Legacies, Change and Transformation in the Post-Apartheid City: Towards an Urban Sociological Cartography

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Abstract

The post-apartheid city represents an important test case for assessing how the spatial dimensions of social inequality shape the dynamics of urban transformation. Most analyses of urban segregation have focused on race or class as key drivers of mobility or maintenance, for instance in the classic spatial assimilation versus place stratification debate. Yet the mechanisms of segregation and mixing play themselves out differently according to urban spatial structure. We use the case of Durban, South Africa, to show that the spatial legacies of apartheid are powerful, and much of the city has undergone little change since apartheid. Through a spatial analysis at the neighbourhood level, we also find that even in the short time between 1996 and 2001 a significant number of neighbourhoods experienced measurable shifts in their racial and socio-economic composition. We develop what we call a sociological cartography *of the city, which shows how race, class and space have combined to generate three distinct but interconnected types of stasis and transformation: the racialized city, the class-stratified city and the transformed city. The racialized city is the most direct legacy of apartheid spatial development, encompassing neighbourhoods composed of essentially a single race group. In the class-stratified city, multiple race groups of similar class status are represented. Finally, the transformed city represents new configurations that cut across both race and class divisions of the apartheid city.*

Introduction

It is now widely acknowledged in urban sociology that space reflects and reinforces inequality. Nowhere is this more obviously true and trenchant than in South Africa, where the social, economic and racial divisions of apartheid were spatially constructed. Post-apartheid South Africa presents an important and uniquely powerful lens for examining the dynamic relationship between space and inequality. On the one hand, the apartheid city produced a stark, compartmentalized and highly legible spatial hierarchy of race, class and access. On the other hand, the end of the apartheid regime has unleashed powerful transformative forces, most notably market forces that are no longer fettered by legal racial barriers and a high-capacity African majority government that is politically committed to desegregating the city.

In interpreting the impact of these transformative forces, the South African literature has often borrowed from the analytical frame of the global-cities literature (Harrison *et al.*, 2003: 3). Much of the debate on urban transformation in the 1990s was dominated by structural views that linked neoliberal globalization to the polarization and fragmentation of cities (Sassen, 1998). This view has been challenged recently by a wave of studies that question the determinism of the globalization–polarization view and argue that change has been more complex and less unidirectional (Marcuse and Van Kempen, 2000; Maloutas, 2007; Crankshaw, 2008). This body of research recognizes the power of structural market forces, but argues that their impact is mediated by a range of factors. We refer to this perspective as the configurational view.

The rich and diverse literature on race and class in post-apartheid South Africa has generally drawn a picture of, at best, no progress towards social and economic transformation and, at worst, increasing inequality and fragmentation. In its broadest and most comprehensive political-economy form, this argument is best summed up in Seekings's and Nattrass's *Class, Race and Inequality in South Africa* (2005), which argues that post-apartheid economic and social policies deracialized but nonetheless preserved the class divisions of the late apartheid distribution regime by extending it beyond its White historical base to include a small, emerging African middle class and the organized African working class.[1] This argument finds a direct echo in studies of South African cities (e.g. Maharaj and Ramballi, 1998; Freund, 2000; 2001; Turok and Watson, 2001; Lemanski, 2007; Crankshaw, 2008). These analysts point to the rise in inequality in the post-apartheid period as indicative of growth in both the middle class and in the poor African population.

When applied to urban space, the increase in urban inequality in South Africa reflects both sides of a classic debate on the respective significance of race and class in maintaining segregation in American cities (Charles, 2003). On the one hand, the *spatial assimilation* model, built on William Julius Wilson's *The Declining Significance of Race* (1978), maintains that class factors, correlating with race, account for segregation, and that, to the extent that people of different race groups can improve their class position, they will be able to move (e.g. Clark, 1988; Galster, 1988; Farley and Frey, 1994). According to the spatial assimilation model, as economic and other kinds of resources grow within a race group, segregation will decline. Segregation therefore is a result of inequality that correlates with race.

On the other hand, the more popular *place stratification* model identifies persistent racialization as the root cause of spatial inequality. In this model, disadvantaged groups will be blocked from moving to certain places that are in different strata even as they improve their class status (see Alba and Logan, 1993; Massey and Denton, 1993; Farley *et al,*. 1994; Lindstrom, 1997; South and Crowder, 1998; Harris, 1999). Studies supporting the place stratification model show continued segregation (e.g. Bobo and Zubrinski, 1996; Meyer, 2000; Charles, 2001) and discriminatory practices (e.g. Yinger, 1995; Massey and Lundy, 2001) even after the end of legal restrictions on movement.

As useful as this debate has been, it suffers from a key shortcoming. These models tend to accord greater primacy to either class or race mechanisms in explaining mobility, rather than focusing on how both mechanisms combine to shape mobility in different ways across different places. To better understand these interactions, we propose to make the urban spatial form itself the object of analysis. We argue that the urban spatial form encapsulates not only the accumulated inequalities of the built environment, race and class, but when viewed dynamically, the convergence of transformative forces, including market forces and local state intervention. To address shortcomings in standard models,

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1   The terms we use in this article to refer to race groups are African, Indian, Coloured and White. Though racial categories are often fluid, the strict enforcement of racial separation under apartheid created well-defined and highly stable racial categories in South Africa (Christopher, 2005; Seekings, 2008). While continued use of apartheid-era categories remains controversial, we follow census guidelines and widely cited literature (e.g. Harrison *et al.*, 2008)

and to incorporate urban spatial form, we propose a spatial configurational approach to understanding *where* these different mobility mechanisms linked to race and class apply across urban space, and how the distribution of these mechanisms determines developmental pathways. We call this approach *sociological cartography*.

To do this, we disaggregate racial and economic residential change in the city of Durban in the post-apartheid period. We provide a spatial analysis of changes in the urban spatial form, drawing on geo-coded data from 406 neighbourhoods and using key informant interviews and workshops to interpret our findings. This analysis reveals the existence of three distinct but interconnected spatial forms: the racialized city, the class-stratified city and the transformed city. The prevalence of the first two types confirms the general perspective on post-apartheid urban development; the existence of the third type adds a new layer to the understanding of urban transformation.

Towards a sociological cartography of the post-apartheid city

The literature on the post-apartheid city has been centrally concerned with exploring the spatial dimensions of transformation.[2] There are three broad conclusions that emerge from this literature. The first is that the post-apartheid city is experiencing increasing spatial fragmentation and social polarization. South African cities, which were not densified to begin with, are sprawling out, propelled by decentralization, deindustrialization, suburbanization and greenfield developments. These new spaces extend and even heighten historical inequalities, marked at one extreme by high-end gated neighbourhoods and at the other by vast, distant informal settlements.

The second is that changes in the spatial form of the city are in large part being driven both directly and indirectly by structural market forces. The post-Fordist economy has increased income inequality between skilled and unskilled workers and further segmented the housing market. Concentrated manufacturing industry has been displaced by smaller, more flexible production units and services, fuelling the suburbanization of the economy and multi-nodal patterns of growth. And the combination of new market forces and the removal of racial barriers to mobility has shifted the logic of spatial inequality from racial segregation to class segregation, for instance through massive variations in land pricing (Seekings and Nattrass, 2005; Crankshaw, 2008; Seekings, 2008).

Thirdly, despite its stated commitment to desegregating the apartheid city,[3] the local state has not been very effective in promoting either racial or economic desegregation (Bremner, 2000; Harrison *et al.,* 2003). Most notably, efforts to provide the poor with affordable housing have been roundly criticized as ineffective, and many have even argued that by upgrading poorly located informal dwellings and developing peripheral greenfield areas — where the combination of low land prices and limited resistance from nearby elites allows the state to construct public housing — housing policy has, in fact, exacerbated the apartheid spatial form and reinforced racial exclusion (Jenkins, 1999; Bond, 2003; Huchzermeyer, 2005; Mabin, 2005). This has been particularly the case in Durban, where informal areas were the most peripherally located of all cities in South Africa. More generally, with the African National Congress (ANC) embracing neoliberal policies after 1996, the balance of power shifted decisively from public authority to

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2 Recent edited volumes include Harrison *et al.* (2003; 2008); Pillay *et al.* (2006) and Van Donk *et al.* (2008). See also the special issue of *Urban Studies* (2006: 2), especially Boraine *et al.* (2006), Pieterse (2006) and Robinson (2006).

3 In all its planning documents, including key spatial development plans, the Durban metropolitan area has identified desegregation and linking African neighbourhoods to economic opportunities, as a central planning objective. Interviews with over 30 city officials confirm that these commitments have substantive political backing.

market power. Various forms of 'privatized planning' have displaced integrated public planning (Murray, 2004). Private developers dominated the spatial reconfiguration of the city by pushing large-scale, high-end greenfield developments of residential areas and shopping malls (Beavon, 2004).

While this literature provides powerful insights into the macro forces that are transforming the post-apartheid city, it produces a highly aggregated picture that misses local patterns and dynamics that cannot simply be inferred from structural factors. The literature is also marked by a clear empirical gap. While there are many case studies of neighbourhoods (summarized in Seekings, 2008), and many overviews of entire cities (especially Johannesburg), there are no studies that systematically examine variation *within* the city.

In this article we conduct a systematic local analysis by mapping and interpreting patterns of socio-spatial transformation in the city of Durban in the post-apartheid period. We are interested in two interrelated dynamics in our examination of the inertia or transformation of the urban spatial form in Durban. The first is residential racial mixing, or desegregation. By this we mean a change from racially exclusive to racially diverse neighbourhoods. We use the term 'desegregation' rather than 'integration' to underscore the fact that we do not equate a more even distribution of race groups across urban neighbourhoods with social integration. The latter implies thicker and better ties between social groups and wider access to social services.[4] Our data do not allow us to make claims about social integration.[5] But because the apartheid city was spatially organized along racial lines, evidence of increased residential racial mixing, or desegregation, *even in the absence of social integration* would point to the erosion of the extreme forms of separation that marked the apartheid city (Talen, 2006; Smets and Salman, 2008).

Secondly, and strongly linked to the first dynamic, we are interested in what we call economic articulation. South Africa under apartheid was characterized by extreme spatial mismatch between the residential location of disadvantaged, primarily African workers and areas of economic opportunity. This planned mismatch was aggravated by the highly uneven level of public services and transport infrastructure designed to limit interaction between the core, semi-periphery and periphery of the city. Apartheid planning produced a disarticulation of spaces, races and classes that was the primary driver of uneven development in the city, and continues to sustain its most durable inequalities. We are thus interested not only in racial mixing, but also in the extent to which such mixing is associated with proximity to services, public facilities and economic opportunities, particularly for the city's poor African residents.

In our analysis of Durban's 406 neighbourhoods, we find that the spatial legacies of apartheid are powerful, its inequalities are durable, and that most neighbourhoods have undergone little change. But we also show that even in the relatively short time-span between 1996 and 2001 a significant number of neighbourhoods experienced measurable desegregation. From an analysis of the spatial distribution of these patterns, we develop the sociological cartography of the city.

