

**Widening the Net:
Extending the Property Tax into
Previously Untaxed Areas of South Africa**

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Abstract

In South Africa, during apartheid, blacks were typically not permitted private ownership of real property, a distinction that is especially important for consideration of the post-apartheid property tax. The democratically elected national government that came into power in 1994 recognized the importance of addressing directly the legacy of apartheid in urban areas. The *White Paper on Local Government* (p. ix) stated:

Apartheid has fundamentally damaged the spatial, social and economic environments in which people live, work, raise families, and seek to fulfill their aspirations. Local government has a critical role to play in rebuilding local communities and environments, as the basis of a democratic, integrated, prosperous and truly non-racial society.

To address these concerns, the government put in place a two-stage, five-year process of restructuring local governments. Initially producing diversity of local government institutions around the country. The next stage in the local government transformation process was the complete re-delineation of all local authorities, which reduced the number of authorities, and created a fundamentally new kind of municipality, responsible for several towns and extensive rural areas. This diminished the latitude for local diversity. The amalgamation of municipalities in December 2000 brought new areas into the property tax base. The new municipal structures encompass all land area in South Africa and, as required by law, all land within a local government must be taxed under a system that applies throughout that municipality.

This paper provides the first systematic examination of how areas previously outside the property tax have been brought into it following the municipal amalgamations in 1995 and 2000. We focus on four local governments: in the Eastern Cape Province, George Municipality and the Nelson Mandela Metropolitan Municipality (the last includes the former city of Port Elizabeth); in Gauteng Province, the City of Tshwane Metropolitan Municipality (which includes the former city of Pretoria); and in the North West Province, Moses Kotane Municipality.

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Widening the Net: Extending the Property Tax into Previously Untaxed Areas in South Africa

Introduction¹

For many decades prior to the end of apartheid in the early 1990s, South African society was sharply divided, even balkanized. The Population Registration Act of 1950 defined four racial groups: white, Indian, colored (mixed-race), and black (African, or Bantu). The Groups Areas Act of 1950 provided for strict racial separation in urban areas, with zones that could be occupied by members of only one racial group; Indians, colored, and blacks were forcibly removed to “own group” areas. The Bantu Authorities Act of 1951 reestablished tribal areas and created Bantu, or tribal, authorities to govern blacks. Also known as homelands or bantustans, these tribal areas comprised an aggregate land area that was, relative to population shares, disproportionately small; further, they were located in some of the least desirable rural portions of the country.

In this racially-defined system, whites were the most favored group and blacks the least favored; for example, typically blacks were not permitted private ownership of real property—a distinction that is especially important for consideration of the post-apartheid property tax. In urban areas, whites lived in the core central cities and blacks were generally regarded as laborers temporarily visiting the urban area, from their rural base, to find work. (Blacks were permitted in other areas for brief periods through a “pass system” that required that they carry identifying papers.) The black population was deliberately directed toward “dormitory townships” outside major cities, in what are typically referred to as black local authorities (BLAs). BLAs uniformly consisted of poor—though variable—quality housing with minimal services and were governed by a range of centrally dominated non-municipal mechanisms.

Blacks in urban areas occupied their properties on the basis of subsidized council tenancies, or under a range of nationally legislated leasehold arrangements, introduced piecemeal over the years as a substitute for freehold tenure. The status of land rights in the black townships became a shambles, with a proliferation of specially designed non-freehold tenure systems, poor-to-non-existent record keeping, and little by way of cadastral surveys.

Things were little better in traditional tribal areas. For example, in the bantustans, including traditional tribal areas, land was communally owned and tribal chiefs (often appointed and paid by the national government) controlled land-use rights. In the urban agglomerations within bantustans there were non-viable municipal institutions—e.g., R293 towns, which had large populations, little economic base, and only a minimal level of services.

¹ We thank Professor David Solomon of the University of Witwatersrand, in Johannesburg for his contribution to this section.

Black residents did not participate at all in the day-to-day governance and administration of their townships until 1982 when, in terms of the Black Local Authorities Act, they were given “full municipal status.” They were not, however, given any fiscal base other than rents and service charges, and were burdened from inception with the debts outstanding on recent infrastructure developments, including, in the case of Soweto, the electrification of the township. Municipal services provided to residents of BLAs were shockingly poor or non-existent. No adequate provision was made for intergovernmental fiscal support of these “independent” authorities, despite their palpable lack of fiscal base. Moreover, the political leaders of these areas were not democratically elected. The spate of rent and service charge increases that inevitably followed was vociferously resisted and a tax revolt, termed the “rent boycott,” began under the leadership of various local civic organizations. This gave rise to what at times is termed a “culture of non-payment” and has implications for acceptance of property taxation in areas newly brought into the tax base.

The democratically elected national government that came into power in 1994 recognized the importance of addressing directly the legacy of apartheid in urban areas. The *White Paper on Local Government* (p. ix) stated:

Apartheid has fundamentally damaged the spatial, social and economic environments in which people live, work, raise families, and seek to fulfil [*sic.*] their aspirations. Local government has a critical role to play in rebuilding local communities and environments, as the basis of a democratic, integrated, prosperous and truly non-racial society.

To address these concerns, the government put in place a two-stage, five-year process of restructuring local governments. The framework for the first, transitional stage was the Local Government Transition Act (LGTA) of 1993.² Rather than prescribe a blueprint for reinventing local governments, the LGTA sketched a process by which local communities were to design and implement changes in the structure, function, and financing of their local governments. This framework centered on local government negotiating forums (whose composition and role were defined by the LGTA), established in each community in 1993 and 1994. Each local forum negotiated institutional solutions appropriate to the local area, but consistent with principles of non-racialism, democracy, one (i.e., unified) tax base, and local accountability. Thus, the transformation of South Africa’s local government system is unique in the sense it has been a bottom-up process.³ Emphasizing structural reform to overcome the legacy of apartheid through the amalgamation of former race-based structures, the negotiating process involved all major

² LGTA was signed by then-President F. W. de Klerk and by Nelson Mandela, who had represented, respectively, the National Party and the African National Congress in the Convention for a Democratic South Africa (CODESA), which—between December 1991 and September 1993—had negotiated the agreement to elect a constitutional assembly that adopted a new constitution and served as a transitional legislature. Mandela was elected president in the first democratic elections, in 1994.

³ Swilling 1996, 129.

stakeholders, including community-based organizations, non-governmental organizations, business associations, and civic associations. This bottom-up process produced diversity of local government institutions around the country.

The next stage in the local government transformation process was the complete re-demarcation of all local authorities, which reduced the number of authorities from nearly 850 to fewer than 300. Begun in 1999 under provisions of the Municipal Structures Act of 1998, this stage was completed in December 2000 with the second set of local elections. This new demarcation involved the administrative amalgamation of authorities, creating a fundamentally new kind of municipality, responsible for several towns and extensive rural areas. This diminished the latitude for local diversity. One aspect of this was the end of the two-tier governmental structure in metropolitan areas and the advent of metro-wide “unicity” governments.

The amalgamation of municipalities in December 2000 brought new areas into the property tax base. The new municipal structures encompass all land area in South Africa and, as required by law, all land within a local government must be taxed under a system that applies throughout that municipality. The new areas include former black local authorities, bantustans and their R293 towns, and rural lands formerly outside municipal areas.

This paper provides the first systematic examination of how areas previously outside the property tax have been (or are being) brought into it following the municipal amalgamations in 1995 and 2000. We focus on four local governments: in the Eastern Cape Province, George Municipality and the Nelson Mandela Metropolitan Municipality (the last includes the former city of Port Elizabeth); in Gauteng Province, the City of Tshwane Metropolitan Municipality (which includes the former city of Pretoria); and in the North West Province, Moses Kotane Municipality. The following section briefly discusses our approach to the case studies reported here, and the next section provides background on each of these municipalities.

Approach to Case Studies

Lack of collected information for a large number of local jurisdictions meant we would have to rely on case studies to begin to understand how localities have come to grips with the enormous task of extending property taxation into areas not formerly taxed, and of harmonizing systems in formerly taxed areas now brought into a single, expanded local government area. This approach necessarily meant working with relatively few areas, given time and budget constraints. In choosing case study areas we sought to include diverse areas: localities using different variants of the property tax; metropolitan and non-metropolitan areas; and areas drawn from different regions and former provinces of South Africa. Further, it was desirable that we include one or more localities now encompassing a tribal area, where land is communally owned. The four case study areas listed above provide this diversity.

