PREDICTING XENOPHOBIC ATTITUDES

STATISTICAL PATH MODELS OF OBJECTIVE AND SUBJECTIVE FACTORS

Author: Mark Orkin
September 2019

GCRO

Gauteng
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Observatory

The GCRO comprises a partnership of:

[to provoke: to stimulate, incite, stir up, challenge, irk, exasperate, vex]

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Overview

Predicting xenophobic attitudes

This Provocation investigates possible predictors of xenophobic *attitudes*. These attitudes and their underlying *causes*, which are experienced in the longer term among the local population, must be distinguished from the short-term, context-specific *triggers* of outbreaks of xenophobic violence. Causes, attitudes and triggers are the separately necessary conditions that, when they happen to come together, are jointly sufficient for outbreaks to occur. The triggers, being particular to a place or sudden moment, are difficult to predict: they often include 'violence entrepreneurs', whether threatened local shopkeepers or campaigning provincial or national politicians, abetted by media coverage. However, if the widespread and more enduring causes of the enabling xenophobic attitudes can be identified, they can be targeted by policy interventions and thereby reduce the likelihood of violent outbreaks.

This document accordingly focuses on the causes of xenophobic attitudes, particularly as investigated by the statistical analysis of data from attitude surveys. Three previous attempts, published recently in the social-scientific literature, were bemused to find that respondents' *objective* background conditions – such as unemployment, poverty, lesser education or residence in an informal settlement – appeared variously *not* to be correlated with xenophobic attitudes when examined in multivariable regressions. The reason, uncovered by the analysis in this Provocation, is that a deeper statistical analysis is required; and when this is applied, the expected objective conditions are indeed seen to be at work. The analysis uses Gauteng City-Region Observatory (GCRO) data from their fourth *Quality of Life Survey (2015/2016)*,[1] containing detailed information from 27 820 South Africans among the large sample of 30 002 respondents in the 529 wards of the Gauteng City-Region, including the metros of Johannesburg and Tshwane (formerly Pretoria).

Two statistical models are evinced. The key extra feature they incorporate is well known from sociology, psychology, philosophy, and indeed everyday intuition: that the explanatory pathway from people's objective circumstances to their specific attitudes actually often proceeds *via* intervening orientations or socio-political beliefs. This 'causal chain' is evident in *qualitative* research. According to an example quoted in this document, slightly rearranged: 'We were born here, but we don't have houses. Our houses are sold to foreign nationals. We are fed up with them. They bring drugs, and they bring illness in our country.' Statistically, this is referred to as *mediation* by one or more intervening variable between predictors and an outcome. With several salient variables concurrently at play, a statistical technique called *path analysis* is especially suitable.

The first model addresses the variable in the GCRO dataset contrasting those who felt foreigners must be sent 'back to their countries' (25%) with those who were welcoming or accepting if the foreigners were 'legal' (75%). Applying the data at ward level, the model displays the predictors and

mediators that are statistically significant, i.e. that may be taken to be at work in the social world. Residents of informal settlements were approximately 80% more likely than formal residents (i.e. nearly twice as likely) to have hostile attitudes to foreigners, working through the mediator of depression; the unemployed were 44% more likely than the employed to have hostile attitudes, through being depressed, worried, or dissatisfied with their lives; and those whose households had had to skip a meal in the past were 31% more likely, through dissatisfaction not only with their lives but also with the local authority. (Two of the predictors also link directly to the outcome.)

The other statistical model tackles a more extreme survey question, 'readiness to attack foreigners'. Because only 3.6% assent, the data have to be used at the individual level. Those who did not feel better off than their neighbours were 63% more likely than those who did feel better off. The other results are in the full text.

In sum, the three statistical models in the literature are inadequate in suggesting that objective circumstances are generally not significant determinants of xenophobic attitudes. The force of these predictors – being unemployed, hungry, in informal settlements – becomes evident in path analysis, which uncovers that they work through multiple subjective mediators such as depression and dissatisfaction. People experiencing the consequences of their distressed circumstances *are* more likely as a matter of empirical fact to entertain xenophobic attitudes, which might therefore be mitigated if these circumstances are meaningfully tackled by social development.

Photograph by James Oatway / ©*Sunday Times*

Introduction

Disentangling the research question

Almost every month, there is an outbreak of xenophobic violence somewhere in South Africa, underscoring the importance of improving our explanations of the phenomenon towards better informing policy and shaping interventions. At end-March 2019, approximately a hundred Malawians from the Burnwood informal settlement in eThekwini (Durban) took refuge in a police station and a mosque 'when their unemployed neighbours kicked down their doors … angry that foreign nationals were employed by local companies'.[2] Another report suggested that 'the attacks on Malawians started after a Malawian was allegedly found in possession of stolen goods belonging to a South African … This unfortunate situation was then hijacked by a group of locals who started kicking out other Malawians in the name of getting rid of "criminal elements"'.[3] Order was restored after the Durban mayor and Malawi's acting high commissioner intervened. Many sought repatriation, while others returned to their local homes.

Such attacks have of course also been experienced in Gauteng province, which contains nearly half, 47.5%, of South Africa's foreign-born population of four million (whether documented or not), according to Statistics South Africa.[4] In early April 2019, a week after the eThekwini violence, protests broke out in Alexandra township in Johannesburg, with residents complaining about poor service delivery and policing, and also blaming foreign nationals for many of their other problems: overcrowding, lack of housing, crime and drugs. In many other instances, foreign shopkeepers have been specifically targeted. In September 2019, violent looting of foreigners' stores and workshops broke out in the Johannesburg central business district and spread rapidly to some townships, and to Tshwane where taxi owners had been targeting alleged foreign 'drug dealers'.[5]

The 2019 events recall earlier major waves of xenophobic attacks, which started in the same locales. In 2015, the violence, which began in eThekwini, was exacerbated by anti-immigrant slurs from the Zulu monarch, King Zwelithini, and again spread to other locations, notably Makhanda (Grahamstown) in the Eastern Cape. In 2008, the attacks began in Alexandra township in Johannesburg and spread to scores of locations countrywide. Forty-one foreign nationals were killed and a hundred thousand displaced. In fact, xenophobic attitudes and incidents of violent attacks against foreigners – with deaths, looting and displacement – have occurred since the advent of democracy in 1994,[6] and continue year by year.[7]

As a result, there exists a substantial academic literature, in books, journals and reports, seeking to explain xenophobic attitudes and outbursts. However, the very diversity of explanations and of the factors invoked pose a challenge for extracting focused and evidence-based recommendations for policy-makers and implementers, and indeed for the respective immigrant and local communities. The situation was pithily captured in a cartoon (Figure 1[8]) at the time of the 2008 wave.

Figure 1. Diverse explanations for xenophobic attacks
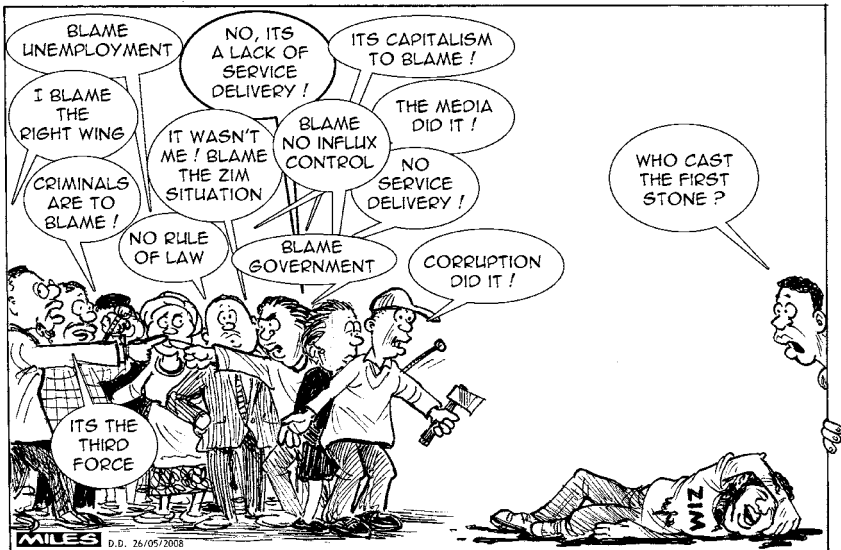
In a similar vein, Everatt's analysis[9] of the 2008 outbreak concluded with the following summary:

> It is argued here that a combination of deep structural social, economic and spatial inequalities, an on-going reliance on cheap labour, housing shortages, township retail competition, racism, a history of the use of violence to advance sectional interests and a traumatically scarred national psyche combined in early 2008 with a desperately low national mood as the economy seemed to be in free-fall and the ruling party was in the midst of factional splitting, to create ripe conditions for the xenophobic outburst.

