC party. On the contrary,

**Table 10** Racial background of immigrants

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable	ANC vote share			DA vote share		
Immigration—Whites	−3.413 (6.390)			−0.111 (3.537)		
Immigration—Blacks		−2.006*** (0.455)			1.028** (0.406)	
Immigration—Others			−19.44*** (2.872)			16.84*** (3.807)
Observations	210	210	210	210	210	210
Adjusted $R^2$	0.158	0.308	0.450	0.403	0.465	0.741
Covariates	Yes	Yes	Yes	Yes	Yes	Yes
Weighted	Yes	Yes	Yes	Yes	Yes	Yes
Estimator	FD	FD	FD	FD	FD	FD

*Notes:* Robust standard errors clustered at the district level in parentheses. Census data for 2001 and 2011 (IPUMS International). National election results from 2004 and 2014 (Electoral Commission). First differenced regressions. Covariates defined at the municipality level and as a share of the relevant native population include urban population, female population, unemployment rate, internal migration, ethnic diversity measured as the Herfindahl index based on languages spoken, access to electricity, and adult illiteracy (no schooling).

\* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ .

in such municipalities popular support rises for the leading opposition party. Our results also suggest that local conditions matter. Urbanization, ethnic diversity, racial and cultural factors influence the strength of the immigration impact on local political outcomes. Our findings provide support for both the Group-conflict and contact hypotheses and suggest that they can operate simultaneously. We also show that immigration can impact electoral outcomes even when there are no parties with openly anti-immigration policy platforms.

## Declarations

### Availability of data and material

The datasets used in the study are publicly available at no cost. All the datasets and codes generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

### Competing interests

The authors declare that they have no competing interests.

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### Authors' contributions

All authors collected and analyzed the data, wrote the paper, read, and approved the final manuscript.

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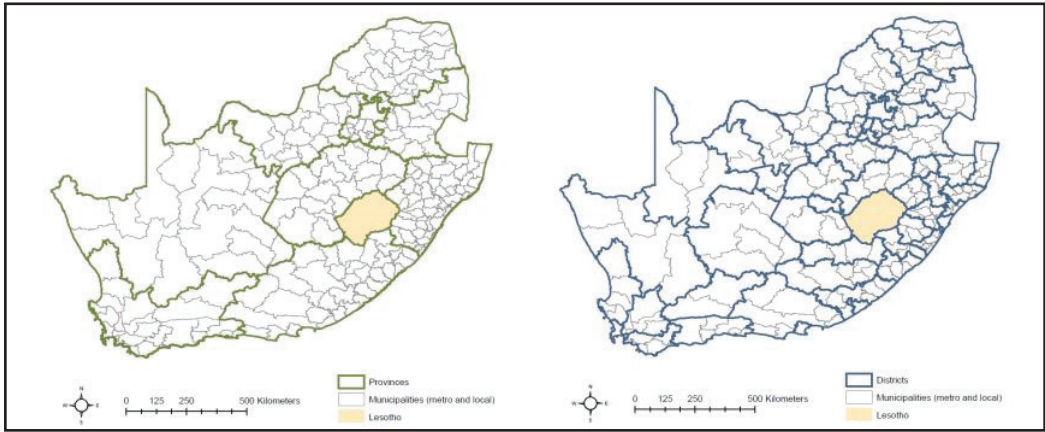
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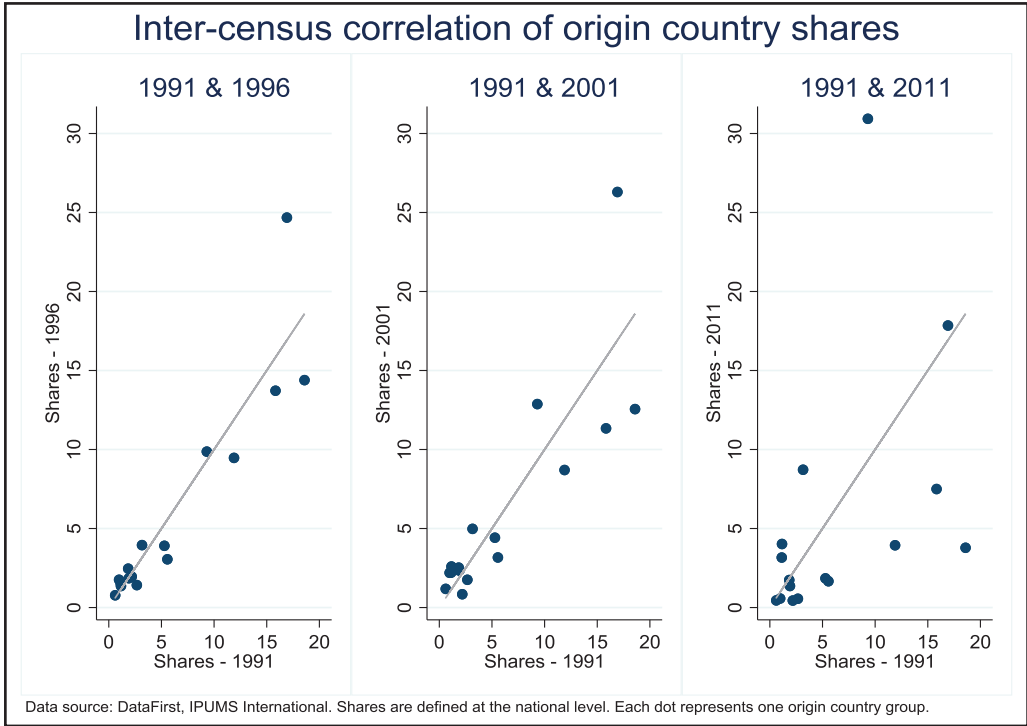
Appendix A. Additional Figures and Tables