Prior to our case study visits in March 2002, we were in touch with officials in the study areas by telephone and e-mail, to arrange for our visits. Seeking to make better use of our time in the country, and to allow for the time it would take to pull together some of the desired information, we developed a list of several specific questions, or pieces of information, and sent this to representatives of each of the areas. That list (Appendix 1 to this report) includes questions on the areas involved in the two amalgamations, including property parcel numbers and types, valuation efforts, population, and revenue sources.

With this advance preparation, our meetings with local officials—or, in the case of Moses Kotane Municipality, with a private valuer under contract to value that area—generally were concluded in a matter of several hours, although these sometimes were spread over a few days in a given location. The face-to-face meetings permitted clarification of our data requests and of the data provided to us by the localities. Where there were gaps yet to be filled that could be filled, arrangements were made for later delivery of the information. These visits also paved the way for better telephone and e-mail follow-up after our return to the U.S. While in the areas, we viewed (and in some cases were able to obtain) maps showing boundaries before and after the amalgamations of 1995 and 2000. We also had the opportunity to view tax maps, including some developed with the aid of aerial photography. Further, we were given tours of some newly taxable areas, which improved our understanding of the valuation challenges presented by the properties in such areas.

Description of Case Study Municipalities

George Municipality

The City of George is a regional service center on South Africa's southern coast, along the Garden Route about halfway between Cape Town and Nelson Mandela Metropolitan Municipality (NMMM), which is centered on the former Port Elizabeth. In 1993 the City of George voluntarily amalgamated with Herolds Bay. Then, as part of the first formal amalgamation of local governments under the Local Government Transition Act, the City of George amalgamated in 1995 with Thembaletu, a former black local authority, and Pacaltsdorp, a former colored local authority.

Finally, the George Municipal Area was formed in December 2000 to include the former George Municipality plus areas previously in the municipality of Wilderness—a conurbanization of settlements including Wilderness, Wilderness Heights, Hoekwil, Touwsrante, and Kleinkrantz; rural areas surrounding Wilderness (Kraaibos, Victoria Bay, Saasveld, and a few farms and small holdings); Herold; Waboonskraal; Geelhoutboom; Outeniqualand Dutch Reformed Church and surrounding rural areas—including the airport and experimental farm; Outeniqua Rural Council area; and Bo-Langkloof Rural Council area. No traditional (tribal) authority areas were involved in the amalgamation.

In 2001, the municipality of George had a total estimated budget of approximately 233 million rands (R233 million), funded from the following sources:

- intergovernmental grants of approximately R18 million;
- property rates of approximately R52 million billed—about R39 million collected;
- bulk services gross revenues of approximately R163 million—R90 million from electricity sales, R30 million from water sales, R15 million from refuse collection, R22 million from sewerage fees and R6 million from miscellaneous revenue sources (it is intended that bulk service revenues include a “profit” of 10 percent, to be transferred to the general budget).

Thus, the largest single source of discretionary funding in the local budget was property rates, which accounted for approximately 22 percent of the total budget, but about 60 percent of discretionary funding, if the profit target for bulk services was achieved.⁴ Assuming it was, net proceeds from bulk services were close to the level of intergovernmental grants, but only about one-third of the billed property rates.

The Local Government Transition Act mandated that all properties in a municipality be subject to a uniform property tax system. Because the boundaries of the George Municipality were expanded significantly in 1995 and 2000, the municipality had to confront the requirement of bringing previously untaxed areas into the property tax base and harmonizing different taxes in the formerly taxed areas of the expanded municipality.

November 1995 Initial Demarcation

As a result of the initial amalgamation in 1995, George incorporated two new areas, Themba lethu and Pacaltsdorp, into the municipal property tax base.

Themba lethu

The town of Themba lethu was proclaimed a separate municipality in 1986. It was formed in 1982 when the people from Lawaaikamp—the first informal black settlement within the boundaries of the old George—negotiated with the municipality of George for more land further outside the city. From 1982 to 1988 about half the residents from Lawaaikamp either relocated voluntarily or were forcibly removed to Themba lethu. In addition, residents of Blikkiesdorp (in the old George) were resettled to Themba lethu. Because it was a black township, and blacks typically were prohibited from owning property, Themba lethu did not have private property or a property tax roll prior to being amalgamated with George in 1995.

The first task of the municipality after the amalgamation in 1995 was to identify and survey individual properties in Themba lethu and to identify their owners. Once maps were developed and all this information was registered with the national Surveyor General’s Office, Themba lethu became formally proclaimed and individual properties were registered to individual owners.

⁴ “Discretionary funding” may not be entirely accurate. We use the term to mean gross revenues less the costs of bulk services, so that only the discretionary portion of bulk services revenues is included.

Next, initial assessed values had to be determined for each property. Deriving estimates of market value would have been extremely difficult because there had been no property sales in Thembalethu. Therefore, as a first approximation of value, initial assessed values in Thembalethu were put at R1,000 if the erf was located on a gravel road, and R2,000 if the erf was located on a tarred road.

The expectation was that these initial values would be refined over time as individual properties sold on the open market. For obvious historical and cultural reasons, however, private property ownership and deed registration were foreign concepts to many new property owners in Thembalethu. As a result, when the owner of a property moved, he might sell the property for a very nominal amount—e.g., R100—and move on without going through formal legal channels of transferring ownership to the new owner. As a result, there have been few market-value sales with deed registration. Therefore, there is little to go on to update values and about 95 percent of individual properties are still valued on the initial basis. Another consequence of informal sales is that property records are not current.

Pacaltsdorp

In 1813 the missionary Carolus Pacalt of the London Missionary Society established a missionary station at the main kraal (an enclosed area where domesticated animals are kept at night) of the local Outeniqua people. A settlement grew around the missionary station where each inhabitant was allowed to build a house on a piece of land, provided the land was put to good use. In 1818 the settlement was renamed Pacaltsdorp in memory of the missionary. In 1888 Pacaltsdorp was granted a village management board, but it achieved municipal status only in 1975. However, Pacaltsdorp, a colored community, had a long history of private property and had a tax roll with assessed values based on market sales prior to 1995, so it was rather easily incorporated into the George tax base.

December 2000 Amalgamation

The George Municipality faces a much greater challenge after the amalgamation in December 2000 because a larger area was brought into the municipality and the newly incorporated areas had vastly different experiences with local property taxes. For example, those areas incorporated into George Municipality from the former Outeniqua and Bo-Langkloof Rural Council areas were generally outside the property tax and, as a result, had no property tax rolls. The George Municipality has not yet addressed this issue, as they await new national legislation sorting out responsibilities between the new District Municipality and the George Municipality. Herolds Bay and Victoria Bay are exceptions because they were previously located in the District Council and had a local property tax. Their tax rolls have been incorporated into the George Municipality's property tax base.

Wilderness Municipality presented its own unique challenge to the George Municipality because it had a site rating system, whereas George uses composite rating that currently

taxes improvements at 55 percent of the rate applied to land.⁵ George has taken steps to add improvements to the tax base for properties in the former Wilderness Municipality, but this effort has been exacerbated by a recent revaluation of properties in the former Wilderness Municipality. As a result of the revaluation and adding improvements to the tax base many individual properties faced increases in property taxes of 100 percent or more. This generated taxpayer complaint that resulted in a phase-in over three years to the George rates; for fiscal 2002, the Wilderness rates are only about two-thirds as high as the George rates.

Nelson Mandela Metropolitan Municipality

The Nelson Mandela Metropolitan Municipality (NMMM) is one of South Africa's six metropolitan (or unicity) localities. The former city of Port Elizabeth contributed a little over three-fourths of the one million-plus population and a little over one-fourth of the 1,500 square kilometers of land area of this new metro area created by the December 2000 amalgamation. As with George and other localities in South Africa, however, Port Elizabeth had been expanded by the first round of local government amalgamations in 1995.

November 1995 Initial Demarcation

In the initial local government demarcation in November 1995, the municipality of Port Elizabeth incorporated six new areas: Ibhayi, Kwadwesi, Kwamagxaki, Motherwell, Soweto-on-the-Sea, and Walmer Township. All six of these areas are former BLAs. Because of historical factors, Kwadwesi and Kwamagxaki had a history of private property before amalgamation with Port Elizabeth. The other four areas—Ibhayi, Motherwell, Soweto-on-the-Sea and Walmer Township—did not have a history of private property.