As one analyst tartly commented, 'The true explanation for xenophobia may well be listed in there somewhere, but where?'[10] A more nuanced criticism would allow that nearly all of these factors have been advanced in the literature,[11] and several are surely relevant, but they have been conflated. The factors adduced are of different *kinds*, which will be relevant at different *stages* of a process.

The factors, first, may be *structural*, such as people's location (formal or informal, rural or urban); *demographic*, such as their income, education or employment status; people's *dispositions*, for example whether engaged and informed or not; their *mood* of the time, depressed or optimistic; and their *perceptions*, whether of their own situation, the wider socio-political context such as the state of the economy, or political developments (e.g. the inter-party contestation in the wind-up to national and provincial elections, as at the time of writing).

Second, the factors variously come into play at different *stages* of the build-up to a xenophobic outburst. This model has been advanced by Misago,[12] and is summarised in Figure 2 (I have slightly adapted the terminology to be consistent with the ensuing discussion). The top half of the diagram identifies how relatively enduring structural and demographic circumstances shape people's dispositions, moods and perceptions, which may, in turn, manifest in xenophobic beliefs and intentions. And the bottom half of the diagram captures a further sequence in which groups of individuals with these beliefs and intentions may be 'triggered' into xenophobic acts by a circumstantial mix of events and political or community leadership.

The schema is useful in clarifying what this analysis will deal with, namely the issue of adequate prediction of xenophobic *attitudes* and *intentions* shown in the top half, which we may call *distal* factors. It will not deal with the more circumstantial factors in the bottom half – which we may call *proximal* factors – by which the xenophobic attitudes and intentions may sometimes result in actual acts of xenophobic violence.

In addition, the diagram helpfully differentiates within the distal half between what we have called structural or demographic factors such as deprivations of locale, education and people's employment (i.e. objective circumstances); and their dispositions, moods and perceptions (i.e. subjective factors).

These distinctions also resolve an unnecessary confusion among some prominent practitioners in the field. It has been argued that distal factors, whether objective or subjective, and the resulting xenophobic attitudes, do not explain why outbursts of xenophobic violence occur, since they are present in many situations where such violence has *not* occurred.[13] Misago's plausible response is that the distal factors, in explaining the origin of xenophobic attitudes, are *some of the necessary conditions* for a complete explanation of violent xenophobic acts. Then, coupled with the attitudes, the proximal factors – such as a charged political climate, hostile remarks by political principals, and notably mobilisation activities by 'local violence entrepreneurs'[14] – *sometimes* provide the *other* necessary requirements for the overall assemblage of conditions to become *jointly sufficient* for the violent acts to occur.[15] Just where and when the proximal factors will manifest tends to be particular and sporadic. However, if the enduring objective deprivations and subjective perceptions comprising the distal factors can be gradually addressed, the intensity and spread of the consequent xenophobic attitudes will be weakened, so that the unpredictable xenophobic acts will be less likely or less intense.

Misago's model provides essential conceptual clarifications, but the diagram is deliberately schematic. His own evidence-based elaboration of it focuses on the less predictable proximal factors, and 'privilege[s] a qualitative and comparative multi-case study approach'.[16] This Provocation, by contrast, focuses on the more predictable distal factors, and seeks a *quantitative*, statistically substantiated, assessment based on available GCRO survey data of: (a) *which* of many potential (objective and subjective) distal factors are actually salient; (b) what their relative *strengths* are; and (c) the significant *relationships* among them, in leading to xenophobic attitudes and intentions.

Figure 2. Sequence of factors leading to xenophobic attitudes[17]
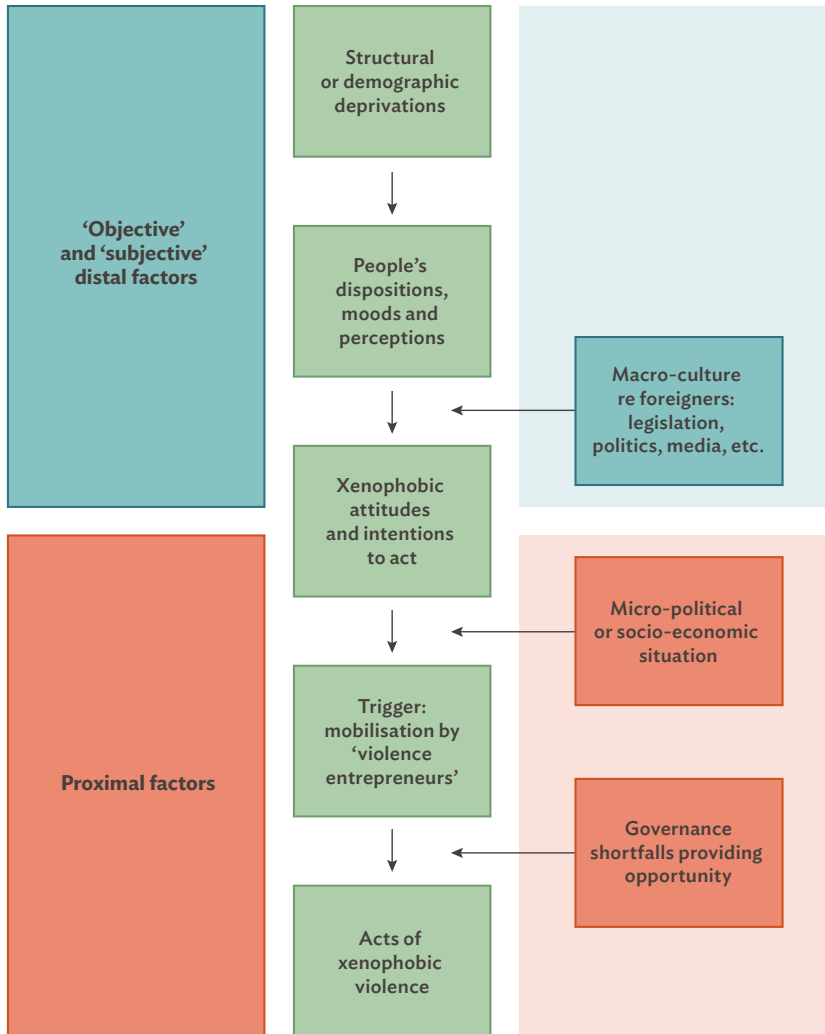
The statistical xenophobia literature
The deficiencies of bivariate analyses and simple regressions

Given this three-fold challenge, the distinctiveness of the statistical approach that will be reported in this analysis is best understood in contrast to previous approaches. Attempts to use quantitative analyses of survey data date back to the early manifestations of xenophobia in South Africa after 1994. They proceeded by cross-tabulating hypothesised predictor variables with respondents' attitudes to foreigners and possible actions against them. Almost from the outset, it appeared – using these methods – that 'with only minor differences' the *levels* of hostile attitudes to migrants were 'widely shared across race, income, education and age': whether tested, for example, by readiness to see migrants deported if they were 'illegal' or unemployed, or by declared readiness to participate in actions against non-citizens.[18] Similarly, a 2010 repeat of a 2006 survey found, in cross-tabulations of education and employment with lower xenophobia, that the earlier apparent associations had ceased to hold, and the association with income had seemingly reversed.[19]

The apparent unimportance of demographic predictors seemed to extend also to structural predictors given that foreigners and their attackers largely had in common the structurally deprived circumstances of townships and informal settlements. So, instead, analysts began to emphasise processes such as 'boundary making' and 'politics of exclusion', by which, in responding to local mobilisation, citizens asserted their rights for jobs and housing against non-citizens.[20] In effect, analyses of xenophobic attitudes began shifting attention from the objective towards the subjective factors in the distal part of Misago's schema.