Figure A1 Administrative territorial divisions of South Africa.



Sources: Authors, GADM.

Figure A2 Serial correlation in immigrant stocks.



**Table A1** Summary statistics

	<b>N</b>	<b>Mean</b>	<b>SD</b>	<b>Min</b>	<b>Max</b>
ANC—national elections (%)	430	67.73	18.70	3.876	94.44
DA—national elections (%)	430	12.84	13.04	0.117	65.92
ANC—provincial elections (%)	430	67.43	18.96	3.586	94.56
DA—provincial elections (%)	430	12.84	13.58	0.0811	67.56
ANC—local elections (%)	430	61.22	19.63	1.750	93.18
Foreign-born-immigration (%)	430	1.934	2.746	0.0127	25.41
Low-skill immigration	430	1.272	2.266	0	19.77
High-skill immigration	430	0.577	0.688	0	5.021
Foreign-born—Whites—immigration (%)	430	0.422	0.608	0	4.071
Foreign-born—Blacks—immigration (%)	430	1.301	2.528	0	24.483
Foreign-born—Others—immigration (%)	430	0.211	0.278	0	2.542
Urban population (%)	430	46.00	34.52	0	99.27
Female population (%)	430	52.38	2.098	42.47	58.39
Unemployment rate (%)	430	48.87	16.38	8.728	87.68
Internal migration (%)	430	11.05	10.80	0.919	60.62
No schooling (%)	430	31.24	12.25	7.011	72.16
Electricity access (%)	430	70.44	20.80	3.705	95.53
Ethnic diversity (HHI)—language spoken based	430	36.90	23.65	1.088	87.73
Black (%)	430	78.73	28.34	1.938	99.99
White (%)	430	7.037	6.832	0	41.00
Coloured (%)	430	13.34	24.56	0	88.03
Asian (%)	430	0.778	2.404	0	21.78

Data sources: IPUMS International, South Africa Electoral Commission.