December 2000 Amalgamation

The Nelson Mandela Metropolitan Municipality is an amalgamation of five former Transitional Local Council areas—Port Elizabeth, Despatch, Uitenhage, Seaview, and Blue Horizon Bay.⁶ In addition, NMMM includes rural areas formerly under the jurisdiction of the Western District Council. Although the new metropolitan municipality has been formed, little amalgamation of local administrations has occurred so far. The former localities still are operating as before, as separate administrative units, with separate offices, books, procedures, and so on. Property tax systems also had not been

⁵ Thus, the ratio of land rate to improvements rate is 1.825 to 1. Annual data from 1974 to 2002 show, however, that the George ratio of the land rate to the improvements has fallen in stages, beginning in 1984, from 3:1 to its current level, effective for fiscal 2001. This narrow differentiation makes the Wilderness move from zero rating of improvements to the George system more pronounced than if George had a larger differential.

⁶ "Transitional" councils were those set up under the LGTA, in the first stage of local government restructuring.

standardized as of March 2002, as discussed below. The exception is the rural areas of the former Western District Council that have been amalgamated with the metropolitan authority.

With the exception of Walmer Township, localities merged into Port Elizabeth in 1995 were valued as of 1983, which is the assessment date for the former city of Port Elizabeth. As mentioned above, four areas amalgamated in 1995 had not had private property, so there were no property tax rolls and minimal records pertaining to properties—Ibhayi, Motherwell, Soweto-on-the-Sea, and Walmer Township. All of these have been surveyed and proclaimed, with the exception of Walmer Township, which was surveyed in 2001, but has yet to be proclaimed and valued.

Several areas that became part of the Mandela unicity in December 2000 have different assessment dates—for example, Uitenhage, 1977; Despatch, 1997; and Western District Council, 1992. Moreover, about 2,500 farms, not previously taxable, have recently been valued. Interim valuations for these farms, based on 1983 values, have been included in the 2001-2002 tax roll.

In bringing areas not previously subject to property taxation into the tax base, property records are being placed on a computerized valuation roll by drawing on information from a number of sources. Information from two national offices is being used to identify and describe individual properties. Diagrams from the Surveyor General are compared to records at the Registrar of Deeds. Further, Surveyor General records are used to create a geographic information system (GIS), and owners' names and addresses are obtained from records of the Registrar of Deeds.⁷ Informal areas present very difficult problems, though, because there are many shacks on a single piece of land—i.e., there typically is only one owner of the land on which dwellings for many households are found.⁸ In creating more complete property records, a number of sources are used. These include building plans, diagrams, aerial photos, and site visits.

Provincial valuers were engaged to value the properties in NMMM. With one exception, land is valued at its estimated market value⁹ in 1983, while improvements are valued at 1983 erection cost less depreciation. The exception is Despatch, where the market value of land is subtracted from the market value of the improved property to arrive at the value of improvements.¹⁰

⁷ Erf number or farm number is the common link between these two national sources of information.

⁸ The amount of informal housing is significant. In the area of the former Port Elizabeth municipality, for example, there are said to be 17,150 shacks, a number equal to 12.5 percent of the 136,791 formal residences and over 10 percent of total residences.

⁹ Assuming a willing buyer and a willing seller.

¹⁰ The Despatch approach is the one prescribed by the ordinance of the former Cape Province (Bowman 2002a, 51).

To arrive at market values, sales data provide the starting point, if such data exist for an area. Four areas new to the property tax previously did not have private property: Ibhayi, Motherwell, Soweto-on-the-Sea and Walmer Township. In such areas, there may not be sufficient numbers of sales recorded to permit this approach. Recorded sales are stressed, because there apparently are several informal sales made, which do not get reported and thus do not become part of the official databases used. Informal sales cannot be tracked.¹¹ Building plans and cost records are another source of information on improvements value. These are most helpful where most buildings are new, as in Motherwell; by contrast, Ibhayi has mostly old buildings, many about 50 years old.

The importance of extending the property tax on the same basis throughout the entire metropolitan area is underscored by the significance of property taxation as a source of local revenue. We were provided estimates as of October 1999 for the revenues of the consolidated metropolitan unit. The total budget was R1,537.4 million, of which the property tax accounted for R282.6 million, or 18.4 percent. However, the total includes R971.7 million of gross revenue from tariffs for bulk services, such as electricity. If we assume that only 10 percent of this represents net revenue available to fund other services, then the property tax amounted to 42.6 percent of net revenue. Net tariffs, at 10 percent of gross, were 14.7 percent of total net revenue and about one-third as much as property taxes. Subsidies and intergovernmental revenues were a minor source of revenue on either basis: 2.4 percent of gross revenue and 5.6 percent of estimated net revenue.

City of Tshwane Metropolitan Municipality

City of Tshwane Metropolitan Municipality is one of the six metropolitan centers in South Africa. It is made up of the former Pretoria municipality and a number of surrounding areas. The initial amalgamation occurred in 1995, when the old city of Pretoria merged with two black local authority areas, Mamelodi and Atteridgeville. These two areas were brought into the amalgamated tax base in July 1996.

Prior to amalgamation, there were no property record cards in Atteridgeville and Mamelodi. For the 1996 roll, aerial photos were used to establish location and dimensions of individual plots and buildings, to create a minimal property record. The initial aim was to improve the valuation of individual properties with each successive revaluation. For the 1999 roll, “two guys in a car” drove past each property, with maps and a list of properties, to verify, update, and/or correct earlier information and add information to the property records. For the 2002 valuation, further refinements are being made. The former white areas still are estimated with a more sophisticated model, so the assimilation process is not yet complete. However, significant progress has been made in newly taxed areas, especially given the challenges faced and the limited resources available.

¹¹ Even if they could, such sales might not meet the market-value test of having been exchanges between *informed* buyers and sellers.

In December 2000, the expanded Pretoria municipality was merged with Centurion; the Northern Pretoria Municipal Sub Structure; Winterveld (black); Temba (black); Mabopane (black); Ga-rankuwa (black); Hammanskraal (black); Crocodile River; and Pienaarsrivier. Centurion is the second largest of the former localities in the new metropolitan municipality, and forms the southern border of the new Tshwane Metropolitan Municipality.

Total number of properties in Pretoria after the 1995 amalgamation was about 150,000; in the new Tshwane Metropolitan Municipality there are approximately 350,000 properties. Most of the new erven are in former black areas, but a detailed breakdown was not available. This information was to be developed as part of the 2002 valuation process.

The entire new metropolitan area was valued and on the tax roll, as of July 2001. Northern Pretoria is on 1995 valuation; Centurion, Akasia, and Pretoria are on 1999 valuation; new areas are on 2001 valuation. The entire metropolitan area is being revalued for 2002. Although Tshwane has a site rating system, land and buildings are both valued, with improvements as the residual (total value—land value).¹²

For the initial valuation of areas newly amalgamated with Pretoria in December 2000, unlike the 1995 amalgamation, aerial photographs were not used. The valuation office had wanted to use aerial photographs, but City Council took too long making the decision, and time grew too short. Instead, teams of valuers went into the areas and drove by properties. As a result of relying solely on municipal staff, there was an increase in personnel, from 18 to 22—a less than proportionate increase, as the number of parcels that must be valued increased from 150,000 to approximately 350,000. The small increase in staff, relative to the increase in the number of parcels to be valued, was to hold expenses down. Valuers used computers to generate estimates, and then exercised judgment to modify estimated values, if needed.

Moses Kotane Municipality

Moses Kotane Municipality was created by the final local government demarcation in December 2000. It was created from portions of the former Bophuthatswana bantustan. Specifically, it includes Madikwe and Mankwe, two areas that were formerly part of the Rustenburg District Council after the first demarcation in 1995. Each of these areas includes an urban area (Madikwe in Madikwe and Mogwase in Mankwe). In addition, Moses Kotane Municipality includes approximately 2,000 rural farms, and 77 informal settlements—some of which are located on some of the farms, but not part of the number of farm entries.

Moses Kotane Municipality was created by the demarcation that took effect in December 2000; perhaps because of its newness, we do not have any formal budget data for the

¹² This is the approach prescribed by the old Transvaal property tax law (Bowman 2002a, 51). For a discussion of the valuation of land (improved, as well as unimproved) at market value, see Bell and Bowman 2002, 90-94.

municipality. However, we did get information on property parcels. The urban agglomeration of Madikwe has approximately 1,175 parcels of property; the urban agglomeration of Mogwase has about 2,100 parcels; there are approximately 2,000 farms in the municipality; and there are 77 informal areas in the municipality that vary in size from six erven to 2,600 erven.