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4   Saff (1994) calls this a distinction between 'deracialization' and 'desegregation', with the latter term as a stand-in for social integration. When we refer to desegregation, we are referring to what Saff (*ibid.*) calls deracialization.

5   Case studies in South Africa underscore the complex and contingent relationship between increased residential proximity of race groups and integration. In case studies from Cape Town, Lemanski (2006a) finds that despite a rapid and dramatic influx of Coloured people into a previously White neighbourhood, the two groups shared few public spaces and remained socially distant from each other, but that in another neighbourhood, residents interacted much more across racial lines (2006b; see also Oldfield, 2004.)

Data and methods

The data reported in this article come primarily from South African censuses for eThekwini, the Durban metropolitan area, in 1985, 1996 and 2001. Using ArcGIS we analyse changes in the racial composition of neighbourhoods defined at the level of Durban's 406 planning units. We supplement reporting of quantitative data with neighbourhood and city histories drawn from key informant interviews and focus groups with over 50 people in Durban in 2006 and 2007, including municipal officials, planners, policymakers and academics. These interviews and focus groups involved presenting quantitative data in mapped form and asking respondents to comment on and interpret patterns of change.

The units of analysis for this report are 'planning units'. Planning units were created by analysts in Durban as part of a municipal effort to codify valid local neighbourhoods for planning and analysis purposes (Hindson and O'Leary, 2000). The units are based on rough census outlines, and city officials supplemented these outlines by conducting local qualitative research, asking neighbourhood residents to point out specific areas on maps where one neighbourhood ended and another began. The result was a group of 406 planning units that provided a far better match to local conceptions of neighbourhoods than any particular census unit.[6] In addition, base enumerator areas changed between the 1996 and 2001 censuses. Rather than comparing different units, the Durban municipality aggregates up to planning unit for both years. We conducted some validity testing of the units as part of data workshops in Durban, and found that the outlines strongly corresponded with people's conceptions of their neighbourhoods. We use the terms 'planning units' and 'neighbourhoods' interchangeably in this article.

In 1996, the newly demarcated Durban metropolitan area had a population of 2.7 million people. Africans were the majority at 63.4%, followed by Indians (21.7%) and Whites (11.4%). The remaining 3.5% of the population was composed of Coloureds and members of other groups. In order to simplify an already complex set of categories, we have removed Coloureds from this analysis.[7]

Our analysis proceeds through four stages. First, we provide a brief overview of patterns of racial segregation in Durban by drawing on a standard measure used in studies of segregation, the dissimilarity index. In a second stage, we turn to a more disaggregated analysis that focuses on identifying changes in patterns of racial composition between 1996 and 2001, based on the 406 neighbourhoods. Thirdly, we draw on GIS maps to closely examine the spatial distribution of stasis and change. We show how patterns of change are clustered and fit into very different patterns of race, class and articulation. Finally, we draw on our qualitative data from interviews, field work and workshops to provide an analysis of these different patterns of stasis and change that forms the sociological cartography of post-apartheid Durban.

6 Unit choice has a major influence on the results of analysis of racial residential patterns. Segregation always increases as unit size decreases. Our use of planning units is intended to correspond as closely as possible to lived neighbourhood boundaries; a smaller disaggregation (e.g. enumerator areas) would divide too many whole neighbourhoods. In addition, our analysis includes aggregating planning units spatially, in a process similar to hot spot analysis (Anselin, 1995). This process allows us to examine change and stasis across larger units as well (e.g. complete townships).

7 Six neighbourhoods were composed of a large majority of Coloureds in both years, and experienced little change; excluding them from the analysis had the impact of slightly understating the number of single-group neighbourhoods in each year. Other neighbourhoods with small proportions of Coloureds were recoded based on their proportions with Coloureds removed and included in the analysis. This recoding had little effect on results, given the small Coloured population in the city.

Durban at the end of apartheid

Along with Cape Town and Johannesburg, Durban is one of South Africa's three largest cities. Located in the eastern province of KwaZulu-Natal, Durban is home to one of the largest ports in the southern hemisphere and serves as the key trans-shipment point for South Africa's imports and exports. Historically, Durban has been a manufacturing city composed of a wide range of industries ranging from textiles to automobiles and petro-chemicals. In many respects, Durban is a classic instance of a Fordist city in transition. With the rapid opening-up of the national economy that followed the ANC government's embrace of fairly orthodox neoliberal policies in 1996, Durban experienced a significant loss of jobs to global competition, particularly in the labour-intensive textile industry.[8]

The lineage of the apartheid city dates back to the nineteenth century (Maylam, 1995). Since then it has been moving steadily along a path of increasing segregation. The first forms of residential racialization created a patchwork of segregation; in Durban, this early racialization was driven by White conflict with Indians over land (Davies and Rajah, 1968: 48), as well as attempts by Whites to contain and keep a close watch over the African population through what was known as the 'Durban System' (Swanson, 1976; Crush and Ambler, 1992). With the advent of 'high' apartheid in 1948, the use of space as a means of distributing privilege and opportunity was slowly systematized and rationalized through national legislation and local planning, a process that reached its peak with the forced removals of the 1960s and 1970s.[9] The combination of race-exclusive areas and forced removals produced an almost completely segregated city.

Moreover, racial segregation correlated almost perfectly with an economic geography of extreme inequality. Durban's racial configuration is a microcosm of apartheid. Apartheid cities were planned as a series of concentric circles, and Durban was no exception, although its shape was limited to a half circle by the coast. The Durban city council subcommittee responsible for apartheid planning 'took as its guiding axiom the proposition that contact between races in residential areas leads to conflict. It even regarded as "most objectionable" the large-scale movement of pedestrians of one race through the area of another. It decided to make use of natural boundaries such as "rivers, steep valleys, cliffs and hill-tops" to effect as complete a racial separation as possible' (Kuper *et al.*, 1958: 14). Durban's apartheid spatial form evolved around its transportation structure, particularly two highways: the N3 to Johannesburg, which runs perpendicular to the coast into the heart of South Africa, and the N2, which follows the coastline. These two highways, together with other major roadways, form the shape of a T, intersecting at 'Spaghetti Junction' just west of central Durban.

Map 1 displays the apartheid zoning based on the T, as Davies and Rajah (1968) describe in careful detail. From the centre to the periphery, this apartheid city can be described as follows: the downtown area, including the central business district (CBD), was historically White, with only a few *de facto* exceptions. One was Warwick Junction, one of the few commercial areas in the central city dominated by the informal economy, which provided sites for an estimated 7,500 micro-enterprises in 1996, although economic activity was of a type that provided only minimal income to the almost entirely African participants (Hemson, 2003). White urban suburbs ringed the downtown area, including the exclusive 'Berea' neighbourhoods on the inner slope of the first set of hills. On the far side of the slope were the first of the Indian neighbourhoods. Indian population density was particularly high near the corners of the T, including Indian townships to the north and south. These areas, together with the CBD, made up the urban core, outlined on Map 1. White residence continued along the highways to the north, south and west.

8 Between 1993 and 1998, Durban lost an average of 10,000 manufacturing jobs a year (Wiley *et al.*, 2002: 228).

9 The Surplus People's Project estimates that, from 1960 to 1983, forced removals under various apartheid laws displaced 3,548,900 people, half of whom were from urban areas (Platzky and Walker, 1985: 10).
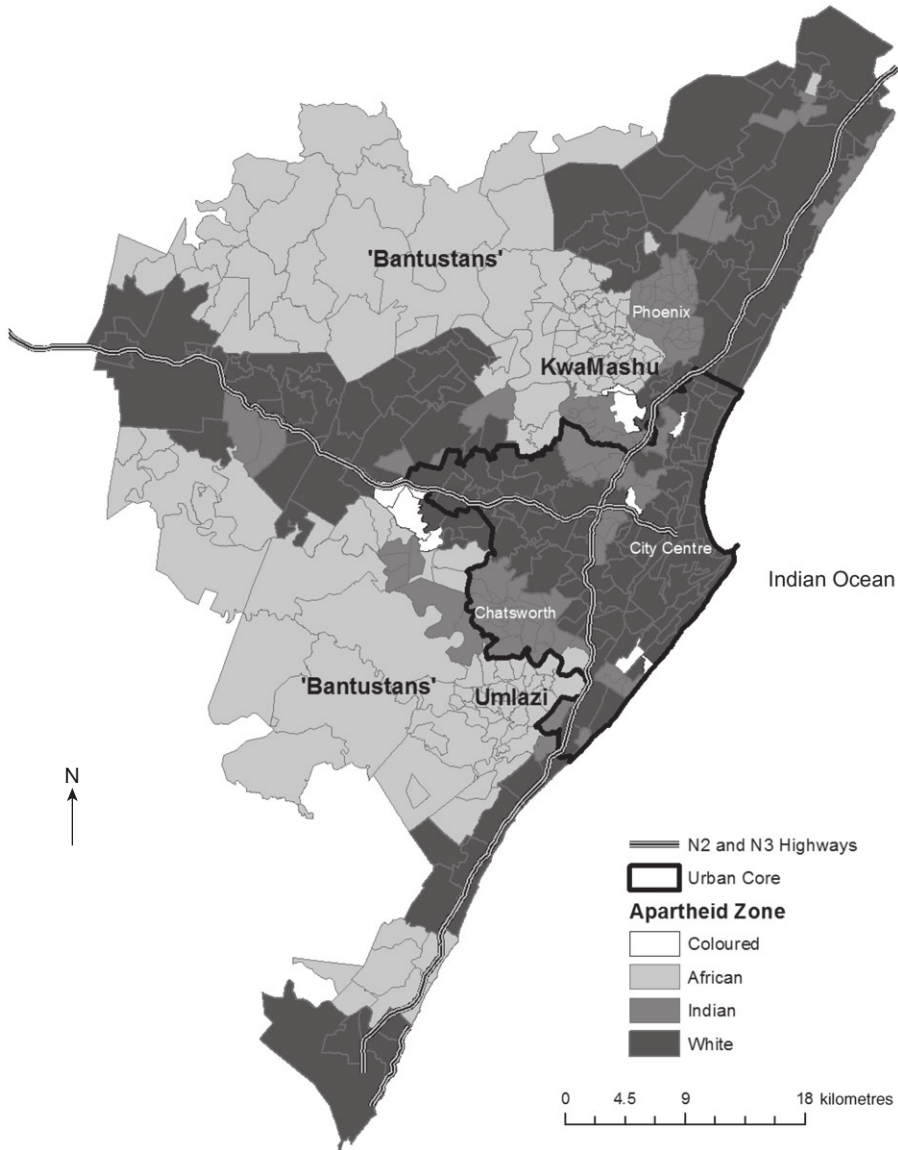
Map 1 Apartheid zoning and the urban core

Suburban neighbourhoods included Umhlanga Rocks to the north, the wealthiest area of the city. Beyond the Indian areas, after buffer zones that included some farmland and also some of the steepest terrain in Durban, were the African urban townships: Umlazi to the south, KwaMashu, Ntuzuma, Inanda, KwaDabeka, Clermont and others to the north. These African townships were as far as 25 kilometres away from the city centre, with little access to transportation other than a single roadway. Townships were designed to have one roadway in and out as a security measure (Kuper *et al.*, 1958).