**Table A2** Votes as a share of registered voters

	<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>
<b>Dependent variable</b>	<b>ANC vote share</b>		<b>DA vote share</b>	
Immigration	−1.321*** (0.380)	−1.521** (0.689)	0.868** (0.372)	1.504** (0.719)
Observations	210	210	210	210
Adjusted $R^2$	0.294	.	0.488	.
Weighted	Yes	Yes	Yes	Yes
Covariates	Yes	Yes	Yes	Yes
Estimator	FD	FD-2SLS	FD	FD-2SLS
KP $F$ -statistic		14.18		14.18

Notes: Robust standard errors clustered at the district level in parentheses. Census data for 2001 and 2011 (IPUMS International). National election results from 2004 and 2014 (Electoral Commission). First differenced regressions. Covariates defined at the municipality level and as a share of the relevant native population include urban population, female population, unemployment rate, internal migration, ethnic diversity measured as the Herfindahl index based on languages spoken, access to electricity, and adult illiteracy (no schooling). Immigration is instrumented with a shift-share Bartik instrument using 1991 census data.

\* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ .

**Table A3** Robustness to the exclusion of provinces

Sample	(1)	(2)	(3)	(4)	(5)	(6)
	Excludes Western Cape		Excludes Gauteng		Excludes KwaZulu-Natal	
Panel A: National elections						
Immigration	-1.733*** (0.366)	-2.596*** (0.933)	-2.958*** (0.778)	-7.263*** (2.555)	-1.057*** (0.229)	-1.605*** (0.475)
Observations	187	187	200	200	160	160
Adjusted <i>R</i> <sup>2</sup>	0.346	.	0.223	.	0.809	.
Immigration	0.597*** (0.118)	1.087*** (0.336)	2.118 (1.313)	6.131*** (1.519)	0.877** (0.385)	1.454* (0.825)
Observations	187	187	200	200	160	160
Adjusted <i>R</i> <sup>2</sup>	0.606	.	0.469	.	0.550	.
Panel B: Provincial elections						
Immigration	-1.804*** (0.377)	-2.700*** (0.945)	-2.968*** (0.784)	-7.299*** (2.565)	-1.125*** (0.242)	-1.718*** (0.495)
Observations	187	187	200	200	160	160
Adjusted <i>R</i> <sup>2</sup>	0.362	.	0.224	.	0.800	.
Immigration	0.734*** (0.150)	1.297*** (0.385)	2.280 (1.393)	6.743*** (1.521)	1.056** (0.416)	1.702* (0.881)
Observations	187	187	200	200	160	160
Adjusted <i>R</i> <sup>2</sup>	0.649	.	0.487	.	0.570	.
Weighted	Yes	Yes	Yes	Yes	Yes	Yes
Covariates	Yes	Yes	Yes	Yes	Yes	Yes
Estimator	FD	FD-2SLS	FD	FD-2SLS	FD	FD-2SLS
KP <i>F</i> -statistic	.	10.93	.	5.846	.	18.32

Notes: Robust standard errors clustered at the district level in parentheses. Census data for 2001 and 2011 (IPUMS International). National and provincial election results from 2004 and 2014 (Electoral Commission). First differenced regressions. Covariates defined at the municipality level and as a share of the relevant native population include urban population, female population, unemployment rate, internal migration, ethnic diversity measured as the Herfindahl index based on languages spoken, access to electricity, and adult illiteracy (no schooling). Immigration is instrumented with a shift-share Bartik instrument using 1991 census data. \* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ .

**Table A4** East–West split

Dependent variable	ANC vote share			DA vote share		
	(1)	(2)	(3)	(4)	(5)	(6)
	East			West		
Immigration	–1.950*** (0.427)	–3.122*** (1.150)	–1.505*** (0.379)	–4.734*** (1.193)	0.720*** (0.154)	1.210*** (0.395)
Observations	123	123	87	87	123	123
Adjusted $R^2$	0.418	.	0.682	.	0.787	.
Weighted	Yes	Yes	Yes	Yes	Yes	Yes
Covariates	Yes	Yes	Yes	Yes	Yes	Yes
Estimator	FD	FD-2SLS	FD	FD-2SLS	FD	FD-2SLS
KP $F$ -statistic	.	8.871	.	11.16	.	8.871

Notes: Robust standard errors clustered at the district level in parentheses. Census data for 2001 and 2011 (IPUMS International). National election results from 2004 and 2014 (Electoral Commission). First differenced regressions. Covariates defined at the municipality level and as a share of the relevant native population include urban population, female population, unemployment rate, internal migration, ethnic diversity measured as the Herfindahl index based on languages spoken, access to electricity, and adult illiteracy (no schooling). Immigration is instrumented with a shift-share Bartik instrument using 1991 census data.

\* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ .

**Table A5** Excluding immigration distribution tails

Dependent variable	ANC vote share			DA vote share		
	(1)	(2)	(3)	(4)	(5)	(6)
Immigration	–4.474*** (0.806)	–4.889*** (1.386)	3.476** (1.352)	4.011*** (1.458)		
Observations	189	189	189	189		
Adjusted $R^2$	0.336	.	0.635	.		
Weighted	Yes	Yes	Yes	Yes		
Covariates	Yes	Yes	Yes	Yes		
Estimator	FD	FD-2SLS	FD	FD-2SLS		
KP $F$ -statistic	.	12.18	.	12.18		

Notes: Robust standard errors clustered at the district level in parentheses. Census data for 2001 and 2011 (IPUMS International). National election results from 2004 and 2014 (Electoral Commission). First differenced regressions. Covariates defined at the municipality level and as a share of the relevant native population include urban population, female population, unemployment rate, internal migration, ethnic diversity measured as the Herfindahl index based on languages spoken, access to electricity, and adult illiteracy (no schooling). Immigration is instrumented with a shift-share Bartik instrument using 1991 census data.

\* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ .

**Table A6** District-level regressions

Dependent variable	(1)	(2)	ANC vote share		DA vote share			
			(3)	(4)	(5)	(6)	(7)	(8)
Immigration	-2.058*** (0.401)	-2.061*** (0.504)	-2.422*** (0.745)	-3.254*** (1.248)	1.887*** (0.673)	2.298*** (0.830)	1.475** (0.656)	2.411** (1.092)
Urban population			-0.842** (0.360)	-0.925*** (0.336)			-0.452 (0.326)	-0.358 (0.302)
Female population			-3.220 (3.290)	-2.619 (2.938)			-1.163 (2.486)	-1.839 (2.330)
Unemployment rate			0.528 (0.563)	0.226 (0.615)			0.859 (0.566)	1.199** (0.568)
Internal migration			0.735 (0.961)	0.862 (0.869)			0.105 (0.572)	-0.0379 (0.627)
Ethnic diversity			0.0183 (0.451)	0.0709 (0.416)			1.319*** (0.393)	1.260*** (0.334)
Electricity access			0.183 (0.307)	0.0255 (0.329)			-0.303 (0.185)	-0.125 (0.213)
No schooling			-0.259 (0.525)	-0.428 (0.522)			-0.507** (0.222)	-0.317 (0.243)
Observations	51	51	51	51	51	51	51	51
Adjusted $R^2$	0.299	.	0.297	.	0.365	.	0.583	.
Weighted	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Estimator	FD	FD-2SLS	FD	FD-2SLS	FD	FD-2SLS	FD	FD-2SLS
KP $F$ -statistic	.	20.08	.	12.76	.	20.08	.	12.76

Notes: Robust standard errors clustered at the district level in parentheses. Census data for 2001 and 2011 (PUMS International). National election results from 2004 and 2014 (Electoral Commission). First differenced regressions. Covariates defined at the district level and as a share of the relevant native population include urban population, female population, unemployment rate, internal migration, ethnic diversity measured as the Herfindahl index based on languages spoken, access to electricity, and adult illiteracy (no schooling). Immigration is instrumented with a shift-share Bartik instrument using 1991 census data.

\* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ .

**Table A7** 1991 economic conditions

	(1)	(2)	(3)	(4)
	ANC vote share		DA vote share	
Panel A: National elections				
Immigration	-2.147*** (0.468)	-2.819*** (0.932)	1.226** (0.466)	2.129** (0.949)
Observations	210	210	210	210
Adjusted $R^2$	0.387	.	0.503	.
Panel B: Provincial elections				
Immigration	-2.198*** (0.474)	-2.897*** (0.937)	1.386*** (0.498)	2.407** (1.026)
Observations	210	210	210	210
Adjusted $R^2$	0.395	.	0.534	.
Weighted	Yes	Yes	Yes	Yes
Covariates	Yes	Yes	Yes	Yes
Estimator	FD	FD-2SLS	FD	FD-2SLS
KP $F$ -statistic	.	21.06	.	21.06

Notes: Robust standard errors clustered at the district level in parentheses. Census data for 2001 and 2011 (IPUMS International). National and provincial election results from 2004 and 2014 (Electoral Commission). First differenced regressions. Covariates defined at the municipality level and as a share of the relevant native population include urban population, female population, unemployment rate, internal migration, ethnic diversity measured as the Herfindahl index based on languages spoken, access to electricity, and adult illiteracy (no schooling). District-level covariates defined in 1991 include the agriculture and mining sectors employment shares. Immigration is instrumented with a shift-share Bartik instrument using 1991 census data.

\* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ .

**Table A8** IV based on the 1996 census

	(1)	(2)	(3)	(4)
	ANC vote share		DA vote share	
Panel A: National elections				
Immigration	-2.002*** (0.442)	-2.942*** (1.040)	1.123** (0.466)	1.256** (0.582)
Observations	215	215	215	215
Adjusted $R^2$	0.330	.	0.494	.
Panel B: Provincial elections				
Immigration	-2.067*** (0.446)	-2.965*** (1.018)	1.288** (0.497)	1.440** (0.622)
Observations	215	215	215	215
Adjusted $R^2$	0.346	.	0.526	.
Weighted	Yes	Yes	Yes	Yes
Covariates	Yes	Yes	Yes	Yes
Estimator	FD	FD-2SLS	FD	FD-2SLS
KP $F$ -statistic	.	15.17	.	15.17

Notes: Robust standard errors clustered at the district level in parentheses. Census data for 2001 and 2011 (IPUMS International). National and provincial election results from 2004 and 2014 (Electoral Commission). First differenced regressions. Covariates defined at the municipality level and as a share of the relevant native population include urban population, female population, unemployment rate, internal migration, ethnic diversity measured as the Herfindahl index based on languages spoken, access to electricity, and adult illiteracy (no schooling). Immigration is instrumented with a shift-share Bartik instrument using 1996 census data.

\* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ .



**Table A9** Channels—ANC

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
<b>Dependent variable: ANC vote share</b>												
Immigration	-2.314*** (0.552)	-2.612*** (0.770)	-2.867** (1.167)	-1.984*** (0.738)	-1.446** (0.570)	-1.843** (0.813)	-2.521*** (0.785)	-4.235*** (1.333)	-1.828*** (0.398)	-2.310*** (0.410)	-1.654*** (0.522)	-2.521*** (0.383)
x Urban population	0.254 (0.378)											
x Female population		-0.792 (0.587)										
x Internal migration			0.408 (0.468)									
x Unemployment rate				0.0272 (0.925)								
x Electricity access					-0.708 (0.905)							
x No schooling						0.0948 (0.496)						
x Piped water access							0.553 (0.780)					
x Ethnic diversity								1.192* (0.636)				
x Black population									1.233*** (0.409)			
x Colored population										-1.477*** (0.334)		
x White population											-0.322 (0.245)	
x Asian population												0.868*** (0.197)
Observations	215	215	215	215	215	215	215	215	215	215	215	215
Adjusted $R^2$	0.328	0.339	0.334	0.326	0.330	0.327	0.329	0.348	0.351	0.363	0.330	0.370
Weighted	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Covariates	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Estimator	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD

Notes: Robust standard errors clustered at the district level in parentheses. Census data for 2001 and 2011 (IPUMS International). National election results from 2004 and 2014 (Electoral Commission). First differenced regressions. Covariates defined at the municipality level and as a share of the relevant native population include urban population, female population, unemployment rate, internal migration, ethnic diversity measured as the Herfindahl index based on languages spoken, access to electricity, and adult illiteracy (no schooling).

\* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ .

**Table A10** Channels—DA

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
<b>Dependent variable: DA vote share</b>												
Immigration	-0.0253 (0.239)	1.873* (0.981)	1.798 (1.135)	-0.708 (0.638)	-0.767 (0.612)	-0.807 (0.730)	-0.614 (0.429)	2.149 (1.397)	0.624** (0.254)	1.853*** (0.245)	0.345 (0.343)	1.210** (0.554)
x Urban population	0.937* (0.472)											
x Female population		0.974 (0.747)										
x Internal migration			-0.318 (0.384)									
x Unemployment rate				-2.710** (1.335)								
x Electricity access					2.407* (1.346)							
x No schooling						-1.152* (0.652)						
x Piped water access							1.850** (0.846)					
x Ethnic diversity								-0.548 (0.570)				
x Black population									-3.541*** (0.482)			
x Colored population										3.499*** (0.345)		
x White population											0.719** (0.344)	
x Asian population												-0.145 (0.260)
Observations	215	215	215	215	215	215	215	215	215	215	215	215
Adjusted $R^2$	0.532	0.521	0.499	0.560	0.556	0.542	0.532	0.499	0.800	0.808	0.523	0.493
Weighted	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Covariates	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Estimator	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD

Notes: Robust standard errors clustered at the district level in parentheses. Census data for 2001 and 2011 (IPUMS International). National election results from 2004 and 2014 (Electoral Commission). First differenced regressions. Covariates defined at the municipality level and as a share of the relevant native population include urban population, female population, unemployment rate, internal migration, ethnic diversity measured as the Herfindahl index based on languages spoken, access to electricity, and adult illiteracy (no schooling).

\* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ .

## Appendix B. Instrumental variable construction using the 1991 and 1996 population censuses

### B1. The 1991 census

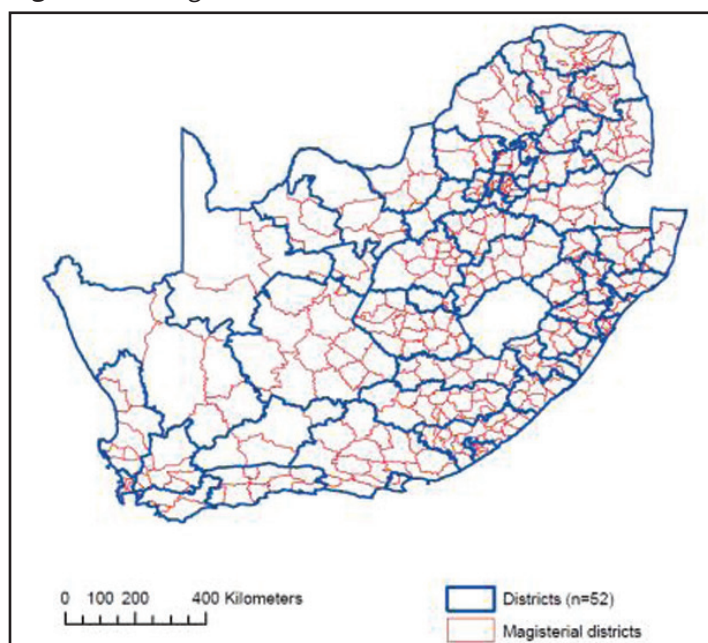
The main IV results we present in this paper are based on the 1991 distribution of immigrants. We obtain information on the origin countries of immigrants and their magisterial districts of residence from the 1991 census (provided by DataFirst). The 1991 census covered the main territory of the Republic of South Africa. The homelands of Transkei, Bophuthatswana, Venda, and Ciskei were surveyed separately. The dataset we have used for the construction of our instrument is the result of the merger of the main dataset covering South Africa with the datasets for Bophuthatswana, Venda, and Ciskei. As no data is available for Transkei, we must drop the current municipalities that used to form the Transkei homeland.