Because this is a new municipality formed by bringing together several former black areas, an entirely new tax roll had to be created. The two newly amalgamated urban agglomerations in Moses Kotane Municipality had been proclaimed before December 2000. Thus, there was some property information available from two national offices, the Surveyor General and the Registrar of Deeds. Also, owners were identified through the Registrar of Deeds. Similarly, farm areas had been surveyed, so information was available from the same sources.

The central government or a tribe typically owns informal areas. A tribal leader assigns plots to users/occupants, and no data were collected on occupants of the individual plots in such areas. Informal areas are depicted in aerial photos, which were done by a private contractor for the District Council in 1997. These aerial photos were subsequently verified and augmented by on-site inspections by the same firm, which produced very detailed maps of these informal areas.

Valuations were done after December 2000, for the 2002 fiscal year. Although this is the first valuation, no phase-in for values was considered. Private valuers did the valuation. There may be a rates phase-in, but this had not been determined.

Property valuations in the urban agglomerations were based on actual sales data for improved properties and vacant land, obtained from Registrar of Deeds. Values for improvements were a residual determined by subtracting land value from total value. There are some subsidized (RDP—Reconstruction and Development) houses, at least in Madikwe; for these, the total property value was placed at the R15,000 subsidy amount applicable when the houses were built. (The subsidy amount has since been increased to R18,500.)

Most farms are comprised of essentially marginal land uses, or best suited, for grazing. Sales prices from immediately adjacent areas and limited sales from within the municipality were used to determine taxable values for individual farms. All farms were valued the same, whether owned by the government, a tribe, or an individual. The valuer determined an average sales price of about R1,000 per hectare, which was then adjusted for individual farms to reflect differences in accessibility, condition, and size, categorized only as small or large, rather than many gradations. Large farms include all those with 10 or more hectares, even though some farms reportedly include 2,500 hectares or more. The valuers were able to find more sales of farms than many, including local valuers, had led them to expect. The contract valuers searched the deeds databank and discovered enough sales to permit valuations to be based on sales data, modified by judgment.

For land in municipal areas, an average value of R400 per hectare was initially used, which was then adjusted, normally upward, for smaller tracts of land and land that was

better located, mostly in Mogwase and Sun City areas, where the basis increased to R1,000 per hectare.

The situation for informal areas was more difficult. A tribal head assigns plots and receives a one-time R200 fee if the occupant is a tribe member, or R1,000 if not a tribe member. There have been no sales in these areas. The R200 number was used as the value of the land (“stand”) for residential use, and—based on rough judgment—R500 was used for stands in business use. Structures vary in size, materials, and quality and were valued based on informed judgment that relates to cost minus depreciation. Structure values ran to R60,000 or more in some instances; in one area, 20% were valued at R50,000 and the balance at R10,000—lower-value structures were “not a shack.”

Outcomes of the Valuation Process

As described above, amalgamating new areas into the property tax base has been a difficult process, with little progress being made since December 2000 in a number of municipalities. Therefore, we concentrate our analysis on those areas amalgamated in 1995 for which there is empirical information. Given the intent of treating all properties in a municipality uniformly, the issue confronted by policy makers in each new municipal area was how to accomplish that in a manner that promoted equity and uniformity across all properties, but with extremely limited resources. Specifically, localities are to value all properties at uniform percentages of market value, although there may be some differentiation in the rates applied to those taxable values.¹³ To look at the issue of assessment uniformity, we collected and analyzed data on sales and assessed values for properties in newly amalgamated areas for the cities of George, Port Elizabeth, and Pretoria. These are discussed below.

Measures of Outcomes

This section uses three standard measures of assessment quality to describe assessment, or valuation, outcomes: median assessment-sales ratio to measure how closely a suburb’s valuations come to the target of 100 percent of market value; coefficient of dispersion to measure the distribution of assessment-sales ratios around the median ratio; and price-related differential to identify any systematic bias in valuing high-value properties vis-à-vis low-value properties.

Each measure is derived from assessment-sales ratios calculated for each individual property in a group of sold properties. If the properties considered are a sample, rather than the universe, of sold properties, the sample should be drawn in a random manner.

¹³ Although the provisions for nominal-rate differentiation vary among the four former provinces, each of these ordinances—still the basis for local taxation, until new national legislation is adopted—makes some allowance for this practice (Bowman 2002a, 53-55). The version of the draft national law put out for public comment in the fall of 2000 also allows for such differentiation (Franzsen 2002, 222-23).

Further, the properties considered should have been sold in a bona fide arm's-length market transaction between a willing buyer and a willing seller, both reasonably informed about the local real estate market and entering voluntarily into the transaction. Examples of sales that should not be included, because they would tend not to meet one or more of these criteria, include sales between relatives and sales to a public entity exercising the right of eminent domain. Unfortunately, the information needed to make such determinations generally is not available to us for the South African localities considered here.

The median ratio is, of course, the one in the middle of individual-property ratios that have been arrayed in either ascending or descending order. Use of the median rather than the mean diminishes the weight accorded outliers. The International Association of Assessing Officers (IAAO) recommends that this measure of the overall assessment level deviate no more than 10 percent from the level specified as the legal standard.¹⁴ In the case of South Africa, where the legal standard is 100 percent of market value, this means the median assessment-sales ratio should fall in the range of 90 percent to 110 percent.

The coefficient of dispersion is a measure of assessment uniformity—of the dispersion of the ratios for individual properties around the median ratio. Subtracting the median ratio from each parcel's ratio and ignoring the sign gives the absolute deviation from the median; summing these and dividing by the number of properties in the sample yields the average absolute deviation. This figure then is expressed as a percentage of the median ratio to arrive at the value of the coefficient of dispersion (CD). If every property were valued at exactly the same percentage of market value—say, 93 percent—the median ratio would have this same value, deviation from the median would be zero, and the CD would be zero. Greater non-uniformity of assessment of individual properties results in higher CD values. The IAAO standard for uniformity states that CDs generally should be no higher than 15.¹⁵

Finally, the price-related differential, or PRD, is calculated by dividing the mean assessment-sales ratio for all properties by the aggregate ratio. The former is the simple mean of all the individual-property ratios, while the latter is calculated by dividing aggregate assessed value for all the properties in the sample by aggregate sales price of all those properties. The result is interpreted as a gauge of the vertical equity of property assessment. The numerator—the mean ratio—gives equal weight to each property, no matter what its value. The aggregate ratio, on the other hand, attaches greater weight to properties with higher values. For example, a R1,000 home is as significant in the aggregate data as five homes worth R200 each. A PRD in excess of 1.0 indicates that low-value properties are systematically valued at a greater share of market value than

¹⁴ Eckert 1990, 540. It is further stipulated that the overall level of assessment for each major class of property, such as commercial, industrial, and residential, should be no more than 5 percent above or below the level for all the properties of the jurisdiction, considered as a group.

¹⁵ Eckert 1990, 540. It is further stipulated that the CD should be no more than 10 if the jurisdiction's property base is rather homogeneous.

high-value properties. This is characterized as a regressive bias in the valuation process. When the differential is below 1.0 the opposite is true. If the PRD is 1.0, there is no systematic bias in favor of either high- or low- value properties. The IAAO recommends that PRDs be in the range of .98 to 1.03.¹⁶

Random vs. “Batch” Transfers

A number of the property transfers for which we have data occurred in batches—numerous transfers on one or two dates, with sales and/or assessed values for most set at identical amounts—and do not represent true market sales. Rather, they record the creation of private property ownership where it previously did not exist. This process entailed subsidized government transfer of property to the blacks who occupied it. Statistics for areas where such transfers dominate must be viewed differently from those for areas with more random sales. By contrast, in many areas, most of the transfers occurred on dates spread throughout the months and years, and at values—both sales prices and assessed values—that differed across properties.

Although we are not able to screen to eliminate non-arm’s-length transactions in any of the areas, we have more confidence in the essentially random transfers than in the batch transfers as a source of meaningful information about property assessment practices. Nevertheless, the batch transfers are of some interest because they do tell something about how property taxation is being established in those areas. Therefore, although we report the findings for the three measures of valuation outcomes for all the areas, we draw different conclusions from the two sorts of property transfers.