The exclusionary logic of the apartheid spatial form reached its height in the early 1980s. By the late 1980s, apartheid was softening, and local White authorities were slackening enforcement of residential zoning (Maharaj and Mpungose, 1994). The ANC was unbanned in 1990, and all legal instruments of race-based segregation ceased to
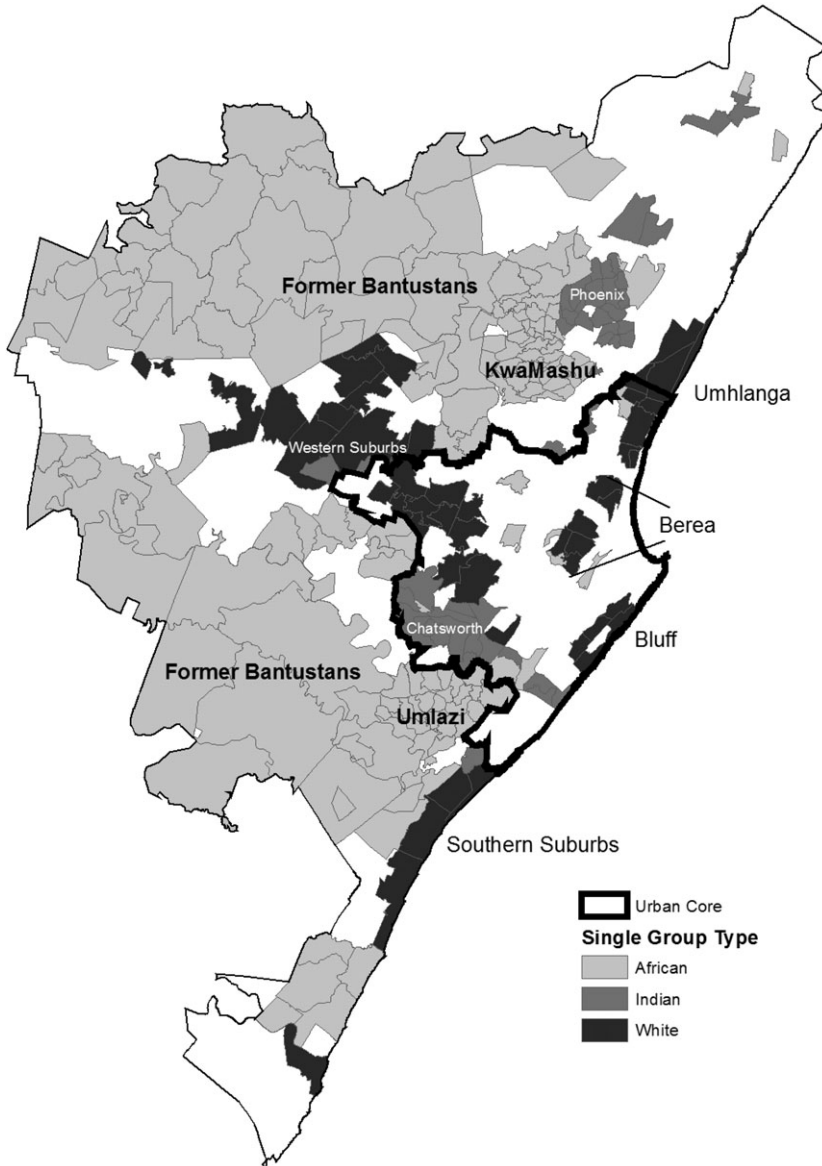
Map 2 Single-group communities, 1996

function during the transition period (1990 to 1994). Local government elections were first held in Durban in 1996, which was also the year of the first post-apartheid census.

Map 2 provides the baseline picture for our analysis. The map displays the relative location of three types of single-group neighbourhoods in Durban in 1996 — African, Indian and White — and the remaining neighbourhoods, which are, to varying degrees, mixed. A single-group neighbourhood is one in which one of the race groups is present in a proportion that is above its high threshold: in 1996, 96.1% for Africans, 87.3% for Indians, 74.4% for Whites (see below for a fuller explanation). Single-group areas in 1996 correspond very closely to apartheid zoning as displayed in map 1. As labelled on the map, in the urban core, the Berea neighbourhoods just inland and the Bluff in the South Industrial Basin are White areas, along with Umhlanga and environs to the north,

Table 1 Index of dissimilarity, eThekwini

Pair	1985	1996	2001
African/White	0.94	0.93	0.91
African/Indian	0.93	0.89	0.84
Indian/White	0.96	0.93	0.87

Source: South African national censuses 1985, 1996 and 2001

western suburbs and southern suburbs. Phoenix to the north and Chatsworth to the south are the locations of most single-group Indian areas. Zoned urban African townships and rural areas match almost perfectly with the single-group African areas in 1996.

Yet this map also reveals that parts of the city were mixed. Residential racial mixing began well before 1996. Maharaj and Mpungose (1994) and Saff (1994) suggest class-based racial mixing may have begun in the late 1970s, despite continued ramping up of apartheid policies and enforcement. Early mixing was very limited, at least until 1986. Based on census data for that year, we calculate an African/White index of dissimilarity of 0.94. This means that in order for every neighbourhood within Durban to match the city-wide racial composition, 94% of Africans would have to move. It is difficult to imagine a higher level of racial segregation.[10]

Over the next decade, the end of formal apartheid and the transition to majority rule, Durban began to 'decompress' (Hindson and Morris, 1997). As a result, analysis of residential patterns of neighbourhoods in 1996 shows a fair number of neighbourhoods with some level of racial mixing. The CBD and environs had already begun to change, as well as parts of the exclusive White Berea neighbourhoods in the core, and areas formerly zoned Indian just to the north of the central city. Some rural areas to the west and to the north were mixed as well (although the extent of mixing is visually overstated by the large size of these rural planning units). Residential feeders of the industrial western-edge city of Pinetown were also desegregating, foreshadowing important changes to the city that we return to below.

Magnitude of change in Durban

By all global measures, the Durban metropolitan area was and remains extremely segregated. In 1996, the first census after transition to democracy, we calculate that the index of dissimilarity for all race pairs was above 0.89 (see Table 1). In comparative terms, this is substantially higher than in the most segregated American cities (Massey and Denton, 1993). By 2001, the index of dissimilarity had declined slightly for each group while remaining at the level of hypersegregation. These aggregate statistics match the findings of much of the literature on post-apartheid racial residential change to the city: that while segregation has declined slightly, there has been no real transformation of the urban apartheid form (Christopher, 2005; Seekings, 2008).

But aggregate statistics can obscure important changes. In Durban, the citywide index of dissimilarity measure is overwhelmed by the massive number and population of entirely African neighbourhoods generated by apartheid planning. Thus, the city contains 144 urban townships and rural neighbourhoods formerly zoned African with populations

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10 A recent body of work on South African cities argues that the apartheid city was not a 'totally foreclosed city' (Mbembe, 2004: 387) and that social ties and activity cut across formal boundaries (see also Robinson, 2006). While it is important to recognize that social relations can indeed subvert even the most enforced and patrolled boundaries, the point remains that the apartheid city, in comparative and historical terms, represents the nadir of segregation.

Table 2 Residential population by race group in the 262 neighbourhoods that were not zoned African townships or rural areas, 1996–2001

Race Group*	1996		2001	
	Population	%	Population	%
African	371,144	27	546,943	36
Indian	593,629	44	605,381	40
White	315,800	23	275,989	18

*Coloureds constitute another 5% of the population in each year
Source: South African national censuses 1996 and 2001

Table 3 Index of dissimilarity, excluding African townships and rural areas

Pair	1996	2001
African/White	0.78	0.75
African/Indian	0.77	0.65
Indian/White	0.93	0.87

Source: Calculated from South African national censuses 1996 and 2001, at the level of planning unit

of 1.17 million in 1985, 1.38 million in 1996 and 1.57 million in 2001. These areas were designated exclusively for African residence under the Group Areas Act. As Map 1 shows, they were located on the urban and rural periphery of the city, reflecting the spatial exclusionary logic of the apartheid city. The vast majority, including all the rural areas and the two largest townships of KwaMashu and Umlazi, were part of the KwaZulu-Natal traditional-authority rule ('Bantustan') under apartheid, and were only slowly incorporated into the Durban metropolitan area after the transition. Census figures show that at no point have there been more than about ten thousand non-African residents in these areas combined (or under 1% in aggregate). These areas will also not desegregate any time soon: they are too far from the city centre and too underdeveloped to attract other groups of residents, and even as they become more developed, the social barriers to desegregation are considerable and in the foreseeable future unlikely to change.

We selected the neighbourhoods that were *not* zoned African under apartheid to understand their composition and the extent of their segregation. Table 2 shows population figures for these 262 neighbourhoods. The African population of these areas increased by 50% between 1996 and 2001, an increase vastly greater than the 21% increase in the African population across the city as a whole. The vast majority of this increase happened in established communities (as described earlier, greenfield areas only account for about 2% of the city's population). Despite continued social and economic barriers to movement into more central and historically non-African areas, Africans were nonetheless able to gain more access to these areas.[11] The table also isolates the bulk of the White flight that Durban experienced.

This finding is underscored when areas that were not zoned African are isolated for calculation of the index of dissimilarity (see Table 3). The numbers for these central areas were still high, but substantially lower than those of the city as a whole for African/White

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11 The census data we used made it impossible to determine the points of origin of Africans who moved to these core areas, including the extent to which they were from outside the province or outside South Africa.

Table 4 Thresholds

| | African | | Indian | | White | |
Year	Low	High	Low	High	Low	High
2001	0.031	0.968	0.042	0.876	0.025	0.653
1996	0.026	0.961	0.041	0.873	0.028	0.744
1985	0.020	0.950	0.040	0.870	0.030	0.790

and African/Indian pairs. By 2001, African/Indian dissimilarity had plummeted 12 points, to a level normally considered to be moderately high (rather than hyper-) segregation. As a point of reference, in 1990 the average Black/White index of dissimilarity values for American cities was 0.60 (US Bureau of the Census, 1994). Over a five-year period, the magnitude of change for these selected places is very substantial, especially compared to US cities, where the highest levels of urban desegregation are at about the same scale for the twenty years between 1980 and 2000 (Charles, 2003: 173).

Disaggregating racial residential change

In this section we extend the analysis by examining patterns of racial composition for all of Durban's 406 neighbourhoods. We build on analysis both in the Durban municipality (Hindson and O'Leary, 2000) and on similar types of categorization in the American sociological literature (Denton and Massey, 1991; Alba *et al.*, 1995; Logan and Zhang, 2010). We use the distribution of race groups in planning units in the 1985 South African census, which corresponds to the height of formal apartheid, to identify high and low proportional points for each race group. These points are thresholds: at or above the high point means that a neighbourhood is composed essentially of a single race group. Table 4 shows the adjusted thresholds for each year.