For example, using 2012 data, Gordon sought to improve upon his predecessors' cross-tabulations using bivariate analyses of variance.[21] But he still found that the full-time employed and those with higher self-reported economic status were not more likely to have welcoming attitudes towards immigrants. This disproved his expectation from competition theory that 'antagonism is likely when different groups (i.e. citizens and foreigners) are rivals for the same limited resources'.[22] So, he too surmised instead that xenophobic attitudes 'should rather be understood as a political discourse', where 'the formation of South African identities … attach an "otherness" to African foreigners',[23] in a process that could then be activated in opportunistic local power plays. In other words, failing to find significant predictive effects from the objective structural and demographic predictors, he proposed focusing the prediction of xenophobic attitudes more on the subjective factors.

Now, it is highly plausible that, among the range of distal factors, such subjective orientations lead to xenophobic attitudes. But how plausible is it that experience of objective factors – such as informal residence, unemployment, poverty and poor services – have *no* significant effect on xenophobic attitudes? Certainly, some qualitative analysts had been confident of their force.[24]

Perhaps the naïve bivariate approach of these early statistical analyses is at fault. A weakness in considering separate two-way correlations is that the predictors involved are themselves likely to be correlated. Considering them separately will not allow for this influence among predictors, and might over- or under-represent the significance and the strength of the effects on the outcome. This deficiency is handled by invoking multivariable regression, which tests whether or not each predictor is significantly associated with an outcome variable with all the others in play simultaneously.

Three more recent analyses of survey data accordingly sought to adopt this more discerning regression approach to distal predictors, using a variety of reputable datasets. They are summarised here, and the main results will be revisited in the concluding Discussion.

In a subsequent paper, Gordon[25] found, as before, that the objective distal predictors like employment status and educational attainment puzzlingly did *not* correlate with xenophobic attitudes; nor did urban residence (where immigrants are mostly found). The perception variable 'lived poverty' did correlate, but weakly. Rather, it was subjective distal factors that were highly significant: readership of newspapers (loaded with anti-immigrant stereotypes) and assertive national identity conduced to xenophobic attitudes, whereas interest and participation in politics mitigated xenophobic attitudes.

Photograph by Thapelo Morebudi / ©*Sunday Times*

Very similarly, Ruedin[26] found that 'objective measures' of income and wealth were not correlated with xenophobic attitudes whereas perceived relative deprivation was, quite strongly. Among subjective measures, he too found national identity conduced to xenophobic attitudes (as did a conservative and traditional outlook). But he found, contrary to Gordon, that political involvement exacerbated xenophobic attitudes. What mitigated them in his analysis was a different variable, namely having immigrant contact and acquaintances.

Finally, Claassen[27] tested seven hypotheses in separate regressions, with shared control variables. Yet again, the objective measures of being unemployed, in informal residence, or suffering poor services did not correlate with xenophobic attitudes (though being a disappointed work-seeker had a weak correlation); whereas, again, perceived relative deprivation or 'lived poverty' did correlate, as did perceived poor service delivery. Like Ruedin and unlike Gordon, political involvement exacerbated xenophobic attitudes; but media use and national identification were not correlated ... *unlike* both Ruedin and Gordon.

The essential insight across these three regression-based approaches is that, among distal variables, *objective* predictors – unemployment, relative deprivation, education, informal residence, etc. – conspicuously seem *not* to correlate with xenophobic attitudes in themselves, but only sometimes as respondents' subjective perceptions of these circumstances. Social scientists, accustomed to successfully invoking the usual 'grab-bag'[28] of structural and demographic predictors, might be startled. Moreover, the correlations of subjective distal predictors such as national identification, media use and political involvement with xenophobic attitudes seem to be variously contradictory. What is to be done?

Photograph by Esa Alexander / ©*The Times*

Tackling the predictor problem

The conceptual and empirical centrality of mediation

The analysis advanced in the remainder of this Provocation is that these puzzlements have arisen from the use of statistical tools that are still inadequate to what is really going on in the data, notably as canvassed by the third and most demanding part of the research question formulated at the end of the Introduction: what is the *relationship* among objective and subjective distal factors that conduces to xenophobic attitudes?

The answer that will be advanced is *mediation*. Accounts of potential or actual human actions tend to invoke one or more 'causal chains':[29] *from* a person's objective situation, *via* their subjective perceptions, moods or dispositions, *to* their attitudes or intention to act. The intervening subjective considerations are, in the language of variables, called 'mediators'. Then, there may be further links in the chain, as when the groups of people *act* on the basis of their attitudes and intentions, again via mediating factors such as the mobilising activities of relevant actors in the particular circumstances. The links in these causal chains and the relations among them have been conceptually debated in classic texts in philosophy,[30] sociology,[31] psychology,[32] and since.[33]

In the case of xenophobia, the sequence leading to xenophobic attitudes comprises what we have called the distal stage of Misago's schema in Figure 2; and the onward sequence to xenophobic actions comprises the proximal stage. If one concentrates, as does this analysis, on the distal stage, and applies some grammatical parsing, one finds that the elements of the basic schema – objective circumstances, cognate subjective mediators and consequent hostility to foreigners – are vividly evident in qualitative interviews.

These examples, with some interesting nuances, are from the 2008 wave:[34]

Most [foreigners] own houses and businesses in the township. They can afford to do all these things because they are employed whereas we are unable to afford the basic things.

We don't want these foreigners. They are taking our children's jobs. They are the ones committing rape.

[Foreigners] are self-employed and hard workers … When we saw what they were doing we soon realised that we can also do the same and make money in the process … which is why we don't want them here anymore.

The ingredients of the schema are, distressingly, unaltered by 2019:[35]

> We are fed up with these foreign nationals ... These people bring drugs, and they bring illness in our country. We were born here, but we don't have houses. Our houses are sold to foreign nationals. The government's own people are selling our houses.

> Crime is rife because of overcrowding and hunger. If the government fails to send [foreigners] away, which seems to be the case right now, then they should be allocated their own place and not live together with us in the same areas.

To analyse survey data on the prediction of xenophobic attitudes, a statistical technique is clearly required that handles such causal chains. The modelling will also be essential for policy and programming, in displaying by the points of leverage where social policies and programmes could purposefully intervene.

Now, it is possible to handle one (or more) mediations, between one predictor at a time to a specified outcome, by means of a three-step application of regression,[36] but it is cumbersome. And this stop-gap is immediately seen to be inadequate to two features of social phenomena that are conspicuously evident in the respondents' remarks above, and in the qualitative explanations of xenophobia.

Photograph by Halden Krog / ©*The Times*

First, not only may the same background circumstance bear on two mediators (say, when being unemployed is associated with 'lived poverty' *and* feeling depressed), but two background circumstances may bear on the same mediator (say, when being unemployed *and* suffering poor service delivery are both good reasons for being worried).[37]

Second, the stop-gap approach to mediation initially assumed that a predictor will bear on the outcome *both* via a mediator and directly. This is colloquially called 'partial mediation',[38] and it is quite feasible. But it is also feasible that, as depicted in Misago's diagram, the distal predictors bear on the outcome of xenophobic attitudes *only* via the mediating perceptions, etc. This is 'full mediation'; and it is particularly interesting because, in such instances, a direct regression from predictor to outcome will misleadingly leave one with the impression that the two are not significantly related at all! Might this be why, in the examples from the literature outlined above,[39] predictors appeared to have no effect on xenophobic attitudes?

All these configurations, potentially existing simultaneously among a handful of obviously relevant variables, are the forte of a technique called *path analysis*.[40] The use of this technique, to allow for the simultaneous analysis of multiple pathways, directly or via multiple mediators, is the main distinctive feature of this Provocation.

There is another distinctive feature. Due to its traditional approach of testing disparate hypotheses, specified in advance on the basis of prior theory,[41] and focused on direct rather than mediated linkages, the statistical literature on our topic has – I have surmised – missed important linkages among the numerous likely variables.