George Data and Analysis

The treasurer in George provided us with three data files related to real property. The first, *Main File*, contains 27,311 records and includes information for each record related to its identity (erf number, unique identifier, owner, telephone number), its location (address, suburb, subdivision, street address), its zoning, its assessed value (land value and building value), and rates (property rates as well as rates for sewerage, refuse, electric, and water).

The second file, *Estate File*, is more comprehensive and contains 30,096 records. It includes properties from newly amalgamated areas, such as Herolds Bay, that are not in the Main File, and certain land uses not included in the Main File, e.g. land zoned for municipal or cemetery use. For each property, the Estate File includes information related to its identity (erf number, registered owner, and unique identifier), its location (city, map and book number, street address), its zoning and land area, sales information (sales date, sales price, and transfer date), assessed value (land value, building value, and total value), any servitudes (easements), date of last valuation, and a number of characteristics of the property (e.g., type of kitchen, number of bedrooms, number of bathrooms, garage, swimming pool).

¹⁶ Eckert 1990, 540.

The third file, *Sales File*, contains 1,548 records and includes information for each record related to its identity (erf number and surveyor number—the unique identifier included in the two previous files), its location (town, area, street address), buyers’ and sellers’ names, zoning, square meters, and sales information (date and price). All sales in this file took place in 1999 or 2000.

Because we are interested in how newly amalgamated areas have been added to the property tax rolls, we want to examine valuations of individual properties in different areas. To do that, we need information on sales price, sales date, assessed value, and time of assessment. All of this information is included for individual properties in the Estate File, albeit not all individual properties have all of this information. Because this file includes both sales and assessment information, it is the starting point for our analysis in George.

Not all of the 30,096 records in the Estate File include information on sales price, date, or time of last assessment. Our first step in developing a file we can work with was to sort the Estate File by sales price and date and delete all records that did not have sales price and date information. Most of the remaining sales, however, were relatively old and could not be compared to current assessed values in any meaningful way. Therefore, we deleted all sales before January 1, 1999. The resulting 4,214 records are broken down as follows:

Year of Sale	Number
1999	1,431
2000	1,465
2001	1,318
Total	4,214

Next we sorted these 4,214 records according to zoning classification—single-family residential, group homes, general residential, business, industrial, commercial, public open space, undetermined, and not otherwise classified. For analytic purposes we created sub-files by grouping each of two types of residential property:¹⁷ single-family residential and group homes (group homes and general residential properties).

Before calculating assessment-sales ratios for each set of data, however, it was important to make sure we were comparing apples to apples. Thus, we sorted each file based on the assessed value of improvements to each property. When the assessed value of improvements cell had a zero in it we assumed that meant it was a vacant erf. Therefore, we divided the single-family residential and group home files into two separate files

¹⁷ In addition, we have data on business properties (business, commercial, and industrial) and on “other” properties (open space, undetermined, and not otherwise classified). However, our current focus is residential properties.

each—single-family residential, single-family residential vacant, group homes, and group homes vacant. These four files are the ones used for our statistical analysis.

As the treasurer of George gave us the complete property files, all sales that took place in the city in 1999, 2000, and 2001 were part of the comprehensive Estate File. For analytic purposes we would typically want to delete all non-arm's-length transactions from our sample. However, we had no information to determine which sales were arm's-length and which were not. As a first approximation, we simply deleted all sales for which the assessment-sales ratio was over 1,000 percent or under 1 percent.

Another requirement for each neighborhood in the study is a sufficient number of observations for statistical analysis. Therefore, we sorted the four residential property files by city and suburb, and for the single-family residential file we deleted any suburb with fewer than 15 observations. Because the other files had fewer sales to begin with, we retained all suburbs that had at least 10 observations. This produced the following four files for our empirical investigation:

- 1) Single-family residential (2,664 observations in 31 suburbs);
- 2) Single-family residential, unimproved (675 observations in 14 suburbs);
- 3) Group homes (266 observations in nine suburbs); and
- 4) Group homes, unimproved (82 observations in four suburbs).

Because our interest is in how newly amalgamated areas have been brought into the property tax base, we consider the measures of assessment outcomes noted above for those areas, in comparison with the same measures for areas previously in the property tax base. Our emphasis is on Herolds Bay (amalgamated in 1993), Pacaltsdorp (amalgamated in 1995), and Thembalethu (amalgamated in 1995). All of these areas use flat rating, meaning they tax land and improvements at the same rate. Wilderness, amalgamated into George in 2000, had site rating, taxing only land values, but is being phased into the flat rating system used in the rest of George Municipality.

Improved Single-Family Residential Properties

We examine data for transfers of improved single-family residential properties in 31 neighborhoods contained in six areas of George Municipality—Blanco, old George, Herolds Bay, Pacaltsdorp, Thembalethu, and Wilderness. Summary statistics are presented in Table 1, and the areas are discussed below. The number of property transfers in these neighborhoods ranges from 752 in the New Dawn suburb of Pacaltsdorp to 15 (our threshold for inclusion) in the Protea Estates suburb of Pacaltsdorp.

**Table 1: Summary Statistics, Single-Family Residential Properties
George, South Africa**

City	Suburb	# Obs	Average Sales Price	Mean A/S Ratio	Median A/S Ratio	Coefficient Dispersion	Price Related Differential
Blanco	Blanco	66	117182	84.6%	82.3%	16.8%	1.038
George	Bersig	22	341886	79.3%	78.0%	14.0%	1.006
	Blommekloff	34	218142	79.8%	78.0%	14.1%	1.030
	Bo-Dorp	79	240228	78.6%	74.3%	23.9%	1.058
	Bos N Dal	28	139509	132.5%	95.0%	53.3%	1.327
	Camphersdrift	40	474468	112.5%	88.5%	57.5%	1.274
	Denneoord	253	200029	100.7%	81.2%	41.3%	1.235
	Denver Park	55	331173	80.2%	80.6%	12.5%	1.019
	Dormehlsdrift	57	312424	87.5%	80.3%	23.1%	1.094
	Eden	31	445393	97.6%	76.7%	43.1%	1.301
	Fernridge	23	511196	75.4%	74.7%	18.4%	1.092
	George Central	28	201964	81.3%	80.3%	22.7%	1.043
	George East	85	243059	86.6%	75.8%	27.6%	1.130
	George South	164	199438	90.2%	81.0%	27.8%	1.143
	Glenbarrie	41	422390	83.0%	75.9%	20.1%	1.072
	Groeneweide Park	19	141939	88.6%	73.6%	34.5%	1.163
	Heatherlands	72	487172	89.2%	74.9%	34.5%	1.199
	Heather Park	102	323266	91.9%	74.8%	35.6%	1.203
	Lawaaikamp	166	6507	237.2%	230.5%	2.9%	1.000
	Levalia	37	133199	150.1%	92.8%	72.9%	1.529
	Loerie Park	64	348719	87.3%	81.9%	17.3%	1.060
	Rooi Rivier Rif	16	281260	126.1%	80.8%	68.8%	1.372
	Rosemoor	31	22105	169.8%	136.0%	54.8%	1.321
Herolds Bay	Extension 1.2	20	399675	101.5%	81.2%	39.9%	1.184
Pacaltsdorp	Andersonville	23	80621	104.1%	80.0%	47.0%	1.310
	Delville Park	30	136282	92.9%	85.4%	20.7%	1.077
	New Dawn	752	17040	91.6%	87.0%	5.9%	1.037
	Ou Dorp	26	93777	143.9%	98.8%	59.2%	1.409
	Protea Estates	15	62670	154.3%	94.3%	87.0%	1.590
Thembaletu	Thembaletu	228	7472	244.5%	213.3%	29.0%	1.104
Wilderness	Wilderness	57	502636	133.4%	85.5%	79.6%	1.636

Ten of the 31 neighborhoods have median assessment-sales ratios in the 70 percent to 80 percent range, 14 are in the 80 percent to 90 percent range, four are between 90 percent and 100 percent, and three have median ratios greater than 100 percent—Rosemoor (136.0 percent), Thembaletu (213.3 percent), Lawaaikamp (230.5 percent). The last two of these—the only areas with median ratios above 200 percent—are areas being brought into the property tax in the study period, and the ratios reflect, in part, how this was done. Batch transfers of property dominate in both areas, so the traditional measures of assessment quality are difficult to interpret.