We label all such neighbourhoods in which a group is present at levels above its high threshold as 'single-group' neighbourhoods. We then also define a low threshold for each race group. If a group falls below that threshold in any neighbourhood, then we consider its presence to be non-significant. If any given race group is above its low threshold within a neighbourhood, with no group above its high threshold, then we treat its presence as significant. Since this implies the significant presence of at least two race groups, we designate any such neighbourhood as 'mixed'. We again add the proviso that we are referring to the residential presence of multiple race groups in a single neighbourhood, and not to social integration or equality in class standing.

The use of thresholds is complicated by the fact that Durban experienced very substantial demographic change in the period under study. Moreover, the change was highly imbalanced across race groups, with the African population expanding dramatically, the White population declining and the Indian population remaining more or less constant. To account for this, we adjust the thresholds for each period accordingly. Thus the upper threshold for Africans moves up to 96.1% for 1996 and 96.8% for 2001, based on the African population increase in the city.

Finally, to categorize in more detail the extent of mixing in neighbourhoods, we incorporate a 50% threshold that allows us to identify whether a mixed neighbourhood is composed of a majority of one group.

This produced a set of categories that encompassed all neighbourhoods, focusing on 1996 and 2001, the two time points we use to analyse change. We then simplified these categories and category shifts as follows. First, there are single time point designations,

referring either to 1996 or 2001 separately: most simply, *single-group* and *mixed*. Single-group neighbourhoods can be single-group White, single-group Indian or single-group African. Mixed refers to any racial configuration other than single-group; there are at least two groups present, with no group at or above its high threshold. There are a number of subcategories within mixed neighbourhoods, specific examples of which we discuss below.

Secondly, there are temporal designations that refer to change or inertia between 1996 and 2001: *demixed* (which could be thought of as resegregated), *static* (no change in categorization) and *desegregated*. We combine the single time point designations with the temporal designations in Table 5.

Finally, we add one further term: neighbourhoods that were single-group in 1996 upon emerging from apartheid and remained that way in 2001, we characterize as *legacy* neighbourhoods. We use this designation to emphasize that in 2001 these neighbourhoods still reflected the highly segregated form of the historical apartheid city.

The first observation that emerges from Table 5 is that by far most neighbourhoods (216) were in the legacy category, representing about two thirds of Durban's entire population in 2001. These are neighbourhoods that experienced no categorization change from 1996 to 2001. Moreover, another 49 neighbourhoods that were mixed already in 1996 remained stable (that is, did not become more or less mixed) and are classified as 'mixed static' in 2001. These two categories suggest that the city remained highly resistant to change, even in mixed areas, between 1996 and 2001. This finding confirms the relatively small change observed in the index of dissimilarity.

But this is clearly not the whole story. As Table 6 shows, many neighbourhoods did change during this period. Thus, 88 neighbourhoods with a total population in 2001 of

Table 5 Single-group and mixed neighbourhoods in 1996, and their pathways through 2001

1996	1996–2001	2001	No. of Units	Population 2001
Single-group	Demixed	Not applicable	–	–
	Static	Remains single-group: *Legacy*	216	2,064,171
	Desegregated	Becomes mixed	49	286,575
Mixed	Demixed	Becomes less mixed [a] or single-group	9	79,238
	Static	Mixed static	49	312,128
	Desegregated	Becomes more mixed [b]	39	218,603

[a]'Less mixed' means that a group that was present left the neighbourhood, or that the proportional gap between groups widened by 25 or more points.
[b]'More mixed' means a group that was not present arrived, or that the gap in proportion between groups narrowed by 25 or more points.
Source: South African national censuses 1996 and 2001

Table 6 Neighbourhood residential change, 1996–2001

Type	Planning Units	Total Population	% Change	African	% Change	Indian	% Change	White	% Change
Desegregated	88	500,975	+3.1	207,843	+24.0	179,773	–3.1	97,955	–21.0
Mixed static	49	312,128	+16.0	133,831	+38.0	86,738	+18.0	40,714	–3.9
Demixed	9	79,238	+26.0	58,791	+56.0	14,884	–8.5	3,129	–48.0
Legacy	216	2,064,171	+9.1	1,621,792	+13.0	305,889	–2.9	126,579	–11.0
Citywide	406	3,086,283	+13.0	2,107,599	+21.0	614,675	+2.6	277,479	–12.0

Source: South African national censuses 1996 and 2001

just over 500,000 desegregated from 1996 to 2001.[12] Moreover, neighbourhoods that experienced desegregation include many located in core areas of the city. The fact that very few neighbourhoods (nine) 'demixed' means that the general direction of change was towards more mixing, albeit slowly. Below we provide further analysis of legacy neighbourhoods and mixed neighbourhoods.

Legacy neighbourhoods

We begin analysis of localized change by looking first at the set of neighbourhoods that did not change, retaining instead their historic levels of hypersegregation. As defined above, legacy neighbourhoods were single-group in 1996 and remained that way in 2001. These areas were African, Indian or White upon emerging from apartheid in 1996 and remained so until 2001. Altogether 143 African neighbourhoods, 35 Indian neighbourhoods and 38 White neighbourhoods fall into this category, as shown on Map 3. Umlazi to the south and Inanda, KwaMashu, Ntuzuma and KwaDabeka to the north form the core of the urban African legacy neighbourhoods, which also extend out to rural areas to the northwest and southwest. Most of the African population of Durban lives in African legacy neighbourhoods: 1.4 million in 1996, or 82% of the African population of the city, and 1.6 million in 2001, or 76.5%.

Indian legacy areas are primarily in Phoenix and Chatsworth, the two apartheid-zoned Indian urban townships to the north and south of the central city. Only four of the 35 Indian legacy neighbourhoods are outside of Phoenix and Chatsworth. All Indian legacy neighbourhoods were zoned Indian under apartheid. However, only 35 of 85 total areas zoned Indian under apartheid were Indian legacy neighbourhoods; the other 50 neighbourhoods had a range of Indian representation. Indians were, in other words, far more dispersed outside of legacy areas than Africans, and by increasing numbers. This was partly because of the closer proximity of Indian areas to White areas in the apartheid city structure, and partly owing to the greater economic resources Indian neighbourhoods could mobilize, given their intermediate status in the apartheid racial hierarchy.

White legacy neighbourhoods are now concentrated at the extremities of the Durban T. Under apartheid, the entire Durban T was zoned White, but by 2001, nearly all legacy areas for Whites had become suburban, clustered along the outer reaches of the T rather than in the city centre. As a result, only 36 of the 121 neighbourhoods zoned White under apartheid were legacy White areas in 2001. Of the city's roughly 316,000 Whites in 1996, 45% lived in White legacy neighbourhoods. This percentage stayed the same for 2001, meaning that the overall decline in the White population of the city was matched in White legacy areas. In both periods then, a little more than half of the city's White population remained in fairly central areas that experienced some degree of residential racial mixing in 1996 and/or 2001. We discuss the maintenance mechanisms in White legacy neighbourhoods in greater detail below.

Mixed neighbourhoods, 1996–2001

In 1996, 97 neighbourhoods were mixed, with a population of 533,645 — about 20% of the city's population. The pace of change clearly accelerated between 1996 and 2001. Mixed neighbourhoods filled in the city centre, the Berea neighbourhoods and a group of neighbourhoods to the southwest of the core called the Old Line Suburbs, as well as the gaps between the mixed areas along the northern transportation corridor. By 2001, an additional 49 neighbourhoods that had been single-group areas experienced

12 An additional 35 neighbourhoods were greenfield developments between 1996 and 2001, with little or no population in 1996; four more experienced changes in racial configuration not reducible to the categories above; and finally, five had populations that were too small to categorize validly. The neighbourhoods not represented in Table 6 had a total population of 132,770 in 2001, or just over 4% of the population of the city.
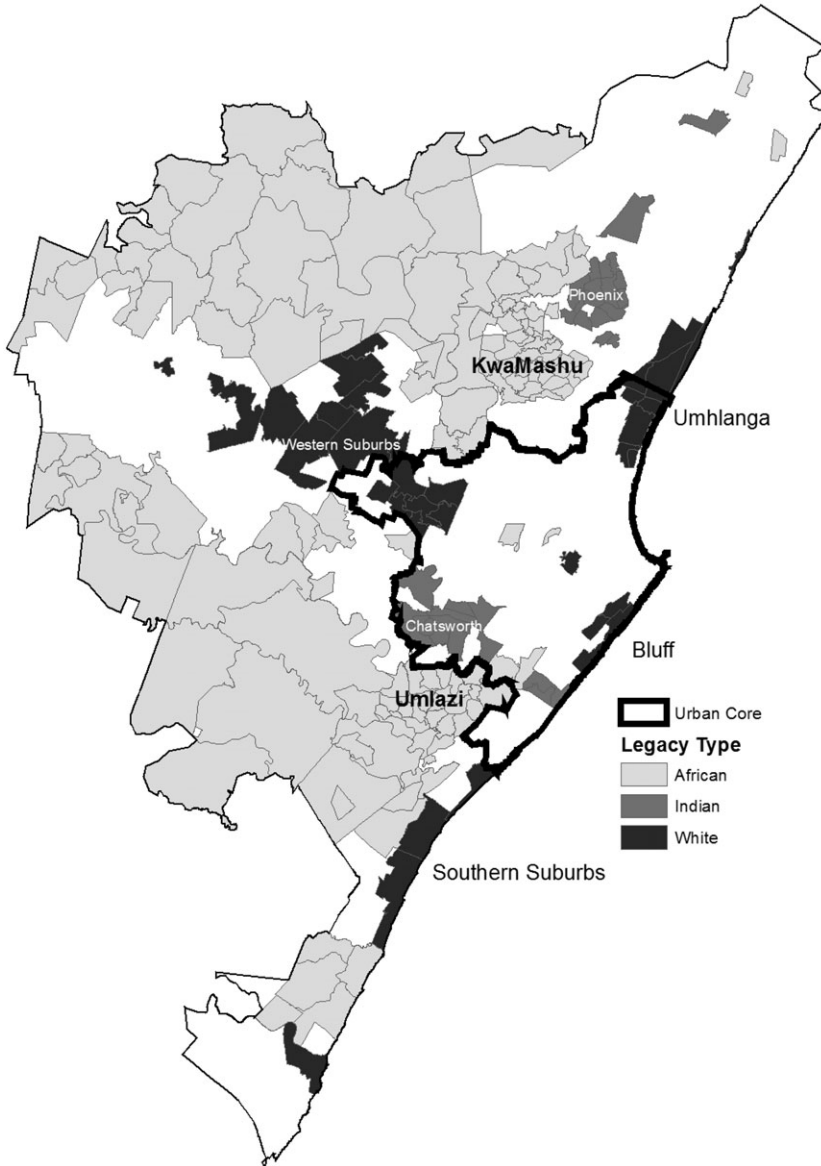
Map 3 Legacy communities

desegregation, and over 880,000 people lived in mixed neighbourhoods, or about 29% of the city's expanded population of 3,086,283.