Given this potential intricacy, we shall need to proceed statistically in an *exploratory* fashion, which seeks to tease out the correlations and the relationships among them at play in the rich data. This approach is indicated 'when there is little explicit theoretical background to guide prediction'[42] ... or, in this instance, when the theory appears deficient or confused. The aim is then to uncover the patterns that do exist in the data, which 'allow researchers to build rich mental models of the phenomenon being examined'.[43]

This exploratory approach is well known in qualitative enquiries, where a researcher conducts face-to-face interviews with a range of people from differentiated backgrounds, with individuals or in 'focus groups'. The aim is to uncover the patterning of beliefs expressed by respondents, and to distil explanatory schema.[44]

However, when the analogous approach is used on the information from hundreds of individuals gathered instead by a survey, exploration has been disparaged as 'data-driven' rather than 'theory driven'. But, especially with suitable exploratory statistical packages becoming widely available, the worth has increasingly been recognised of sometimes choosing to listen sensitively to the survey data, especially in novel circumstances, rather than interrogating it with hypothesised preconceptions.[45]

The route to path analysis
The dataset and selection of variables

Seeking initial quantitative indications of relationships in the data will take us through now-familiar territory of associations and regressions, not as the end in itself but as means to the end: a path analysis that offers broader and deeper answers to the research question. The route first traverses the data gathered in the GCRO's huge biennial sample survey of residents across Gauteng, called the Quality of Life (QoL) survey. The dataset used is from QoL IV, conducted in 2015/2016.[46]

The survey sampled 30 002 adults, 18 years and older, in Gauteng, drawn from the applicable population of some 8.85 million. The very large total sample was adopted to ensure adequate representation from each of the 529 wards in the region.[47] This analysis focuses on the 27 820 respondents within the sample who were South African.[48] Table 1 offers a brief description of this population as captured in the fieldwork.[49] It shows breakdowns in terms of two-way contrasts. One sees, for instance, that 29.4% of the adult sample was younger than 30 years of age, so that the balance, 70.6%, was 30 or older. Similarly, 41.4% of the sample did not complete matric in their schooling, so that 58.6% had matric or more. However, employment status is shown in three categories, among which the unemployed were 26.6%.

Table 2 shows the phrasing of the options in the outcome variable item to be analysed. The options were presented as the views of three friends, and respondents were asked which best described how they themselves felt. For simplicity of presentation and calculation in this analysis, the responses are arranged as a dichotomy, into 24.5% hostile to foreigners and 75.5% accepting (if the foreigners are 'legal') or welcoming.[50]

Two simplifications of the data are retained in analysing this dichotomised outcome variable. First, the 'unit of analysis' will initially be taken to be the 529 wards in the Gauteng region at the time, rather than the 27 820 individuals, in line with the GCRO's spatial orientation. So, for example, the education variable then refers to the average (or 'mean') level of education across the respondents in each ward. This obviously reduces the variation across the units in the analysis, but has the advantage of yielding sensible levels of significance.[51]

Second, these ward scores of the candidate predictors are dichotomised, generally around the overall mean of the variable concerned, before being entered into the calculations. So, in our example, wards beneath the mean level for education across all wards are scored 0, and those above it are scored 1. This does further reduce the sensitivity of the analysis.[52] However, it allows results to be calculated so as to support the accessible phrasing used later, such as 'hostility was 45% higher among poorer than among better-off respondents' rather than in opaque statistical terms such as 'changes in standard deviations'. Since the outcome variable is also dichotomised, the regression will be of the logistic kind.[53]

Table 1: Profile of the sample (South Africans)

Category (dichotomy)		%
Age	Less than 30 years old	29.4
Gender	Female	49.4
Birth	Born in Gauteng	69.9
Race category	African	77.0
Education	Secondary incomplete	41.4
Poverty	Skipped meal last year	28.7
Household income	Monthly per capita less than R1 500	58.5
Dwelling	Informal	14.0
Job status	Employed	48.5
	Unemployed	26.6
	Not employed	24.9
		100.0
Number of (South African) respondents: 27 820		

Table 2: Main xenophobia question: Attitudes to foreigners

Three options offered to respondents	%
Gauteng should be for South Africans only. They must send the foreigners back to their countries.	24.5
Foreigners living in Gauteng are alright, but only if only they have legal permission from the government.	57.6
A lot of foreigners came to work in South Africa for poor wages under apartheid. We all suffered under the same system. They should be allowed to stay.	17.9
	100.0
Number of (South African) respondents: 27 820	

The GCRO questionnaire contains an ambitious range of variables that are potentially relevant to explaining xenophobic attitudes, in the sense of being statistically significant contributors to a predictive model. On the one hand, they span what we have called the 'objective' distal variables: demographic variables about respondents such as education and age (presently arranged, we recall, as dichotomies); and structural variables such as whether the housing in the ward (according to respondents' reports) is predominantly formal or informal, and whether electricity is predominantly pre-paid or on metered contracts. On the other hand, there are the 'subjective' distal variables: dispositions such as participation (whether there is above-mean participation per ward by residents in service delivery protests); psychological variables such as depression; and attitudinal variables such as inter-personal trust and views on black–white relationships. And of course, the outcome variable we are seeking to predict, hostile or welcoming attitude to foreigners, is also a subjective variable. The logistic regression reported in Table 3 gives a tentative indication of the two dozen-odd variables' direct bearing on the outcome ('tentative' because of our interest in likely mediations, to which we shall return).

Photograph by Thulani Mbele / ©*Sowetan*

Table 3: Logistic regression on 'Hostility to foreigners' using dichotomised ward-level means

Significance	Odds ratio	Variable
.009	1.80	Dissatisfaction with municipality
.012	1.80	How worried yesterday
.036	0.57	No community influence
.040	1.52	Informal dwelling
.044	1.60	Unemployed (vs not employed)
.063	1.46	Dissatisfied with life as a whole
.068	0.67	Feel unsafe walking at night
.081	0.70	Less per capita household income
.082	1.44	How depressed yesterday
.089	1.47	Worse-off than neighbours
.110	1.40	Adult skipped a meal in last year
.120	1.47	Politics is a waste of time
.235	1.37	African (as against Other)
.250	0.77	Prepaid electricity
.334	1.36	Distrust others in general
.354	1.21	Age: less than 30
.385	1.19	Education: matric or more
.463	1.22	Employed (vs not employed)
.509	0.80	Distrust between blacks and whites
.614	0.87	Dissatisfaction with dwelling
.770	0.92	Born in Gauteng
.815	1.08	Dissatisfied with personal money
.857	1.04	No place for whites in South Africa
.943	1.02	Participated in service-delivery protest
.962	1.02	Male (as against female)
.993	1.00	Better-off than neighbours
.001	**0.14**	**Constant**

Odds ratios less than 1 are italicised.

The consequence of the dichotomisations is that the associations of the predictor variables with the outcome are expressed as 'odds ratios' (ORs). These pivot around 1. For example, the OR of 1.80 in the first line indicates that those dissatisfied with their municipality are 80% more likely to be hostile to foreigners than those who are satisfied with their municipality. Similarly, the fourth line indicates that those in informal dwellings (OR=1.52) are 52% more likely to be hostile than those in formal dwellings.

ORs less than 1 express a negative correlation. Thus, the coefficient of 0.57 in the third row indicates that those who feel disempowered in their community are *less* likely to be hostile. To interpret coefficients that are less than 1, it is more intuitive to 'flip' both the numerical coefficient and the predictor's categorisation. One may thus say that those who feel *empowered* in their communities are 1/0.57=1.75, i.e. 75%, *more* likely to be hostile to foreigners.

Likewise, further down, the coefficients are less than 1 for those who are from poorer households (0.70) or feel unsafe (0.67). After 'flipping', one sees that those from better-off households are 1/0.70=1.43, i.e. 43%, more likely to be hostile. Similarly, those feeling safe are 1/0.67=1.49, i.e. 49%, more likely to be hostile.

Taking these three indications together, it appears that the somewhat better-established residents within marginal communities tend to be xenophobic – perhaps their interests are more threatened and they have more capacity to express and even act upon their views.