Areas Recently Amalgamated into George Municipality

Thembaletu was a black township amalgamated into the tax roll in 1995. Prior to this, Thembaletu had no tax role and no information on individual properties. To comply with the legal obligation of applying a uniform property rating system to all properties in the municipality after the initial amalgamation in 1995, there was pressure to bring the properties in Thembaletu into the tax net as soon as possible. The first step in this process was to determine ownership of individual properties. This meant that the area had to be surveyed, individual erven had to be identified, owners had to be determined, and then titles had to be turned over from the government to the individual owner. This is a lengthy and difficult process. As a result, virtually all properties in Thembaletu show “sales” dates of May 31, 2001 or July 31, 2001. Of the 228 properties in Thembaletu with sales information, 18 show a price of R3,324 and the rest show a price of R7,500. These figures probably reflect the amount paid at the time ownership was transferred from the government to the individual owner. For these 228 properties, however, assessed values range from a low of R11,000 to as high as R53,000. Because nearly uniform sales prices are related to assessed values that differ much more, substantial horizontal inequity is suggested; this is reflected in the coefficient of dispersion value of 29.0, which is nearly double the level suggested by the IAAO standard. These numbers also result in significant vertical inequity, as shown by the price-related differential of 1.104. As with the CD, the PRD is well outside the acceptable ranges suggested by IAAO. Given the nature of the property transfer process, however, these numbers should not engender a great deal of fuss, for the “sales” prices are not a good indication of market value.

The situation in ***Lawaaikamp*** is similar, even though this is an area lying within the borders of the former city of George. There, virtually all of the 166 “sales” listed took place on February 1, 2000. The sales price for each of the 166 properties is listed as R6,507, and all but six of the properties have assessed values of R15,000.¹⁸ Thus, for 160 of the 166 properties, the assessment-sales ratio is 230.5 percent, the same as the median ratio. Thus, there is even less variation in Lawaaikamp than in Thembaletu, even though the underlying approach to bringing the areas into the tax is similar for both. Because individual property ratios in Lawaaikamp deviate little from the median ratio, the standard measures of equity look good. The coefficient of dispersion (horizontal equity) for Lawaaikamp is a very low 2.9 percent, and the price-related differential (vertical

¹⁸ Of the 166 sales in Lawaaikamp, only three have information on when the assessed values were determined (second interim valuation 1999-2000).

equity) is a perfect 1.000. The only apparent blemish on this record, to the casual observer, is the very high overall assessment level of 230.5 percent. Celebration of the equity numbers and condemnation of the median assessment level, however, must be tempered by the realization that they result from observations dominated by seemingly non-market transactions.

The net effect of all this is that these two areas account for a much larger share of assessed values on the property tax roll than they represent of “market” values for all properties on the valuation roll. These two areas, however, have no true market-value transactions, so it is exceedingly difficult to estimate good assessed values. Moreover, the lack of true market sales means that the accuracy of such assessment as was done has not really been tested.

The story in *Pacaltsdorp* is somewhat different. As a colored township before being amalgamated with George in 1995, Pacaltsdorp had a long history of private property and property taxes. Thus, it differs from black areas such as Thembalethu. We have information on five suburbs within what used to be the urban area of Pacaltsdorp—Andersonville, Delville Park, New Dawn, Ou Dorp, and Protea Estates.

In Andersonville, Delville Park, Ou Dorp, and Protea Estates, all of the sales contained in the Estate File occurred at relatively random times for relatively random prices, and the range of assessed values is relatively broad. Median assessment-sales ratios in these four suburbs all are reasonably high, ranging from 80.0 percent to 98.8 percent. However, the coefficients of dispersion for these four areas also are high—from 20.7 to 87.0—indicating significant variation in individual assessment-sales ratios. Because of this general lack of assessment uniformity, application of a uniform property tax rate to residential properties in these neighborhoods will result in vastly different effective tax rates across individual properties.

Finally, price-related differentials vary across these four areas, and are rather high. Delville Park’s PRD of 1.077 is the lowest of the group, but it is above the acceptable range of 0.98 to 1.03 defined by the International Association of Assessing Officers. The other PRD values range from 1.31 in Andersonville to 1.59 in Protea Estates. Higher values of the PRD reflect a systematic bias in the valuation of properties, which relatively undervalues high-value properties and relatively overvalues low-value properties. As a result, when a uniform property tax rate is applied to all residential properties, low-value properties pay a higher share of the property tax burden than their share of total value would suggest is equitable.

Contrasting with the rather random nature of the real estate market in the areas just reviewed, the situation in New Dawn, another Pacaltsdorp suburb, is more like that in Thembalethu. The “sales” in New Dawn took place in large numbers on a couple of different dates. Further, there is little variation in the prices in New Dawn. Out of 752 transactions, 10 were at prices between R4,000 and R10,000, 29 each had a price of R10,925, and virtually all of the more than 700 others have a reported price of R17,500. Finally, all but one of the 752 individual properties in New Dawn had an assessed value of R15,000. As a result of the general uniformity in sales price and the near constancy of

assessed value, the coefficient of dispersion is a low 5.9 percent, and the price-related differential, at 1.037, is near the acceptable range. As in Thembaletu, however, the seeming non-market nature of the transactions underlying these numbers needs to be kept in mind when considering them.

Herolds Bay was amalgamated into George in 1993. Unlike other jurisdictions in the District Council, Herolds Bay had a history of private property and a property tax roll before the amalgamation. We have useable data for only one area in Herolds Bay, Extension 1.2, and they show considerable variation in the sales prices, although the number of sales is rather small. For the 20 sales in the file, prices range from R90,000 to over one million rands, and the average sales price was nearly R400,000. Sales dates in Extension 1.2 fall between January 1999 and August 2001. For two-thirds of the individual properties in the Extension 1.2 area of Herolds Bay, the data show that assessed values were determined during a special interim valuation in 1998-1999. The median assessment-sales ratio for Extension 1.2 area of Herolds Bay is 81.2 percent, which is below the target of at least 90 percent implied by the performance IAAO standard noted above, when applied to jurisdictions where the legal standard is 100 percent. The 39.9 coefficient of dispersion is high and indicates a general lack of assessment uniformity, while the high (1.184) price-related differential reflects a general bias to overvalue low-value properties and undervalue high-value properties.

Wilderness became part of George in December 2000. Before amalgamation, Wilderness was an operating municipality with its own local property tax. Unlike George, however, Wilderness had a site value tax, so only the land was taxed. About one-third of the properties in Wilderness list the second interim valuation 2001-2002 as their most recent valuation. For the 47 transactions that it seemed appropriate to include,¹⁹ the median assessment-sales ratio is 79.3 percent. This is below the IAAO target range for the overall assessment level. The 22.7 percent coefficient of dispersion is moderately high, as is the 1.091 PRD value.

Blanco has 66 single-family residential sales with a median assessment-sales ratio of 82.3, several points below the floor of 90 percent suggested by the IAAO standard. Horizontal and vertical equity measures, though, are quite close to IAAO minimum standards: CD of 16.8 and PRD of 1.038.

¹⁹ This omits 10 properties with assessment-sales ratios greater than 200 percent. Seven of these sold in 1999 but have valuations done in 2001-2002; thus, the high assessment-sales ratios might simply reflect the age of the sales prices compared to the assessed values. If the 10 are included, the median ratio rises to 85.5 percent, the coefficient of dispersion rises to 79.6 percent (second highest among the 31 George areas examined), and the PRD rises to 1.636 (see Table 1). Although we are unable to identify non-arm's-length transactions in any of the areas included in this paper, and thus do not adjust for them, it clearly is desirable—in evaluating the accuracy of property valuation—to use assessed values in place when the sales occurred.

Areas in Old George

To provide some context for the experiences in newly amalgamated areas, we compare them with 20 neighborhoods in the old George city. This number excludes Lawaaikamp (discussed earlier as a special case with batch transfers) and Rosemoor (one of three areas with a high median assessment-sales ratio).