Two types of neighbourhood change were particularly prevalent: (1) neighbourhoods that were Indian in 1996, but by 2001 were majority-Indian with substantial numbers of Africans; there were 14 such neighbourhoods, with a total population of 100,000 in 2001; (2) neighbourhoods that were White in 1996, but by 2001 were majority-White with substantial African and Indian populations; there were 10 such neighbourhoods, with a total population of 86,000 in 2001. We analyse these neighbourhoods in detail below.

To summarize Table 6, two points stand out. First, it is important to recall that around half of Whites and Indians, and the large majority of Africans, still live in legacy areas that have undergone no change and, in the case of African areas, are unlikely to ever

mix.[13] In this regard, Durban is still an extremely segregated city. Secondly, when isolated from legacy areas, the extent of residential racial mixing is substantial and increasing. The pace of change from 1996 to 2001 has been quite fast, given the extreme spatial inequality that characterized the apartheid city — faster than the very slow pace experienced in other settings, such as the United States.

Specifying Durban's sociological cartography

The disaggregated, local area analysis we have begun thus points to a far more complicated picture than city-wide measures such as the index of dissimilarity paint. Even though the overall spatial hierarchy of the apartheid city has persisted, some areas of the city are witnessing racial mixing. Even more significantly, much of this racial mixing is occurring in the core of the city, or in areas adjacent to the core. Yet even this assessment elides significant variation. In the following section, we move beyond simple categorical descriptions based on race proportions, to develop more sociologically relevant interpretations of the observed patterns of change. Specifically, we examine how race, class and space have combined to provide distinct configurations that together define the new social–spatial hierarchy of the city. We do this both by mapping these configurations, and by drawing on interviews and workshop feedback to provide interpretations of the characteristics of these configurations. In doing so, we identify four sociologically distinct configurations that are characterized by different interactions of racial diversity, class diversity and economic articulation.

The first two configurations — *racialized* and *ethnicized* — describe legacy areas. The critical difference is that racialized areas are a product of social exclusion and are economically disarticulated. These kinds of places are often referred to as ghettos (Varady, 2005). Ethnicized areas are far better integrated into the city's economic opportunities and, like ethnic enclaves, are associated with a degree of residential choice and some economic benefit (Wilson and Portes, 1980; Abrahamson, 1996). Racialized areas are exclusively African, but ethnicized areas include White and Indian enclaves, as well as a few African neighbourhoods that have benefited from greater economic articulation. Racialized and ethnicized areas are the clearest example of the operation of the place stratification model, in so far as race determines a large part of entry (and exit) opportunities regardless of class status.

Within the areas that have experienced mixing, we also identify two distinct patterns. Most of the areas that experienced racial mixing both before 1996 and between 1996 and 2001 are located in the urban core or on its inner edge. Most of this mixing has taken place within narrowly defined class bands, producing a pattern of change that we label *class-stratified*. In so far as access is determined by resources, and multiple race groups with resources have access, these areas correspond to the spatial assimilation model.

A second pattern of mixing — which we call *transformed* — has been marked not only by racial mixing but also by increasing class diversity and greater economic articulation. This configuration provides true developmental potential, particularly for poor Africans who live in these places, and therefore represents the best hope for a new urban form. Table 7 summarizes the defining characteristic of each of these configurations.

Racialized and ethnicized areas

Table 8 provides a series of statistics for legacy areas by type, drawn from census and municipal data sets. Population density figures are a good indication that African and Indian legacy areas are urban, whereas White legacy areas are suburban. The differences

13 Some White legacy areas were settled after the end of apartheid, particularly the western suburbs and some of the northern suburbs. As post-apartheid settlements, no apartheid zoning was applied for their peri-urban residential form, yet they have become single-group communities with strong ethnicized boundaries.

Table 7 Racialized, ethnicized, class-stratified and transformed neighbourhoods

Pattern	Race diverse	Class diverse	Articulated
Racialized	No	No	No
Ethnicized	No	Yes	Yes
Class-stratified	Yes	No	Yes
Transformed	Yes	Yes	Yes

in well-being and quality of life between areas are extreme (O'Leary, 2007). The spatial and economic peripherality of African legacy neighbourhoods is reflected in the fact that they are on average twice as far from highways and freeways than Indian neighbourhoods, and nearly three times as far as White ones.[14] Unemployment reflects the overhang of apartheid's race-based labour markets, with moderate unemployment in White areas, compared to a continued and increasing crisis of joblessness in African areas. Indian areas fall between the two, as is the case geographically. Housing and service figures (the latter using in-home toilet access as a proxy) show the near-universal formality and servicing of White and Indian areas, in stark contrast to far lower figures for African areas. Finally, African legacy areas have a substantially lower household income than Indian legacy areas, which in turn are far poorer than White legacy areas.[15]

More than three quarters of the African population remain in legacy areas, mostly in the massive townships and their rural extensions to the north and south of the city. These areas are structurally and spatially peripheral: neighbourhoods have limited services, limited linkages to the city's economic opportunities and are plagued by extremely high levels of unemployment and a dense concentration of poverty. We designate these areas as *racialized* because they are the direct product of the racial-exclusionary logic of apartheid, and because they have stayed racially homogenous owing to limited opportunities for poor Africans to move.[16]

In contrast, we would argue that Indian legacy areas are ethnic enclaves rather than ghettos. As Table 8 shows, Indian legacy areas, while as densely populated as African legacy areas, have service and employment levels that rival White legacy areas. The Indian townships of Phoenix and Chatsworth have developed far more organically than is true of most African townships. The housing stock in Phoenix and Chatsworth is far more diverse, having benefited from significant investment by homeowners. Markets and cultural institutions are more developed, and both areas benefit from well-organized civic associations. While young, upwardly mobile Indians have left these neighbourhoods (which explains why their average economic ranking has fallen), the bulk of residents have stayed, many because of strong ties and attachments to the neighbourhood. Indeed, census data indicate that the median population weighted age in Indian legacy areas rose by over eight years between 1996 and 2001.

White legacy areas are located primarily in the suburbs to the north, west and south. These suburbs are the key holdouts for the White population in Durban, although they vary by class (wealthy to the north and west, more working-class to the south and in the

14 Highway distance is the perpendicular distance from the centroid of a neighbourhood to the nearest major highway or freeway. Durban's major highways and freeways were constructed prior to 1996.

15 We report household 'income rank', rather than raw household income, because income categories changed between the 1996 and 2001 censuses, rendering direct comparison impossible. The rank corresponds to the median household income of those neighbourhoods relative to all other neighbourhoods; the wealthiest neighbourhood has a rank of 1, while the poorest has a rank of 406.

16 In the aggregate, these legacy areas have grown mostly because of the rapid influx of poor rural migrants into informal settlements that have grown adjacent to townships, but also in part because the state has concentrated pro-poor housing projects in these areas since they offer the most readily available and affordable greenfield sites.

Table 8 Legacy neighbourhood median characteristics

	African Legacy Areas (N = 141)		Indian Legacy Areas (N = 35)		White Legacy Areas (N = 34)		Full City (N = 406)	
	1996	2001	1996	2001	1996	2001	1996	2001
Population density	6,294	6,263	6,170	6,482	1,438	1,360	4,752	4,776
Distance to major highway	2,097 m		1,026 m		724 m		1,867 m	
Unemployment rate	48.8%	59.6%	15.2%	21.7%	3.8%	7.8%	32.4%	43.0%
Informal housing	33.9%	25.0%	0.4%	1.1%	0.6%	0.7%	4.4%	9.2%
Toilet access	39.5%	58.9%	99.5%	98.6%	99.4%	98.7%	87.0%	85.3%
Income rank	300	256	145	230	32	42	214	199

Source: South African national censuses 1996 and 2001 (statistics are weighted by population)

Bluff). A number of these neighbourhoods are not legacy areas in the strict sense of the term since they are greenfield areas that were settled by Whites who have left the urban core since the end of apartheid. Both the old and new single-group White neighbourhoods are indeed enclaves, but in some instances are what Marcuse (2005) calls 'citadels', elite areas fortified against intrusion by other groups. The western suburbs in particular have become a prime location for White professionals working at companies that moved out of the urban core.

Having drawn the distinction between racialized and ethnicized legacy areas, an important qualification is in order: African legacy areas are not class-homogenous, and therefore not homogenously racialized. As Table 8 shows, African legacy areas have improved their median weighted income rank in the distribution of all neighbourhoods from 300 to 255, and this despite increasing unemployment. The end of apartheid has led to income decompression within townships, with a small portion of Africans enjoying some upward mobility in wages and occupational status owing to the removal of formal racial discrimination in labour markets and the introduction of affirmative action and Black Economic Empowerment (BEE). Some townships have also benefited from significant local state investments in large-scale infrastructure that has in turn pulled in some private-sector investment. The central areas of both KwaMashu and Umlazi (Durban's two largest African townships) now boast large shopping-mall complexes that are well serviced by roads. In 2008, Durban's major land developer announced that it would be building lower-middle-class units in KwaMashu, a private-sector investment that would have been unthinkable only five years earlier. Parts of these townships, then, are moving towards articulation and enclavization. This reflects a trend that many of our key informants described as that of upwardly mobile Africans choosing to stay in certain areas of townships because of a preference for township sociability and lifestyles, proximity to family and a new ability to maintain a more middle-class lifestyle. At the same time, most areas of townships continue to stagnate, and indigenous business, particularly in the formal economy, remains extremely limited. A review of the local business directory for the townships of KwaMashu, Inanda and Ntuzuma, which have a population of over 600,000, shows only 216 listings, mostly related to construction.

Class-stratified mixing

The 137 neighbourhoods that have remained mixed or desegregated are located in or near the urban core, and are well articulated, or close to economic opportunity and well serviced.[17] As Table 9 shows, mixed areas are closer to highways than the citywide median neighbourhood and as close as White legacy areas, reflecting their core location. Unemployment rates are less than half the city average, and income is well above the city average. Housing and service figures show the near-universal formality and servicing of these areas.

In examining the actual pattern of desegregation, we identified two dominant trends: Indians and Africans moving into previously single-group White neighbourhoods, and Africans moving into Indian neighbourhoods. A closer examination reveals that within these broad patterns of racial mixing, one can identify two general class effects. The first, which we discuss in this section, consists of mixing within a narrow class band. Because these neighbourhoods reproduce the class-based spatial hierarchy even as they accommodate racial change, we label mixing in this group of neighbourhoods *class-stratified* mixing. The second pattern, discussed in the next section, is characterized by a class dynamic that does not conform to the old spatial hierarchy and as such has transformative characteristics.

17 There were 88 mixed or desegregated neighbourhoods before 1996, 39 of which desegregated further by 2001, and an additional 49 that were single-group in 1996 and became mixed by 2001. These figures undercount the total number of mixed neighbourhoods in Durban because they exclude neighbourhoods that demixed but remained somewhat mixed, as well as greenfield areas that had no population in 1996.