Photograph by Thapelo Morebudi / ©*Sowetan*

This surprising result is, as promised at the end of the previous section, one of the benefits of exploring a large dataset as an alternative to confronting it with prior hypotheses. A second surprise is that only five of the predictor variables appear to be statistically significant using the customary cut-off, i.e. with significance (shown in the first column) of less than 0.05.[54] This is partly a consequence of having chosen to work at ward level. So, we might well keep an eye on the next-down panel of variables, with significances up to 0.1. It turns out that these variables do indeed dominate the next stage of exploration.

The third surprise from Table 3 is the importance, within the subjective variables, of the psychological variables that were included in the questionnaire, notably worry and depression (for which, recall, we are still working with average levels per ward). They are stronger predictors of xenophobic attitudes than socio-political variables such as politics being perceived as a waste of time, or perceived distrust between black Africans and whites.[55]

Another item in the QoL questionnaire canvassed xenophobia much more fiercely. When asked 'Do you think it is OK to physically attack foreigners to make them leave?', 96.4% of respondents disagreed while 3.6% agreed. To keep this in proportion, the latter amounted to a thousand among the 27 820 South African respondents across Gauteng, or just two per ward. The breakdown of the answers is so uneven that the unit analysis will need to shift from wards to individuals.[56]

Pathways to xenophobic attitudes
The resurrection of objective predictors

At this juncture, the regression analyses of the surveys reported earlier from the literature move to their 'Discussion' sections; and look to the theories that they invoked for their hypotheses, and perhaps also to qualitative reports with insights from people in the wards, for intimations of why these correlations manifest as they do – or surprisingly fail to manifest, or do so contradictorily. But, as reasoned earlier in this analysis, merely to follow this route would be to ignore three real possibilities about how xenophobic attitudes may actually be predicted in the social world.

To recall: first, it may be that, given a suitably powerful analysis, some among the variables would manifest as *mediators*, which are not only central to plausible accounts by the participants but may reveal antecedent predictors that may not have seemed significant. Second, mediators such as depression or dissatisfaction may be predicted by *more than one* salient predictor. And third, any one predictor may conversely bear on more than one mediator. To be able to handle all this, one needs to move into path analysis.

Given the range of candidate variables and permutations to explore, a defensible if approximate way of winnowing the permutations is to re-do regressions as in Table 3, but use likely mediators in turn as the outcome variable, in order to sift down to a manageable number of predictors that they seemingly have in common.[57] It turns out that those near the top of Table 3 retain their salience, and those further down do not. These additional 'siftings' do not need to be displayed.

The possible linkages of the manageable subset are then explored in a path analysis, to see which are actually significant when considered in conjunction. In particular, one allows the objective structural and demographic variables to associate with the outcome not only directly, as in the regressions cited earlier, but also via each of the candidate subjective mediators.

The paths that survive as significant are seen in a composite path model in Figure 3. Looking downwards from the top of the diagram, and recalling that we are working with ward-level means, the top-left box shows that living in an informal settlement not only bears directly on the outcome variable, hostility to foreigners, but also via a mediator, depression.

The corresponding first line of text shows that the total effect of informal residence on the outcome, by these two routes taken together, is OR=1.82. Recalling again that we are working with ward-level means, this indicates that in predominantly *informal-settlement* wards people are on average 82% more likely to have hostile attitudes to foreigners than people in predominantly formal-dwelling wards. That is nearly twice as likely: and the effect is seen to be partly a result of the milieu itself and partly a result of the depression consequent upon living in that milieu.

Figure 3: Predictors and mediators of 'Hostility to foreigners' using ward-level data
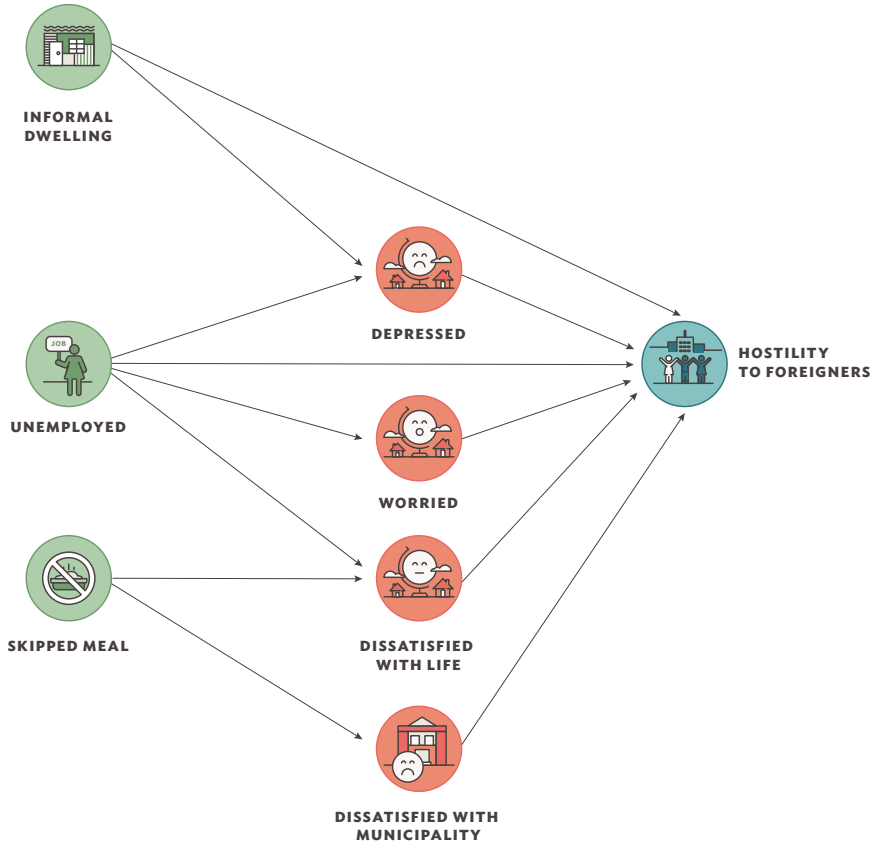
Ward-level data: odds ratios (OR) on 'Hostility to foreigners' of …				
Predictors	OR	Mediators		OR
Informal dwelling	1.82	Depressed		1.36
Unemployed	1.44	Worried		1.47
Skipped meal	1.31	Dissatisfied with life		1.28
		Dissatisfied with municipality		1.33
R-squared = 20.9% | RMSEA = 0.00, CFI = 1.00, TLI = 1.00				

Moving down the diagram, one sees that *unemployment* bears on hostility to foreigners directly as well as via three mediating variables, namely depression, worry and dissatisfaction with life. The second line of text gives the total effect, OR=1.44. So, in wards where unemployment is predominant, people are on average 44% more likely to be hostile to foreigners; and this is partly a direct effect of unemployment and partly a result of the depression, worry and dissatisfaction with life that the unemployment occasions.

Similarly, at the bottom of the diagram, one sees that in predominantly poor wards, in the sense that adults have had to miss a meal in the last year, people are on average 31% (OR=1.31) more likely to be hostile to foreigners, as a result of the dissatisfaction with the municipality and the dissatisfaction with life in general that are both occasioned by their poverty.

This is a powerful and startling result: in wards afflicted by informality, unemployment or poverty, respondents are respectively 82%, 44% or 31%, on average across the ward, more likely to manifest xenophobic attitudes.[58] These objective predictors, significantly and quite powerfully at work directly or via subjective mediators, are the very variables that the statistical analyses of Gordin, Ruedin and Claassen – confining themselves to simple, direct regressions – variously reported as being statistically *insignificant* predictors. We shall unpack this further in the Discussion.

Also worth noting, in comparison among the variables profiled in Table 1, are factors which *do not* survive the 'sifting' of Table 3, and thus do not feature in the final analysis: such as gender, age (those less than 30 years old versus the rest), level of education, or race (African as against coloured, Indian and white). In other words, the idea of xenophobia, in the sense of hostility to foreigners, being especially a phenomenon of less-educated young, male Africans seems not to be supported in the main by the data from this very large and carefully drawn sample.

We have seen (at the end of the previous section) that the more severe version of the distal outcome variable was also put to respondents: their readiness to attack foreigners, i.e. attitudinal support for xenophobic violence. This option was favoured by only 3.6% of respondents. But, given the very large QoL sample, this proportion comprised some thousand people. So, it proved possible, by moving from wards to individuals as the unit of analysis, to yield a path model of predictors and mediators of this outcome.