Given the lack of correspondence between the 1991 magisterial unit boundaries and the municipality boundaries we use in our analysis, we aggregate up the 1991 census information to the 52 districts within which our 215 municipalities lie in. The vast majority of magisterial units are matched to only one district, but a few magisterial units straddle two or more districts (Figure C1). To address this issue, we assign all magisterial units to the districts within which their centroids fall in.

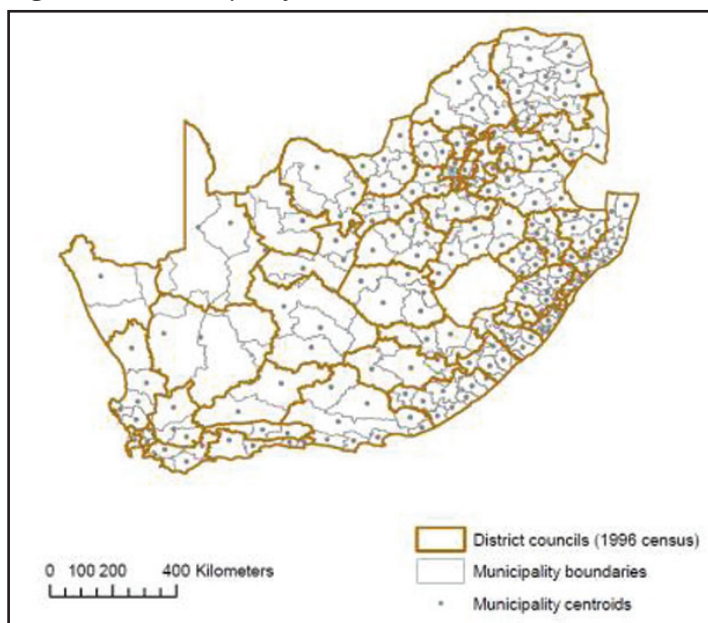
### B2. The 1996 census

This section discusses the methodology we use to construct the shift-share Bartik instrument based on the 1996 census data. To test the sensitivity of our results based on the 1991 census, we replicate the analysis using the 1996 census instead. The data we have for that more recent census allows us to identify the country of birth of immigrants and the district council of current residence. There are 45 such district councils in the census data provided.

**Figure B1** Magisterial units and district boundaries.



Sources: Authors, GADM.

**Figure B2** Municipality and the 1996 district council boundaries.

Sources: Authors, GADM.

The main difficulty comes from the imperfect alignment of district council and municipality spatial boundaries. In other words, all the municipalities we use in our analysis do not exactly fall within the boundaries of the district councils from the 1996 census. To address this

**Table B1** First stage results

Dependent variable	(1)	(2)
	Immigration	
IV predicted immigration (1996 census)	0.777*** (0.192)	0.720*** (0.185)
Urban population		−0.0265 (0.0435)
Female population		−0.113 (0.211)
Unemployment rate		−0.0590 (0.0650)
Internal migration		0.170 (0.135)
Ethnic diversity (HHI)		0.0573 (0.0353)
Electricity access		−0.100*** (0.0260)
No schooling		−0.0497 (0.0441)
Observations	215	215
Adjusted $R^2$	0.554	0.630
Weighted	Yes	Yes
Estimator	FD	FD
F-statistic IV	16.54	16.16

Notes: Robust standard errors clustered at the district level in parentheses. Census data for 2001 and 2011 (IPUMS International). First differenced regressions. Covariates defined at the municipality level and as a share of the relevant native population include urban population, female population, unemployment rate, internal migration, ethnic diversity measured as the Herfindahl index based on languages spoken, access to electricity, and adult illiteracy (no schooling). Immigration is instrumented with a shift-share Bartik instrument using 1996 census data.

\* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ .

issue in the best (but imperfect) way we can, we first create municipality centroids. We then assign each municipality to the district council where its centroid falls in. As Figure C1 shows, this approach works well for the majority of municipalities. Having assigned district councils to all municipalities, we follow the same instrumentation procedure whereby we instrument the municipality-level share of immigrants using the shift-share Bartik variable defined at a higher geographic level (see Equation 3).

## Appendix C. Afrobarometer survey

Afrobarometer is a non-partisan, pan-African research institution conducting public attitude surveys on democracy, governance, the economy, and society topics in more than half of Africa's countries. We use the Afrobarometer round 4 survey, which surveyed 2,400 South African men and women in 2008. This survey contains a number of questions dealing with attitudes toward foreigners living in South Africa and opinions toward the incumbent ANC government (see Table C1).

**Table C1** Belief and opinion variable definitions

Variable name	Detailed question	Binary coding
Prohibit foreigners	How about people from other countries coming to South Africa? Which one of the following do you think the government should do? 1 = Prohibit people entering from other countries, 2 = Place strict restrictions on the number of foreigners who can enter, 3 = Let people in as long as there are jobs available, 4 = Let anyone in who wants to enter, 9 = Do not know	Variable equal to 1 if respondent answer is option 1, and zero otherwise
Distrust foreigners	How much do you trust each of the following types of people: what about foreigners living here in South Africa? Trust foreigners living here in SAF. 0 = Not at all, 1 = Just a little, 2 = I trust them somewhat, 3 = I trust them a lot, 9 = Do not know	Variable equal to 1 if respondent answer is option 0 or option 1, and zero otherwise
Govt mismanages immigration	How well or badly would you say the former Mbeki government was handling the following matters: Managing immigration. 1 = Very badly, 2 = Fairly badly, 3 = Fairly well, 4 = Very well, 9 = Do not know/Have not heard enough	Variable equal to 1 if respondent answer is option 1 or option 2, and zero otherwise
Would vote ANC	If a presidential election were held tomorrow, which party's candidate would you vote for?	Variable equal to 1 if respondent answer is ANC, and zero otherwise

**Table C2** Summary statistics

	<b>N</b>	<b>Mean</b>	<b>SD</b>	<b>Min</b>	<b>Max</b>
Prohibit foreigners	2,347	0.215	0.411	0	1
Prohibit or place strict restrictions on foreigners	2,347	0.657	0.475	0	1
Distrust foreigners	2,339	0.846	0.361	0	1
Govt mismanages immigration	2,230	0.689	0.463	0	1
Would vote ANC	2,400	0.705	0.456	0	1
Foreign born (% population)	2,400	3.893	3.327	0.0127	25.41
Age	2,375	37.79	14.21	18	97
Age squared	2,375	1,630	1,244	324	9,409
Female	2,400	0.500	0.500	0	1
Language—English	2,400	0.456	0.498	0	1
Language—Afrikaans	2,400	0.232	0.422	0	1
Language—Xhosa	2,400	0.146	0.353	0	1
Language—Zulu	2,400	0.166	0.372	0	1
Education—less than primary	2,400	0.136	0.343	0	1
Education—secondary completed	2,400	0.285	0.452	0	1
Education—tertiary	2,400	0.174	0.379	0	1
Employed	2,386	0.497	0.500	0	1
Piped water in house	2,367	0.554	0.497	0	1
Informal housing in the area (%)	2,400	14.16	23.30	0	100
Urban area	2,400	0.657	0.475	0	1

*Data sources:* Afrobarometer round 4 (2008) and 2011 national census (IPUMS International).