Table 9 Mixed and desegregated neighbourhood characteristics

	Mixed Static and Desegregated Areas (N = 136)		Full City (N = 406)	
	1996	2001	1996	2001
Population density	2,947	3,000	4,752	4,776
Highway distance	1,374 m		1,867 m	
Unemployment rate	13.7%	24.8%	32.4%	43.0%
Informal housing	0.6%	4.3%	4.4%	9.2%
Toilet access	99.0%	95.5%	87.0%	85.3%
Income rank	127	129	214	199

Source: South African national censuses 1996 and 2001 (statistics are weighted by population)

The most significant form of class-stratified mixing has taken place in what were in 1996 single-group White neighbourhoods but by 2001 were majority-White with a significant presence of Indian and/or African people. These neighbourhoods are displayed on Map 4. Within this type, which we call 'mixed, majority-White', there are, in fact, two distinct patterns, namely a high-class and a middle-class pattern.

The Berea neighbourhoods — labelled on Map 4, which include Bulwer, Musgrave, Essenwood, Windermere and Morningside — form a seamless line of mixed living in the premier neighbourhoods of the central city. These neighbourhoods fall on the upper slopes of the first ring of hills overlooking downtown and enjoy high-end services and infrastructure. The Berea neighbourhoods contain some of the most expensive housing stock in the central city, but a stock that is a mix of large homes and mansions with walled-off driveways providing high security, and a large number of flat (apartment) developments, both for rental and purchase. Key informants reported that the mix of housing stock is one key driver of change is these areas — students, well-off singles and well-off young couples are able to move to these high-end neighbourhoods while avoiding the exorbitant costs of high-end homes. This is reflected in the finding that the average household size in these neighbourhoods is low — less than three people per household and dropping.[18] Young African and Indian people, who were able to take advantage of deracialized access to the housing market, either through affirmative-action programmes or business development, have moved to these areas in significant numbers. In every one of these neighbourhoods, the combined percentage of Indians and Africans increased over five years at the low end of the range from 18% to 33% (Windermere) and at the high end from 23% to 39% (Bulwer). As Table 10 shows, Indians and Whites in these neighbourhoods shared the same level of skilled and professional occupational employment. The proportion of Africans in skilled and professional positions rose significantly as wealthier Africans moved into neighbourhoods where most of the African residents had been domestic workers (see Table 10).

At the same time as Africans and Indians were moving in, Whites were not moving out in numbers much higher than their general decline in numbers in the city as a whole. Some Whites were leaving, but in these neighbourhoods they did not leave in large enough numbers to drop below the 50% threshold. The Berea area still represents the highest-end property and services in the city, so White flight has not taken place to the same extent as in other parts of the central city.

The second set of neighbourhoods, marked by the 'mixed, majority-White' configuration but located in a different class band, is known as the 'Old Line Suburbs', as displayed on Map 4. By 2001, the mixed, majority-White configuration characterized

18 To some extent, this low household size is also driven by the presence of students in the area who attend the Durban Institute of Technology in Musgrave and the University of KwaZulu-Natal.
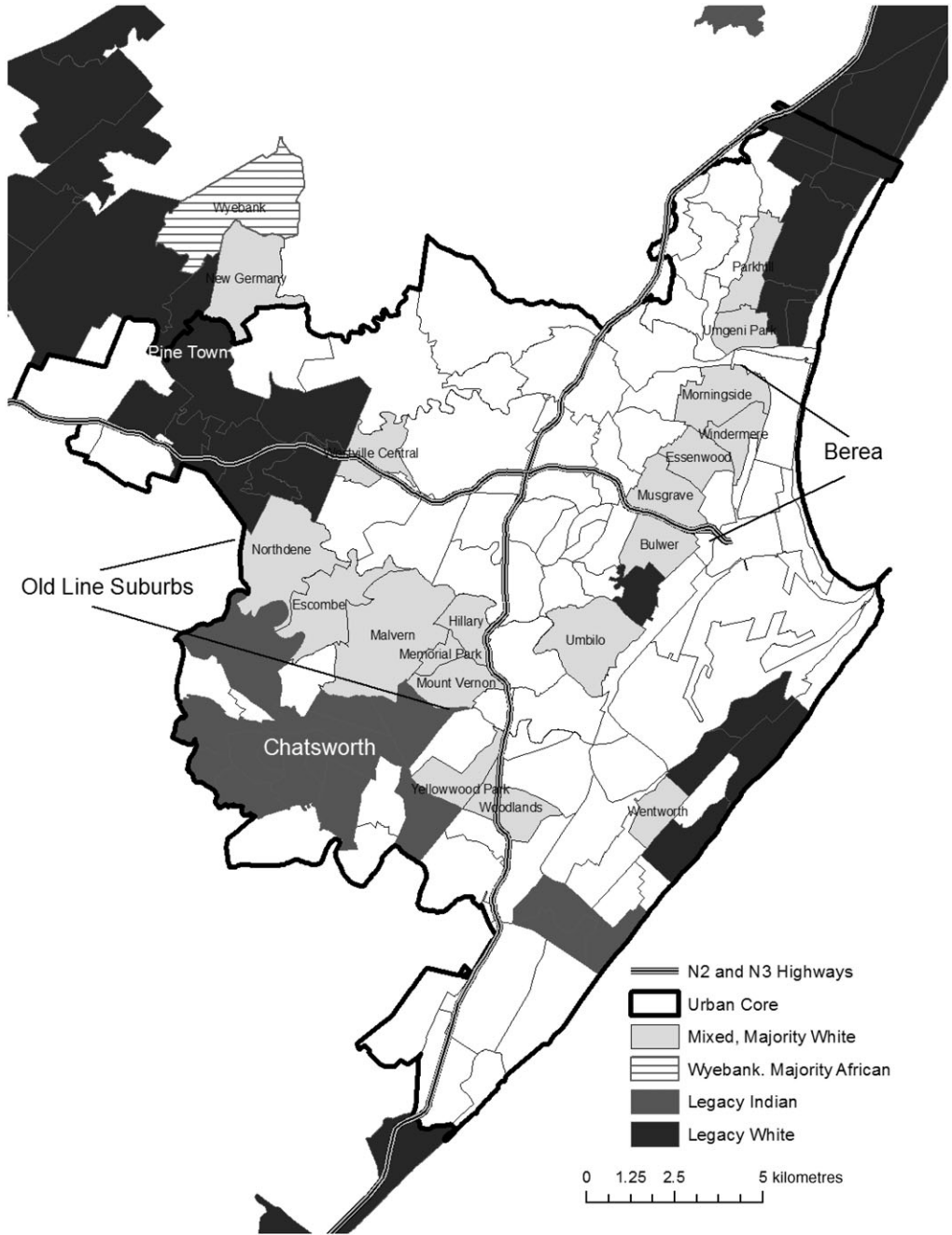
Map 4 Mixed, majority-White communities, 2001

all the Old Line Suburbs. However, the processes that drove these neighbourhoods to this configuration were quite different from those in the Berea neighbourhoods. The Old Line Suburbs were, before the Group Areas Act, densely populated by Indians. Forced removals sent the Indian population to bordering Chatsworth, and working-class Whites, many Afrikaans-speaking, took their place. Compared to the Berea area, these neighbourhoods offered modest housing, but were fully serviced by the apartheid state.

Table 10 Occupational statistics by race group: Berea neighbourhoods (percentage of employed population within each race group in the specified occupational category)

Berea	1996 %	2001 %
White skilled	98	98
White professional	62	64
African skilled	34	56
African professional	15	30
Indian skilled	97	99
Indian professional	67	69
Total unemployment	4	6

Note: Professional is a subset of skilled; unemployment percentage is for the area as a whole
Source: South African national censuses 1996 and 2001

By the early 1990s, though, some of the Old Line Suburbs were beginning to change. Indian families began moving there from Chatsworth. Most of the new entrants to these neighbourhoods before 1996 and between 1996 and 2001 were Indian rather than African.

Urban planners in Durban's city government with extensive experience in local politics and planning in Chatsworth indicated that many young urban professional Indians left Chatsworth during the focal period, moving to the central city and to the Old Line Suburbs. While there was a level of comfort in Chatsworth, a 'social value' associated with family networks, temples and shared culture, people wanted to upgrade to better housing stock. Many remained in Chatsworth and upgraded the original three-room houses that defined much of the area. However, others wanted to move. The Old Line Suburbs provided bigger plots of land and larger foundations on which to upgrade. Also, compared to the central city, these suburbs provided stand-alone houses that were affordable owing to their more distant location, the age of the housing stock and the middle-class characteristics of the neighbourhoods. The Old Line Suburbs were near Chatsworth, which meant that people could leave Chatsworth but retain ties to families who stayed on, and to social networks.

Whites stayed in these suburbs for different reasons than in the Berea neighbourhoods. Whites in these areas continued to be mostly members of the Afrikaans-speaking working class who did not fare as well in post-apartheid South Africa as professional English Whites. Table 11 shows the high proportion of skilled Whites, but relatively lower proportion of professional Whites compared to the Berea neighbourhoods; the Indian occupational distribution was very similar to that of Whites. Property values did not, at least by 2001, appreciate in the same way as the central-city properties. For a certain subset of the White population, then, residential mobility was less of an option, particularly given the resource base of other Whites in the city.

We also discovered a third pattern of class-stratified mixing. In this pattern, which has taken place on the urban periphery, and most notably in areas adjacent to the Indian townships of Chatsworth and Phoenix, Africans have moved into Indian areas. As displayed on Map 5, in the north, most of the neighbourhoods that have seen an influx of Africans are clustered around Phoenix, with two (Westham and Redfern) bridging the space between Phoenix and the African township of KwaMashu. The eight mixed neighbourhoods that border Phoenix saw an influx of 8,500 Africans between 1996 and 2001 — a 54% increase — and only a small percentage decrease in Indian population. These neighbourhoods have levels of provisioning that are higher than those in African townships and a notably low percentage of informal housing (with the exception of

Table 11 Occupational statistics by race group: Old Line Suburbs (percentage of employed population within each race group in the specified occupational category)

| Old Line Suburbs	1996 %	2001 %
White skilled	97	97
White professional	42	45
African skilled	41	50
African professional	13	25
Indian skilled	97	98
Indian professional	49	52
Total unemployment	7	10