This is at once evocatively similar and interestingly different, as shown in Figure 4. In this approach, other variables can emerge as significant whose salient variation was submerged by averaging across wards.

Figure 4: Predictors and mediators of 'Attack foreigners', using individual-level data
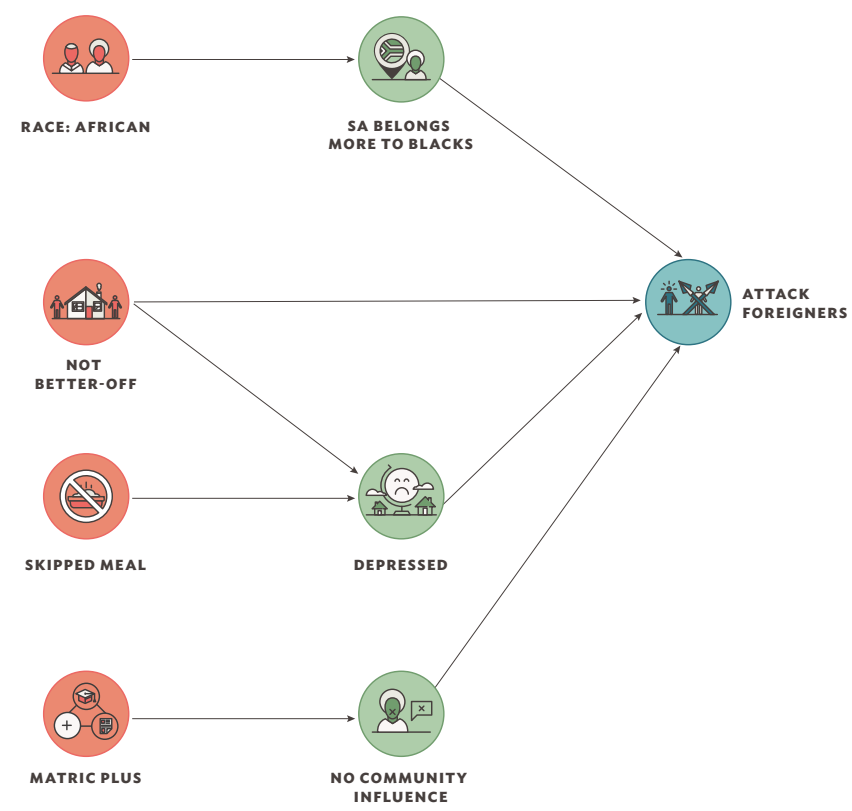
Individual-level data: odds ratios (OR) on 'Readiness to attack foreigners' of …			
Predictors	OR	Mediators	OR
African (rather than other)	1.05	SA belongs to blacks	1.21
Not better-off	1.63	Depressed	1.63
Skipped meal	1.18	Cannot influence community	1.33
Matric or more	1.05		
R-squared = 11.4% | RMSEA = 0.022, CFI = 0.95, TLI = 0.90			

In taking an individual-level perspective with a sample of nearly 28 000 respondents, one needs first to be as careful for what the model doesn't actually say as for what it does. An effect can be statistically significant – in the strict sense that it will indeed be found in the parent population from which the sample is drawn – while being substantively unimportant, i.e. of small effect size. The top pathway is of this kind. It shows that black Africans, tending to feel that South Africa really belongs only to blacks, are likely to be hostile to foreigners … but only 5% more likely (OR=1.05)! The same applies to the bottom pathway: that better-educated people feel less influential in their communities. It would be interesting for being counterintuitive; but the effect size, also just 5% (OR=1.05), is not appreciable enough to spend much time on.

Rather, we may attend to the two somewhat stronger effects. The one, familiar from the ward-level analysis, is the 'causal chain' from poverty (indexed by intermittent hunger) via respondents' depression to xenophobic attitudes. Measured now at individual level, where random variation is greater, this reflects as an 18% greater likelihood. The other individual-level effect is much more appreciable, and introduces an extra dimension of relative deprivation – or rather, in the way the variable has been defined, lack of relative advantage: people who feel no better-off than their neighbours are 63% more likely than those who do feel better-off to bear hostility towards foreigners.

Photograph by Paul Botes / ©*Mail&Guardian*

Discussion

The causal chains leading to xenophobic attitudes

The research question was to examine, with a statistical analysis of GCRO survey data, (a) *which* of many potential distal variables, whether objective or subjective, are actually salient towards predicting xenophobic attitudes; (b) what their relative *strengths* are; and, especially, (c) the significant *relationships* among them. What have been the gains from employing the greater depth and breadth of path analysis to answer this question?

First, the powerful effects of some of the main objective distal predictors invoked in commentaries and qualitative insights – unemployment, informal settlements and poverty – have been statistically resurrected. This is in striking contrast to the puzzling findings from the earlier, direct regression analyses. Gordon's regressions didn't find employment status, Claassen's didn't find informal housing, and Ruedin's didn't find income, to be significantly predictive of xenophobic attitudes. Figure 4 suggests that they might well be wrong in these respects, through not attending to the interlinked involvement of the variables in mediations. With adequate technique, it turns out that these objective predictors *are* significant, working both via subjective mediators and, in some pathways, directly as well. The implications will be critically important for evidence-based policy-making and interventions to mitigate the formation of xenophobic attitudes, as xenophobic attacks continue to erupt.

Second, the mediating subjective attitudes, by which these objective circumstances are mostly linked to xenophobic attitudes, appear in the path analyses to be more psychological (depression, worry and perceived lack of advantage) or socio-economic (lack of municipal service delivery) than specifically socio-political (such as racism or political alienation), which didn't come up significantly in the model. The effect of the latter, evidenced in the variable 'South Africa belongs more to blacks' in Figure 4, was very weak. Perhaps this is why the socio-political correlations were so contradictory in the prior literature: Gordon and Ruedin both found that assertive national identity conduced to xenophobic attitudes, but for Claassen the effect was insignificant; and political involvements mitigated xenophobia for Gordon, but exacerbated it for Ruedin and Claassen!

This needs further work: we may be comparing somewhat different things operationalised under similar labels. Yet, coupled with the first point about missing or underestimating the influence of demographic or structural predictors by ignoring mediator possibilities, I would warn against retreating too exclusively to 'identity-related issues', such as 'a sense of national "bondedness"' vis-à-vis immigrants' 'racial and cultural identities', for explaining xenophobic attitudes.[59] As indicated in Figures 3 and 4, a more adequate evidence-based model demands both objective and subjective indicators, interlinked into 'causal chains'.

Third, some demographic predictors that may have been emphasised in explanations advanced hitherto seem to be *less* important as a matter of empirical fact – such as incomplete education (which Figure 4 indicates to be only a weak predictor via low community engagement), or youthfulness, which did not make it into the path-modelling stage. In these particular respects, the path models do corroborate the earlier regressions. Surprising to contemplate, it may be that out-of-school youth are no less or more of a 'ticking time bomb' for xenophobia, potentially to be mobilised by self-interested businessmen or politicians, than everyone else who is driven to worry and depression by the configuration of poverty, hunger, unemployment and perhaps also informal residence.

These interpretations are, of course, more open to debate than the structured path models and quantified coefficients that occasion them. But the latter must also bear some caveats. One caveat is that Figures 3 and 4 each display *a* validated model, not *the only* model. A hypothesis tester knows exactly what half-dozen predictors she will be transacting with, apart from typical controls. By contrast, in exploratory analysis, one deliberately opens up the enquiry to more, and unexpected, possibilities. In particular, in necessarily 'sifting' variables down to a manageable subset (in our case by examining how they associate with the range of potential mediators as well as with the known outcome), there is a risk of setting aside some variables that might have become more telling in the context of an even fuller model than some other variables that were retained. This is, of course, in addition to the risk – evident in all of the surveys considered – of not having included some interesting possibilities in the questionnaire to begin with. When these come up, they can be added and their effects examined.

A remaining caveat is that quantification has demanded severe simplification and abstraction, compared to the nuanced narratives and individuals' utterances in qualitative studies. Einstein is widely reported to have said that 'Science does not give us the taste of the soup.' Neither does path analysis. But what it has given us – the rediscovery of critical predictors, evidence-based structuring of multiple causal pathways, and quantification of their relative strengths – has not been available from less powerful, if more detailed, statistical techniques, still less from alternative qualitative interpretations.