The experience of these neighborhoods is pretty mixed and does not allow for any generalizations of assessment practices here vis-à-vis the newly amalgamated areas. The median assessment-sales ratios of these 20 George neighborhoods generally are neither very high nor very low. The range is from 73.6 percent in Groeneweide Park to 95.0 percent in Bos N Dal; the average is 80.0, and only two are above 90 percent, the lower end of the acceptable range identified by IAAO. Although only three of the 20 neighborhoods have coefficients of dispersion at or below the IAAO standard of 15, eleven have CDs under 30. These range from 12.5 in Denver Park to 27.8 in George South. At the other extreme, four neighborhoods have CDs above 45, which is more than three times the IAAO standard; the highest of these is 72.9 in Levalia.²⁰ Finally, evidence from the price-related differentials is equally mixed. For example, for nine of the 20 neighborhoods, the PRDs are relatively good—from 1.006 in Bersig to 1.094 in Dormehlsdrift. The other 11 neighborhoods, however, have more troublesome PRDs—from 1.13 in George East to 1.529 in Levalia. However, only three of the 20 are at least as low as the 1.03 at the upper end of the IAAO's suggested range, so a regressive bias is revealed.²¹ Why this is the case is not clear from the information we have, but it is consistent with more rapid market value appreciation for better, higher-value properties in comparison with less desirable properties.

In summary, it is difficult to identify any systematic variation between newly amalgamated areas and the areas of George previously subject to property taxation. Two of the new areas—Lawaaikamp and Thembaletu—stand out, as does the New Dawn area of Pacaltsdorp. Unfortunately, as discussed earlier, the reasonableness of the sales prices in these areas cannot be verified; however, it is apparent that the transfers in these cases are not truly arm's-length market transactions, so the data measuring assessment quality must be viewed with caution.

Unimproved Single-Family Residential Properties

In addition to looking at the situation for improved single-family residential properties, we also consider unimproved single-family residential properties. We placed properties in this group because they are zoned for single-family residential use but have a zero in the column for assessed value of improvements in the modified Estate File provided by the George treasurer.

²⁰ Rosemoor and Lawaaikamp are omitted from this comparison, but statistics for Lawaaikamp were given earlier. The 54.8 CD for Rosemoor is not included in this count.

²¹ The exceptions are Bersig (1.006), Denver Park (1.019), and Blommekloff (1.030). As noted above, Lawaaikamp's batch transfers resulted in a PRD of 1.000; for Rosemoor, omitted from the statistics in this section, the PRD is 1.321.

Because of fewer transfers of unimproved single-family residential properties, we consider just 14 neighborhoods, compared with 31 for improved single-family residential properties. This smaller number is in spite of the smaller number of observations imposed for a neighborhood to stay in our working files—10 here, compared to 15 for the single-family residential file. Summary statistics for the 14 neighborhoods meeting this lower threshold are reported in Table 2. The 14 areas include only four recently amalgamated into George: Extension 1.2 in Herolds Bay (amalgamated in 1993), Thembaletu (amalgamated in 1995), and the Kleinkrantz and Wilderness areas of Wilderness (amalgamated in 2000).

Table 2: Summary Statistics, Vacant Single-Family Residential Properties, George, South Africa

City	Suburb	# Obs	Average Sales Price	Mean A/S Ratio	Median A/S Ratio	Coefficient Dispersion	PRD
Blanco	Fancourt Gardens	15	44727	92.7%	84.4%	16.6%	1.042%
George	Denneoord	25	75870	84.0%	75.6%	47.5%	1.551%
	Groeneweide Park	10	29700	75.9%	74.3%	6.7%	1.006%
	Heatherlands	10	210250	97.7%	57.4%	100.0%	1.957%
	Heather Park	27	84426	93.7%	88.3%	37.4%	1.382%
	King George Park	13	133462	31.8%	32.8%	15.3%	1.035%
	Lawaaikamp	92	6507	92.2%	92.2%	0.0%	0.999%
	Levalia	15	47267	60.0%	75.9%	31.4%	1.642%
	Panorama	21	92182	58.7%	59.3%	7.7%	1.010%
	Rooi Rivier Rif	31	67311	55.7%	55.7%	19.7%	1.035%
Herolds Bay	Extension 1.2	22	144977	84.4%	78.7%	37.6%	1.297%
Thembaletu	Thembaletu	275	3748	170.5%	180.5%	5.5%	1.065%
Wilderness	Kleinkrantz	45	67178	84.5%	80.0%	30.6%	1.225%
	Wilderness	74	222577	77.7%	73.8%	35.5%	1.405%

The quality of valuation of vacant single-family residential properties is pretty much the same in Extension 1.2 in *Herolds Bay* and in the *Kleinkrantz* and *Wilderness* areas of George. The overall assessment levels are on the low side, and measures of both horizontal and vertical equity exceed the maximum levels suggested by the IAAO standards. Specifically, the median ratios in the three neighborhoods range from 73.8 to 80.0 percent; the coefficients of dispersion range from 30.6 to 37.6 percent; and the price-related differentials range from 1.225 to 1.405.

Once more, however, the situation in Thembaletu is much different. The data set includes information on 275 properties zoned single-family residential showing no assessed value for improvements. For each of the 275, the assessed value for the land is R6,000. This single assessed value applies even though the individual plots vary substantially in size. While the average is 323 square meters, the range is from 172 square meters to 759 square meters. The transfer dates are the same as for improved

single-family residential properties in Thembalethu—May 31, 2001 and July 31, 2001. Moreover, with the exception of two properties, the sales prices listed for these individual properties are the same as for improved properties reported above—either R7,500 (25 properties) or R3,324 (248 properties).

While some properties with no structures may be worth the same as certain other properties with structures, the uniformity in Thembalethu of “sales” prices within each of these property types, and between them as well, raises questions about the basis used for determining the prices. This, in turn, makes assessment performance statistics based on these values of questionable worth. With that in mind, we report that: (1) the median assessment-sales ratio for the 275 Thembalethu properties is 180.5 percent (the mean ratio is 170.5 percent); (2) the coefficient of dispersion is quite low (5.5); and (3) the price-related differential (1.065) indicates only a modest bias in favor of comparatively high-value properties. These rather good numbers for the measures of horizontal and vertical equity reflect, of course, the fact that all properties have the same assessed value, while there is some variation in the “sales” prices.

The situation is very similar for the *Lawaaikamp* neighborhood of George. For 92 properties zoned single-family residential, the data show no assessed value for improvements. All 92 properties changed hands on February 2, 2000 and they all had a “sales” price of R6,507, which is the same as for the 166 improved residential properties, as reported above. For each of the 92 properties in *Lawaaikamp* the reported assessed value for land is R6,000, even though plot size—which averages 294 square meters—ranges from 200 square meters to 1,282 square meters. Thus, the situation is very much as that just reported for Thembalethu. In each case, although we cannot be certain of this without more information on the various properties, the use of a single “sales” price and a single assessed value for properties varying so much in geographic extent strongly suggests an approach to assigning values to individual properties that is not based on actual sales information. It seems especially strange that the “sales” prices for both improved and unimproved properties would be the same. If these values are flawed, we would expect the tax liabilities to be significantly out of line with underlying market values—values that may be expected to emerge as these properties are exchanged in market transactions. Having said that, we report that: (1) the median assessment-sales ratio for the 92 Lawaaikamp properties is 92.2 percent; (2) the coefficient of dispersion is a perfect 0.0; and (3) the price-related differential is 0.999. These good numbers for the measures of horizontal and vertical equity reflect, of course, the fact that all properties have not only the same assessed value, but also the same “sales” price. Rather clearly, though, these statistics do not report on the accuracy with which assessed values reflect true market prices.

The experience in the *other eight George neighborhoods*, where transfers were more random and seemingly reflect market transactions, is very similar to the situation for improved properties zoned single-family residential. The median assessment-sales ratios vary substantially among them, from 32.8 percent in King George Park to 88.3 percent in Heather Park. The uniformity of assessments varies substantially across these eight neighborhoods, as well. Four have relatively high assessment uniformity, with coefficients of dispersion ranging from 6.7 percent in Groeneweide Park to 19.7 percent

in Rooi Rivier Rif. The other four neighborhoods, however, have relatively poor, non-uniform assessments—coefficients of dispersion range from 31.4 in Levalia to 100.0 in Heatherlands. Similarly, four neighborhoods have acceptable vertical equity in their assessments—price-related differentials ranging from 1.006 in Groeneweide Park to 1.035 in King George Park and Rooi Rivier Rif. The other four neighborhoods have unacceptable levels of vertical inequity—price-related differentials ranging from 1.382 to 1.957.