Note: Professional is a subset of skilled; unemployment percentage is for the area as a whole
Source: South African national censuses 1996 and 2001
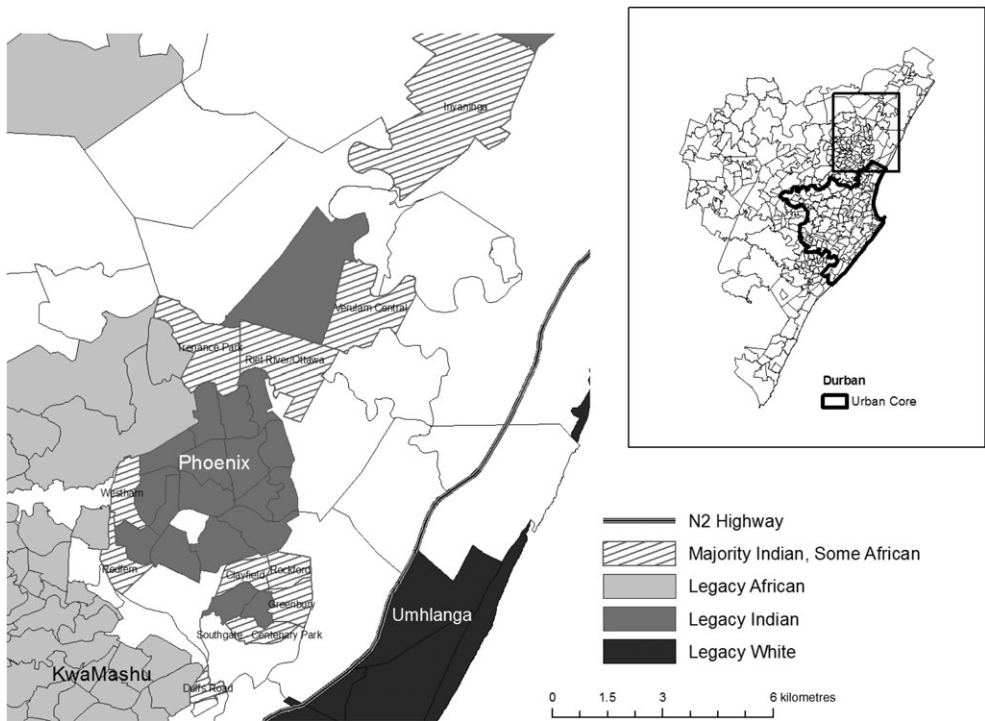
Map 5 Majority-Indian, some African population, 2001

Trenance Park, where there was a substantial increase in informal housing). City officials and respondents in the local Area Based Management office confirmed that most of the movement here, as opposed to in other parts of the city, was associated with the arrival of some Africans who were able to access the private-housing market, rather than with land invasions. The quality of schools was reported to be a major factor in African movement into Phoenix. Schools in KwaMashu suffer from serious problems, and the demand for better schooling that can be found in Phoenix is high. Similarly, demand for
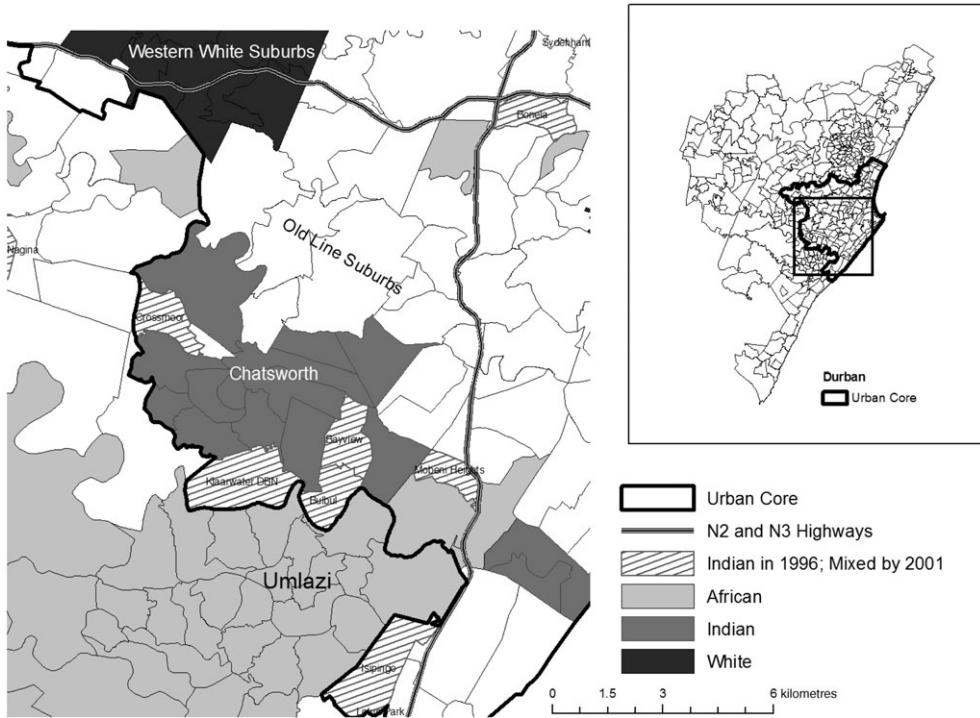
Map 6 Majority-Indian, some African population, 2001

better health care may be driving African movement into Phoenix, given the lack of hospital care in the adjacent African townships.

The southern area highlighted in Map 6 also consists of neighbourhoods that have shifted from single-group Indian to majority-Indian with some Africans. These are clustered around the Indian township of Chatsworth. However, residential changes in Chatsworth have followed a very different path from those in Phoenix, despite their similar pattern of mixing. Most of the influx of Africans in Chatsworth and the formerly Indian areas around Chatsworth has been a result of the growth of informal settlements of Africans. The fact that desegregation in these neighbourhoods has taken the form of informal settlements underscores that desegregation and integration are not the same thing. Residents of informal settlements are excluded from many of the services available to residents in formal housing. Yet, closer proximity to economic opportunities, transport and public facilities still make these neighbourhoods more articulated. Informal housing in Chatsworth provides more options than the outskirts of peripheral townships.

To sum up this section, the dominant pattern of mixing in Durban between 1996 and 2001 was class-stratified mixing. Areas that had been predominantly White or Indian were changed by an influx of Africans and/or Indians. Although this mixing took place within narrow geographical and class bands, it nonetheless marked a significant form of upward spatial mobility, as groups previously confined to peripheral areas moved into areas with better services and better linkages. Mixing, in other words, does appear to be associated with better articulation with the city. Thus, as Tables 8 and 9 show, the levels of services, employment and transport access in these areas are substantially higher than in African and Indian legacy areas. However, in so far as this mixing has taken place within narrow class and spatial boundaries, it has not fundamentally changed the spatial hierarchy of class in the city.

Table 12 Occupational statistics by race group: Central Business District (percentage of employed population within each race group in the specified occupational category)

Central Business District	1996 %	2001 %
White skilled	96	95
White professional	41	38
Indian skilled	97	96
Indian professional	43	44
African skilled	82	89
African professional	42	40
Total unemployment	11	25

Note: Professional is a subset of skilled; unemployment percentage is for the area as a whole
Source: South African national censuses 1996 and 2001

Transformative mixing

The areas we examine in this section have experienced mixing within a broader, or at least more open, socio-economic spectrum. Mixing here, in contrast to the class-stratified pattern, is not as delimited by market forces, in particular housing prices. Because mixing here implies the creation of not merely a new racial, but also a new class configuration, we call it transformative. By 'transformative' we do not imply a normative judgment, but simply claim that this pattern of mixing does depart from the class-based spatial hierarchy of the city.

The first such area — the CBD West — represents a particularly significant, albeit unique, dynamic of transformation. In 1996, the racial composition was 40% African, 24% Indian and 28% White — seemingly very mixed, but an instance of a census snapshot taken in the midst of accelerating White flight. By 2001, the CBD was 62% African, 20% Indian and 11% White. The period saw a substantial influx of Africans (from 6,500 to 12,700), no change in the Indian population and a halving of the White population (from 4,605 to 2,280). Some of the Whites who remained were homeless (Waters, 2007). The African influx consisted primarily of working- and middle-class residents, including a number of Africans from outside of South Africa, although not from the burgeoning wealthy African middle class that moved into the Berea area.[19] Instead, teachers, service workers and other young professionals moved in, together with poor Africans taking advantage of services for the poor available in downtown areas (Roberts, 2007; Waters, 2007). Table 12 shows the remarkable similarity in occupational profiles for formally employed White, Indian and African workers in the CBD.

Durban's CBD did not experience the extreme economic and social turnover associated with the Johannesburg CBD — corporate abandonment of skyscrapers and relocation to northern suburbs, massive influx of informal settlements and collapse of public services. Despite White flight, the CBD remained quite mixed in 2001, matching Durban's overall racial composition very closely. Mixing here has also been associated with articulation: the CBD is ideally located for access to transportation and economic opportunity, and its residents are far more integrated into Durban's economy than those on the urban periphery. Moreover, the Durban metropolitan area has made significant

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19 While the census collects data on place of birth, the complexity of our categorization system and our focus on race groups over nationality resulted in a decision not to use place of birth as a variable in this analysis.

investments in upgrading the CBD as a centre for tourism and business, with inclusion of the informal sector.

A second transformative pattern we have identified is in peri-urban areas, and specifically in the two neighbourhoods of New Germany and Wyebank in the western part of Durban, as displayed on Map 4. New Germany had a large influx of Africans — nearly a tripling, from 1,400 in 1996 to over 4,000 in 2001 — with no great decrease in the White population (from 6,900 to 6,000). Wyebank was evenly split between Africans and Indians in 1996, with about 2,500 of each; by 2001, the Indian population remained the same while the African population rose to over 6,500. In the CBD, demixing was driven by White flight and African influx; here, there was no flight, only African densification. The key to transformation in both neighbourhoods has been twofold: their proximity to Pinetown, a booming industrial area that even during Durban's economically stagnant post-transition period was able to grow, and significant state investments in public housing.

With its strategic location near the port and on the N3 to Johannesburg, excellent local and provincial infrastructure support and proactive local officials, Pinetown has emerged as the most dynamic economic node in the city. Thus even during Durban's economic downturn, Pinetown was one of the few areas of the city that could provide opportunities for the working class. Africans were able to take advantage for several reasons. Firstly, much like the Old Line Suburbs, New Germany was historically a White working-class area, and property prices were therefore more affordable than elsewhere. Secondly, the housing stock in the neighbourhood is diversified, from high-end homes and modest stand-alone homes to apartment complexes. Thirdly, both neighbourhoods benefited from low- and no-income public-housing projects, most notably the greenfield public housing in New Germany in a former buffer zone on its eastern border with Clermont, where 665 units were constructed between 1994 and 1998. These public-housing projects specifically targeted the African population. The affordability of modest stand-alone homes and the presence of apartment developments and public-housing options made New Germany and Wyebank accessible to Africans from a variety of class backgrounds, including some of the poorest in Durban.

A wide swath of residence just to the north of the city centre provides the third example of a transformative pattern. Newlands West is an historically Indian area composed of a residential section and an 'open-space' section that was used as a buffer to separate Newlands from the nearby African townships. In 1996, the Newlands West residential section had a population of 24,460; 77% were Indian and 21% were African. Unemployment stood at 10%, and its income rank was 99, making it a decidedly middle-class neighbourhood. Neighbouring Newlands West open space, the buffer zone, was empty.

Between 1996 and 2001, the state constructed over 2,600 public-housing units in the former buffer zone, and by 2001 there were nearly 15,000 residents in Newlands West open space — 57% African and 42% Indian. The unemployment rate was a massive 55%, in line with poor African areas, and the income rank was 232. However, informality was low, given the presence of public housing, and the neighbourhood was well located. Over 6,000 Indians moved into the former open space between 1996 and 2001, along with over 8,500 Africans. Nearly all working Indians were in skilled occupations (95%) in Newlands West open space in 2001, but of those only 34% were professionals; 68% of employed Africans worked in skilled positions, to only 16% in professional positions. Meanwhile, the Newlands West residential section had lost nearly half its Indian population, which was replaced by a doubling of the African population. The neighbourhood was poorer, the income rank had declined to 143, and it had a higher unemployment rate at 24%, owing to the influx of Africans and to the flight of wealthier Indians. Working Africans in 2001 in the residential space were 82% skilled, and 44% professional, very high figures for the Durban African population. In 2001, the two Newlands neighbourhoods formed a continuous residential distribution of nearly 40,000 Indians and Africans, including many poor Africans. And despite a high unemployment rate and poverty in Newlands West open space, these neighbourhoods were substantially

more economically articulated than peripheral African townships (Schensul, 2008; 2009).