Taking a concluding larger view, the overall mosaic of these results may be construed as potentially optimistic, in two respects. On the one hand, they imply that what needs primarily to be addressed to mitigate xenophobic attitudes are the underlying circumstances of economic disadvantage (notably unemployment, hunger and housing). The economic levers to do so are broadly known, at least since the National Development Plan, if only the requisite political will were present. Improving these circumstances will also be associated with mitigating the mediators of depression and worry among those affected, as well as endemic resentment and protest about poor service delivery.

And on the other hand, potentially more intractable identity issues such as race and political alienation – which feature large in, for example, the mobilising discourses of some political parties – would seem as a matter of fact less salient than the objective factors as causes of xenophobic attitudes when actually surveyed among the larger population and then adequately analysed.

Endnotes

1. GCRO (Gauteng City-Region Observatory). (2016). *Quality of Life Survey IV (2015/2016)*. Johannesburg: GCRO. https://gcro.ac.za/research/project/detail/quality-of-life-survey-iv-201516/

2. I. Nair (2019, 27 March). More foreign nationals arrive at Durban police station for shelter. *TimesLIVE*. https://www.timeslive.co.za/news/south-africa/2019-03-27-more-foreign-nationals-arrive-at-durban-police-station-for-shelter/

3. B. Mthethwe (2019, 1 April). Malawians want to go home following attack at a Durban informal settlement. *TimesLIVE*. https://www.timeslive.co.za/news/south-africa/2019-04-01-malawians-want-to-go-home-following-attack-at-a-durban-informal-settlement/

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6. Early analyses and attitude surveys are cited in J. Crush & W. Pendleton (2004). *Regionalizing xenophobia? Citizen attitudes to immigration and refugee policy in Southern Africa*. Southern African Migration Project. Cape Town: Idasa. https://www.africaportal.org/publications/regionalizing-xenophobia-citizen-attitudes-immigration-and-refugee-policy-southern-africa/

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8. C. Miles (2008, 26 May). 'Who cast the first stone?' [Cartoon]. *Daily Dispatch*. Reproduced in: J.P. Misago (2015). *Xenophobic violence in South Africa: Critical reflections on current explanations*. HSRC Seminar, Pretoria, 30 June 2015.

9. D. Everatt (2010). Overview and prospects. In D. Everatt (Ed.), *South African civil society and xenophobia* (pp. 1–16). Johannesburg: Strategy and Tactics, p. 1.

10. C. Claassen (2017). *Explaining South African xenophobia*. Afrobarometer Working Paper No. 173, p.1. https://afrobarometer.org/publications/wp173-explaining-south-african-xenophobia/

11. The range of explanations has been summarised by J. Crush, G. Tawodzera, A. Chikanda, S. Ramachandran & D. Tevera (2017). *South Africa case study: The double crisis – Mass migration from Zimbabwe and xenophobic violence in South Africa*. Vienna: International Centre for Migration Policy Development. https://www.africaportal.org/publications/migrants-countries-crisis-south-africa-case-study-double-crisis-mass-migration-zimbabwe-and-xenophobic-violence-south-africa/

12. Misago (2015), at n. 8.

13. For example, D.L. Horowitz, quoted in J.P. Misago (2016b). Migration, governance and violent exclusion: Exploring the determinants of xenophobic violence in post-apartheid South Africa. Unpublished PhD thesis, School of Social Sciences, University of the Witwatersrand, South Africa, p. 52.

14. Mlilo & Misago (2019), at n. 4. In localised situations, these may include local small-business networks or settlement warlords, and fractured local authorities and police reticence. National or provincial leadership also continue to weigh in. Recent instances are recalled in: W. Saunderson-Meyer (2019, 12 January). Xenophobia: Reprehensible but irresistible? *PoliticsWeb*. https://www.politicsweb.co.za/politics/xenophobia-reprehensible-but-irresistible; and L. Chutel (2019, 2 April). South Africa's election season rhetoric has sparked fresh xenophobic attacks on African migrants. *QuartzAfrica*. https://qz.com/africa/1585736/xenophobic-attacks-on-africans-in-south-africa-ahead-of-elections/

15. Misago (2016b), at n. 13, p. 6 and *ff.*

16. Misago (2016b), at n. 13, p. 5.

17. Misago (2015), at n. 8.

18. R. Mattes, D.M. Taylor, D.A. McDonald, A. Poore & W. Richmond (1999). *Still waiting for the barbarians: South African attitudes to immigrants and immigration*. Southern African Migration Project: Migration Policy Series No. 14. Cape Town: Idasa, p. 10. http://samponline.org/wp-content/uploads/2016/10/Acrobat14.pdf

19. J. Crush, S. Ramachandran & W. Pendleton (2013). *Soft targets: Xenophobia, public violence, and changing attitudes to migrants in South Africa after 2008*. Southern African Migration Project: Migration Policy Series No. 64. Cape Town: Idasa. http://samponline.org/wp-content/uploads/2016/10/Acrobat64.pd.

20. See, for example, A. Mosselson (2010). 'There is no difference between citizens and non-citizens anymore': Violent xenophobia, citizenship and the politics of belonging in post-apartheid South Africa. *Journal of Southern African Studies*, 36(3), 641–655; and T.J. Monson (2015). Citizenship, 'xenophobia' and collective mobilization in a South African settlement: The politics of exclusion at the threshold of the state. Unpublished PhD thesis, London School of Economics, UK

21. See S.L. Gordon (2015). Xenophobia across the class divide: South African attitudes towards foreigners 2003–2012. *Journal of Contemporary African Studies*, 33(4), 494–509. Gordon used bivariate analysis of variance to try take advantage of his scaled variables, but still found that 'the economic indicators in the model do not adequately explain public sentiment towards immigrants' (p. 507).

22. Gordon (2015), at n. 21, p. 501.

23. Gordon (2015), at n. 21, p. 504. See also Monson (2015), at n. 20.

24. For example, M. Silverman & T. Zack (2009). Housing delivery, the urban crisis, and xenophobia. In E. Worby, S. Hassim & T. Kupe (Eds.), *Go home and die: Violence, xenophobia, and the reinvention of difference in South Africa* (pp. 147–160). Johannesburg: Wits University Press.

25. S.L. Gordon (2016). Welcoming refugees in the rainbow nation: Contemporary attitudes towards refugees in South Africa. *African Geographical Review*, 35(1), 1–17. In this paper, the dependent variable is support for refugee protection; in the earlier paper (2015) mentioned at n. 21, Gordon's cross-tabulations used the welcoming of immigrants.

26. D. Ruedin (2018). Attitudes to immigrants in South Africa: Personality and vulnerability. *Journal of Ethnic and Migration Studies*, 45(7), 1108–1126. doi: 10.1080/1369183X.2018.1428086.

27. C. Claassen (2017), at n. 10. For comparability, we concentrate on his results for the black subsample.

28. M.A. Hardy & A. Bryman (2004). *Handbook of data analysis*. London: Sage, p. 79.

29. D.P. MacKinnon (2008). *Introduction to statistical mediation analysis*. Mahwah, NJ: Erlbaum.

30. For example, G.H. von Wright (1971). *Explanation and understanding*. Ithaca, NY: Cornell University Press.

31. For example, C. Taylor (1964). *The explanation of behaviour*. London: Routledge & Kegan Paul.

32. For example, I. Ajzen (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211.

33. An ambitious recent overview, bravely attempting to carry the discussion into quantitative analysis, is J. Goldthorpe (2016). *Sociology as a population science*. Cambridge: Cambridge University Press.

34. D. Everatt (2012). Xenophobia, state and society in South Africa 2008–10. *Politikon,* 38(1), 7–36.

35. B.C. Simelane (2019, 3 April). Xenophobia, crime and poverty trigger anger in Alexandra. *Daily Maverick*. https://www.dailymaverick.co.za/article/2019-04-03-xenophobia-crime-and-poverty-trigger-anger-in-alexandra/

36. R.M. Baron & D.A. Kenny (1986). The moderator–mediator variable distinction in social psychological research. *Journal of Personality and Social Psychology,* 51, 1173–1182. A.F. Hayes (2017) allows for multiple parallel mediators in a programme covered in his book, *Introduction to mediation, moderation and conditional process analysis* (2nd ed.). New York: Guilford Press.