Conclusion: The racial city, the class-stratified city and the transformed city

Space has long been a powerful determinant of inequality and exclusion in South Africa. The end of apartheid marked the removal of all the formal, coercive structures through which the racially exclusionary city was engineered. To these powerful forces of decompression were added other forces of change. These included globalization, which has significantly restructured the spatial economy of the city, with the decline of the traditional manufacturing centre (the South Industrial Basin) and the rise of new nodes of economic activity and a proactive and highly capacitated local government that has rolled out new infrastructure, built low-income housing, invested in new economic nodes and extended the road system. So to what extent has the post-apartheid city been transformed, and what does the structure of the city suggest for potential future transformation? More generally, how can the case of Durban inform our understanding of how the transformative forces of the state and market interact with the urban spatial form?

There are no simple answers to these questions. If one looks only at aggregate measures such as the index of dissimilarity, the answer is that there has been little change beyond perhaps a slow and small erosion of the inherited spatial form. This is the predominant view in the literature. But if one takes a more disaggregated view, then it is quite clear that significant change has occurred in some important places, especially considering that our data covered only a very short five-year period.

Our findings do lend support to the argument that, since late apartheid, class has progressively come to replace race as the driver of inequality (Seekings and Nattrass, 2005), and that class mechanisms are now reinforcing apartheid urban spatial structures. Yet our findings point to important caveats. The mapping of racial segregation and desegregation we undertook reveals (1) real inertias linked to race, including the persistence of a racialized dynamic and the emergence of an ethnicized dynamic, (2) substantial changes linked to class that reproduce the spatial hierarchy of the city, yet also mark greater economic articulation and (3) and a third type of change — transformation — that defies simple linear models that privilege the impact of either race or class.

In contrast to the spatial assimilation and place stratification approaches that either privilege class or race in their explanatory logics, and taking issue with the near consensus on the limits of urban desegregation in the South African literature, we have sought to develop a sociological cartography of the city that highlights the variability of the urban spatial form and specifically accounts for where and how race, class and access interact to define mobility and development. We examined the city's 406 neighbourhoods at two levels of analysis. Firstly, at the neighbourhood level, about one third of the city has experienced racial mixing. The mixing comes in many forms, but the two dominant patterns have been Indians and Africans moving into formerly White areas in the core, and Africans moving into formerly Indian areas on the urban edge. At a second level of analysis we sought to identify specific configurations of change within these broader patterns of mixing. The configurations we identified have distinct spatial and class dimensions. With respect to the spatial hierarchy of the post-apartheid city, we identified three distinct logics: the legacy city, the class-stratified city and the transformed city.

The legacy city still accounts for the bulk of Durban's population and explains why the aggregate level of racial segregation remains extremely high. But within legacy areas we draw a sharp distinction between racialized areas and ethnicized areas. Indian and White legacy areas are best described as ethnic enclaves. White legacy areas were

constructed to be citadels of privilege under apartheid. The Indian townships of Phoenix and Chatsworth were initially racialized areas; they were quite literally the areas to which Indians were forcibly removed under apartheid zoning. However, over time, these two townships have evolved into enclaves, enjoying relatively good services and dense and highly integrated social and neighbourhood structures.

At the same time, over 70% of Africans, totalling nearly half the population of the city, remain in urban townships that are poorly serviced, economically disarticulated and plagued by high levels of unemployment and crime. The vast majority of township residents do not have the resources to leave what are, in effect, ghettos. Because of their peripheral location, most of these areas have few prospects of being productively integrated into the city's future growth patterns.[20] The persistence of these racialized areas is a testament to the profound, durable and compounded spatial inequalities bequeathed by apartheid. Yet for all their durability, even these areas are experiencing some change. Most notably, local state investments in infrastructure and services have started to make a measurable difference to the built environment (Schensul, 2009). As many of our respondents suggested, there are some signs that parts of the big townships of KwaMashu and Umlazi have experienced enough pick-up in economic activity and the quality of services (especially since 2001) that some otherwise mobile residents are choosing to stay. Whether or not this 'enclavization' represents a significant and sustainable trend remains to be seen. Ultimately, the size of the legacy city, in both racialized and ethnicized form, calls into question the extent to which residential mobility has shifted from race- to class-based mechanisms.

The class-stratified city describes areas that have experienced racial mixing but only within narrowly defined class boundaries. At the high end, Africans and Indians have moved into some of the most privileged White areas. In the middle, Indians have moved into lower-middle-class White areas. Both these patterns are located in the urban core. On the urban edge, Africans have moved into areas adjacent to the Indian townships. In all these cases, the quality and variety of the housing stock has been a key factor shaping the pattern of mixing. Spatial proximity to a neighbourhood has also been an important factor, as in the case of Indians from Chatsworth moving into the nearby Old Line Suburbs, and Africans from KwaMashu moving closer to Phoenix. This latter pattern, combined with the cases of Indian and White ethnic enclaves, suggests that race — or more specifically social and neighbourhood identity — continues to have an impact on class-based change. However, overall, the new prominence of the class-stratified city, a prominence all the more significant because of its primary location in the urban core, clearly points to the increased importance of class as a spatial sorting mechanism for an important part of the city. As legal barriers to mobility have been removed, and as overt and even informal discrimination has been made politically untenable in an African-majority society, the major driver of spatial mobility in the core has become resources.

In summary, many of the changes to Durban's urban spatial structure are the spatial instantiation of changes to South Africa's political economy, namely an increase in inequality in a context of maintenance of the late apartheid class-based distributional regime and the emergence of an African middle class (Seekings and Nattrass, 2005). The movement of African professionals into the exclusive areas of the core is the clearest example of this type of class mechanism. The city's spatial structure has continued to diverge, with a portion of the city, composed of multiple race groups, achieving mobility and development, while the remainder, the poor African majority, stagnates.

So has one form of spatial inequality given way to another form of spatial inequality? Yes, but not entirely. While African legacy neighbourhoods are in large part excluded from the class-driven city, our category of transformative mixing indicates

20 Parts of KwaMashu, Durban's largest township, may escape this pattern because of their proximity to the new northern corridor of activity.

that some parts of the city have proven to be more open to broader and deeper forms of change. The CBD, once the White commercial heart of the city, has undergone some of the most significant racial-composition changes of all the neighbourhoods in the city. But while the CBD has become predominantly African, in contrast to patterns of inner-city ghettoization in the US and even Johannesburg, it has a class-diverse population, continues to be a vital area of economic activity and has experienced notable improvements in public services.[21] The areas near the new industrial hub of Pinetown have also experienced significant racial and class diversification. In this case, public-sector investment in the form of subsidized low- and no-income housing for Africans appears to have played a catalytic role. This suggests that the local state has the capacity to promote transformation, particularly on the urban edge, where there is still room for greenfield development in former buffer zones (Schensul, 2008).

Much of the literature on urban transformation tends to emphasize the role of macro forces, especially globalization, in reshaping cities, making broad generalizations about increased polarization and inequality in particular. The literature on South African cities has also tended towards such generalizations, arguing that the legacies of apartheid coupled with market forces have, in effect, preserved or even exacerbated the spatial hierarchy of the post-apartheid city (Bremner, 2000; Murray, 2004; Crankshaw, 2008). In Durban, there is no doubt about the importance of market forces in explaining some of the changes and inertias we have described. The shifting spatial configuration of growth nodes in Durban and the move away from traditional manufacturing has clearly underwritten some of the class dynamics at work. Moreover, much of the change in racial residential composition that we have documented has taken place within a fairly narrow band of class opportunities. Simply stated, existing housing markets are deeply stratified across the city and set very tight parameters on who can move.

Yet there are clearly other forces at work that complicate a structural market-centric story. As the recent literature on the 'hybrid' city has emphasized (Harrison, 2006; Robinson, 2006), the highly zoned and compartmentalized spatial structure of the apartheid city has given way to somewhat more permeable boundaries in which new urban practices are emerging. First, as we have seen, even as class factors have become more prevalent, neighbourhood continues to matter, as shown in the examples of Indian enclaves, White citadels and the 'enclavization' of some African townships. Secondly, the growing permeability is geographic, as residents spill out of legacy areas and into neighbouring areas that provide upgraded quality of life; the case of Newlands is a strong example. Thirdly, state intervention has also had an impact. The CBD has not followed the path of ghettoization in large part because of a sustained state effort, and some areas on the urban periphery have experienced class and racial diversification in part because of state investments. Equally importantly, but maybe not as visibly, many African legacy areas are now much better integrated into the city's economic life because of improved social services and better transport linkages (Schensul, 2009). Structural market forces are, in other words, significantly mediated by existing spatial patterns, neighbourhood identities and state policies and capacity. Untangling this complex causal matrix calls for much more research. We believe that the sociological cartography we have developed here is a first step in that direction.

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21 Although Johannesburg's inner city has also recently experienced substantial regeneration driven by major development projects, in the late 1990s hundreds of buildings were characterized by 'breakdown in service provision, control by crime syndicates, health hazards and other dangerous conditions' (Harrison, 2006: 330).

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Résumé

La ville post-apartheid constitue un cas-test important permettant d'évaluer la manière dont les dimensions spatiales de l'inégalité sociale façonnent les dynamiques de transformation urbaine. Les analyses de la ségrégation urbaine se sont intéressées, par la plupart, à la race ou à la classe comme facteurs fondamentaux de mobilité ou de stabilité, comme par exemple dans le débat classique opposant assimilation spatiale et stratification des lieux. Toutefois, les mécanismes de ségrégation et de mixité s'exercent différemment selon la structure spatiale urbaine. Il est montré, à partir du cas sud-africain de Durban, combien les héritages spatiaux de l'apartheid sont profonds et, en grande partie, la ville a peu changé depuis cette époque. En se basant sur une analyse spatiale au niveau des quartiers, il est également établi que, même dans la courte période entre 1996 et 2001, bon nombre d'entre eux ont subi des changements mesurables dans leur composition raciale et socio-économique. Une 'cartographie sociologique' de la ville a été mise au point, montrant comme race, classe et espace se sont combinés pour générer trois types distincts, mais interconnectés, de stase et de transformation: la ville racialisée, la ville stratifiée par classe, et la ville transformée. La ville racialisée est l'héritage le plus direct de l'aménagement spatial datant de l'apartheid, englobant des quartiers composés essentiellement d'un seul groupe racial. Dans la ville stratifiée par classe, plusieurs groupes raciaux relevant de la même position sociale sont représentés. Enfin, la ville transformée reflète les configurations nouvelles qui transcendent les divisions de race et de classe propres à la ville de l'apartheid.