37. Indeed, one may have more than one outcome simultaneously.

38. Baron and Kenny wrongly assumed that all mediations would be partial. See MacKinnon (2008), at n. 29.

39. Claassen (2017), at n. 10, notices *en passant* in one of his seven separate regression models (p. 12) that the inclusion of subjectively perceived economic hardship renders insignificant the effect of poverty as an objective predictor. He accordingly follows the original Baron and Kenny (1986, at n. 36) approach to establish that the former mediates the effect of the latter. But he does not report checking for other instances, still less investigating their simultaneous interplay of multiple predictors and mediators.

40. The general approach is well presented in: R.B. Kline (2015). *Principles and practice of structural equation modelling* (4th ed.). Mahwah, NJ: Guilford Press. The particular statistical package used here is Mplus: L.K. Muthén & B.O. Muthén (2012). *Mplus user's guide* (7th ed.). Los Angeles, CA: Muthén & Muthén.

41. For example, D.A. de Vaus (1992). *Surveys in social research* (3rd ed.). London: Unwin.

42. J.T. Behrens (1997). Principles and procedures of exploratory data analysis. *Psychological Methods*, 2(2), 131–160, p. 154.

43. Behrens (1997), at n. 42, p. 134.

44. For example, J. Ritchie, J. Lewis, C.M. Nicholls & R. Ormston (Eds.) (2013). *Qualitative research practice: A guide for social science students and researchers.* London: Sage.

45. For the interpretive interplay between statistical methods and models, see B.G. Glaser & A.L. Strauss (1957). *The discovery of grounded theory*. Chicago: Aldine.

46. GCRO. (2016), at n. 1.

47. In Data Brief No. 8, the GCRO mapped the spatial prevalence, and provided a descriptive account, of hostile attitudes towards foreigners that were canvassed in the questionnaire – see R. Ballard & C. Hamman (2018). *Quality of Life Survey IV: Social cohesion.* Johannesburg: GCRO, especially Section 5, 'Attitudes to migrants in Gauteng', pp. 17–25.

48. One finds that the 2 000 foreigners would require a separate treatment since, unsurprisingly, the balance of their views is radically different from South Africans' on these two issues.

49. The GCRO carefully provides weights to adjust these proportions to those of the population captured by Statistics South Africa's 2011 census, when reporting population proportions – see Ask Afrika. (n.d.). *GCRO Quality of Life Survey: Final weight calculations.* Pretoria: Ask Afrika. However, it is considered preferable not to use weighted data in multivariable modelling, provided that the weighting variables are included in the models. See A. Gelman (2007). Struggles with survey weights and regression modelling. *Statistical Science,* 22, 153–164.

50. Regression onto a three-part outcome variable is intricate to present and discuss. One hopes a dichotomy works plausibly; or else hopes to construct a scale of five or more parts, which one can assume is continuous.

51. For 27 820 individuals, even substantively tiny effects will be 'statistically significant', in the sense of probably obtaining in the wider population.

52. See, for example, D.G Altman & P. Royston (2006). The cost of dichotomising continuous variables. *British Medical Journal,* 332(May), 1080.

53. See, for example, A. Afifi, S. May & V.A. Clark (2012). *Practical multivariate analysis* (5th ed.). Boca Raton, FA: CRC Press, Chapter 12 (pp. 269–315).

54. 'Significance of less than 0.05', usually denoted as $p<0.05$, means that one would be right 95% of the time, or 19 calls out of 20, in believing that this effect was also applicable in the wider population. There appear to be quite strong effects that don't make the cut, e.g. those thinking politics is a waste of time are 47% likelier to be hostile than those who think otherwise. But, with a significance of 0.120, this effect is likely to be absent in the wider population about one time in eight. That may be trustworthy enough for a policy-maker to want to worry about, but academic journals are more demanding and almost always require $p<0.05$.

55. This is possibly in part due to the former having more extreme 'splits' between those worried or depressed, or not, compared to those politically apathetic, or not. But that is relevant in itself.

56. There is a third question, dealing with respondents' attitude to 'influx control', which under apartheid regulated the mobility of South Africans within the country. Factor analysis shows that the three variables 'load' sufficiently strongly onto a single dimension to be combined into an index. However, taken as an overall outcome, this variable correlates less revealingly with predictors than the other two because of its markedly different connotation, i.e. including South Africans from elsewhere in the country. It is not examined further in this argument.

57. D.W. Hosmer Jr & S. Lemeshow (2000). *Applied logistic* regression (2nd ed.). London: Wiley.

58. The statistical package additionally tells us that the overall model explains 20.9% of the variance in the data, which is respectable for a complicated real-life situation. The tables in the diagrams also show the strengths of the paths from the mediators to the outcome. For instance, at the bottom of the diagram, the path from dissatisfaction with municipality to outcome has an OR=1.51.

59. See Mosselson (2010) and Monson (2015), at n. 20; and Gordon (2015), at n. 21.

About the *Provocations* series

[*to provoke: to stimulate, incite, stir up, challenge, irk, exasperate, vex*]

The Gauteng City-Region Observatory's Provocations comprise an ongoing series of thinkpieces that give a platform to cutting-edge thinking on current issues of the day, written and presented in non-academic style and format. Each Provocation is offered by an academic or practitioner for reading by a wide audience, with the hope of shedding light on key topics relevant to researchers, policy-makers, business people, activists and members of the public.

The series aims to challenge conventional understandings, stimulate new thinking, stir up debate and incite readers to respond with interpretations of their own. At times, the thoughts offered will exasperate, perhaps even anger. Each piece goes through rigorous editing, but the analysis, views and opinions presented are solely those of the author.

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About the photographs

Cover: Paul Botes / ©*Mail&Guardian*. Ramaphosaville, Gauteng, May 2008. In 2008, the xenophobic attacks began in Alexandra township in Johannesburg and spread to scores of locations countrywide, including Ramaphosaville (known as 'Ramaphosa') on the East Rand.

Page 3: James Oatway / ©*Sunday Times*. Gauteng, May 2008. This photograph forms part of the photographer's award-winning series titled 'Xenophobic attacks in South Africa', which were taken in Johannesburg during May 2008.

Page 9: Thapelo Morebudi / ©*Sunday Times*. 9 August 2019. 'Weak sunshine and time to talk – these are about the only assets that residents of Alexandra township have in abundance. The Johannesburg township has one of the highest rates of unemployment in Gauteng.' Unemployment is one of the predictors of 'Hostility to foreigners' and, in early September 2019, xenophobic attacks broke out in and around Johannesburg, resulting in looting and extensive damage to property.

Page 10: Esa Alexander / ©*The Times*. 11 February 2014. 'A resident carrying water in Isiqalo informal settlement, near Mitchells Plain in the Western Cape, where six people were arrested after service delivery protests in the area. Residents say they need formal houses, decent sanitation and electricity.' In predominantly poor wards in Gauteng, people are 31% more likely to be hostile to foreigners, as a result of their dissatisfaction with the municipality and with life in general that are both occasioned by their poverty.

Page 12: Halden Krog / ©*The Times*. Western Cape, 12 July 2012. 'Somalian residents and foreign shop owners have been the targets of xenophobic violence where shops have been burnt down in Mitchells Plain, Cape Town.' In Johannesburg in September 2019, the looting initially targeted foreigners' stores and workshops, before spreading to those owned by South Africans.

Page 16: Thulani Mbele / ©*Sowetan*. 5 February 2019. 'Abandoned buildings in the Johannesburg inner city have been home to many families who claim to have lived there for years despite challenges.'

Pages 18 & 19: Thapelo Morebudi / ©*Sowetan*. Gauteng, 17 August 2018. 'The Gautrain seen passing Stjwetla informal settlement in Alexandra.'

Page 24: Paul Botes / ©*Mail&Guardian*. Ramaphosaville, Gauteng, May 2008.

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