Group Housing

The Estate File also contains information on 407 properties zoned for group housing and general residential. As before, we divided these observations into two files—properties with improvements and those without improvements, as evidenced by assessed value data. After arraying the observations by city and suburb, all suburbs with less than 10 observations were deleted. This left 266 properties with improvements in seven neighborhoods in George and two neighborhoods in Blanco, and 82 properties without improvements in four neighborhoods in George. Summary statistics for these data are presented in Tables 3 and 4.

**Table 3: Summary Statistics, Properties Zoned Group Housing
George, South Africa**

City	Suburb	# Obs	Average Sales Price	Mean A/S Ratio	Median A/S Ratio	Coefficient Dispersion	PRD
BLANCO	BLANCO	11	1144818	19.1%	8.5%	126.0%	2.044
	FANCOURT	60	222132	47.6%	45.1%	26.8%	1.099
GEORGE	DENNEOORD	20	196600	76.5%	77.5%	8.7%	1.009
	DENVER PARK	12	267417	74.0%	75.8%	15.5%	1.051
	DORMEHLSDRIFT	19	559310	93.7%	77.1%	32.6%	1.185
	GEORGE EAST	17	256824	66.6%	62.8%	17.1%	1.036
	GEORGE SOUTH	46	168288	117.7%	71.7%	134.7%	1.356
	HEATHERPARK	48	292198	100.0%	80.9%	37.0%	1.227
	KING GEORGE PARK	33	193144	172.2%	72.9%	156.2%	1.997

Table 4: Summary Statistics, Properties Zoned Group Housing With No Improvements, George, South Africa

City	Suburb	# Obs	Average Sales Price	Mean A/S Ratio	Median A/S Ratio	Coefficient Dispersion	PRD
GEORGE	DORMEHLSDRIFT	16	310906	27.9%	9.0%	218.0%	1.438
	HEATHERPARK	11	124683	56.5%	66.5%	34.0%	1.871
	KING GEORGE PARK	35	91751	41.9%	40.3%	41.5%	1.680
	PINE GLEN	20	66227	88.5%	100.0%	21.7%	1.247

For the nine neighborhoods with more than 10 improved properties zoned group housing or general residential, median assessment-sales ratios generally are low. The highest is 80.9 percent (Heatherpark area of old George city), and only four have median ratios above 75 percent. The lowest median ratio is 8.5 percent (Blanco), but the next-lowest—and the only other one below 60 percent—is 45.1 percent (Fancourt neighborhood of Blanco). Uniformity of assessments is generally absent. Six of the nine neighborhoods have coefficients of dispersion greater than 25, including three with CDs well above 100: 156.2 in the King George Park neighborhood of George; 134.7 in the George South neighborhood of George; and 126.0 in Blanco. At the other extreme, however, three areas of George have CDs less than 20: 8.7 in Denneoord; 15.5 in Denver Park; and 17.1 in George East. Finally, price-related differentials for improved group housing properties are high, compared to the IAAO standards, in seven of the nine neighborhoods. The highest of these are 2.044 (Blanco neighborhood of Blanco) and 1.997 (King George Park neighborhood of George). The lowest two PRDs are 1.009 (Denneoord neighborhood of George) and 1.009 (George East neighborhood of George). It is noted that there were at least 30 sales in only four of the nine areas reported (Fancourt, 60; Heatherpark, 48; George South, 46; and King George Park, 33).

Data similarly vary widely for the four George neighborhoods with at least ten transfers of unimproved properties zoned for group housing. Median assessment-sales ratios range from 9.0 percent to 100.0 percent; CDs range from 21.7 to 218.0; and PRDs range from 1.247 to 1.871

Nelson Mandela Metropolitan Municipality

Data

We obtained from the Nelson Mandela Metropolitan Municipality (NMMM) Department of Treasury a list of all sales that took place between November 2000 and December 2001. The list contains information on 12,474 erven that changed hands during this

period. Of this total, 14.5 percent are in Bloemendal²², 10.4 percent in Ibhayi, 21.1 percent in Motherwell, and 11.3 percent in Walmer Township. Thus, approximately 43 percent of the erven on the list are in three areas brought into the property tax base in 1995.²³

Data for a number of transfers listed in the file were incomplete, especially for the areas brought into the tax base in 1995. We deleted all observations with either a zero sales price or a zero assessed value. There were 1,279 observations with a zero in both these fields. Of these, 902 (71 percent) were in Motherwell, and 99 percent of the 902 showed a transfer date of July 1, 2001. They reflect the transfer of government properties to individuals to extend property ownership.

Additionally, for 4,477 erven a zero sales price was paired with a positive value for tax purposes. Of this total, 1,080 (24 percent) were in Walmer; 1,329 (30 percent) were in Motherwell; 784 (nearly 18 percent) were in Ibhayi; and 415 (about 9 percent) were in Gelvandale. Again, large groups were transferred on the same date with similar values. For example, in Motherwell, 671 erven, fully half of those with zero sales price and some assessed value, were transferred on January 1, 2001 and the vast majority of the assessed values fell in the R1,000 to R7,600 range.

Finally, there were 249 erven with assorted sales prices, but zero assessed values. There was wide variation in circumstances across neighborhoods. For example, for each of 124 erven in Colchester, the listed sales price is R557 and the assessed value is zero; nearly two-thirds of these changed hands on February 27, 2001. Virtually all of the other erven with zero assessed values had reported sales prices that were substantial and varied. For example, in Farms P.E. and Farms Uitenhage, reported sales prices varied from R21,000 up to R1.65 million, but all had a zero assessed value. Similarly, in Theescombe, the range in sales prices was from R57,000 to R1.2 million.

Analysis

After deleting such incomplete records, the resulting data set contains 6,469 erven, and the information on them includes the neighborhood,²⁴ the erf number, the sales date, the sales price, and the assessed value. These data were arrayed by neighborhood, or allotment area. We then calculated assessment-sales ratios. Being unable to identify non-arm's-length transactions from the data available to us, we retained all transactions

²² This is an allotment area within the boundaries of the old Port Elizabeth that was initially a colored area, but over time experienced growth in informal housing units.

²³ Soweto-on-the-Sea is part of the Ibhayi allotment area and so is included in the Ibhayi totals here.

²⁴ The neighborhood variable is a bit misleading. It is really an allotment area, which is an administrative unit of the city, generally consisting of homogenous properties. Some allotment areas consist of just one neighborhood or suburb—e.g. Kwadwesi, Kwamagxaki and Malabar. Other allotment areas consist of several homogenous neighborhoods or suburbs—e.g. Bethelsdorp includes seven different neighborhoods.

except the most extreme outliers; specifically, we simply deleted all sales for which the assessment-sales ratio was either over 1,000 percent or less than 1 percent. Finally, as in George Municipality, we deleted all neighborhoods with less than 15 useable observations. The final data set contains 6,215 observations in 36 different neighborhoods of Nelson Mandela Metropolitan Municipality. These data are summarized in Table 5.

Given our interest in how newly amalgamated areas have been brought into the property tax base, we want to look at measures of assessment uniformity for these areas in comparison with areas previously in the property tax base. As a result of the initial local government demarcation in November 1995, the municipality of Port Elizabeth incorporated six new areas—Ibhayi, Kwadwesi, Kwamagxaki, Motherwell, Soweto-on-the-Sea, and Walmer Township. The data set provided by the treasurer included information on Soweto-on-the-Sea in the Ibhayi allotment area. Four of the six areas did not have a property tax before 1995, but all of the areas are to use flat rating, meaning land and improvements are to be taxed at the same rate. All properties reportedly are assessed at 100 percent of 1983 market value. So an old assessment date may be expected to result in low assessment levels, and rather poor scores on the equity measures (CD and PRD).

Unlike George—where property transfers in Thembaletu, Lawaakamp, and the New Dawn area of Pacaltsdorp were dominated by batch transfers occurring on one or two dates, with all or virtually all the same sales price and same assessed value (but with some variation in assessed values in Thembaletu)—transfers in the Nelson Mandela Metropolitan Municipality generally are more random, even in the newly amalgamated areas of Ibhayi, Kwadwesi, Kwamagxaki, Motherwell, and Walmer Township. To be sure, there are groups of properties in Ibhayi, Motherwell, and Walmer Township with similar sales dates, prices, and assessed values, but those groups represent a small share of the total observations in these areas.

Only in Bloemendal is the pattern of sales similar to that in the George areas just noted. Nearly 50 percent of the “sales” in Bloemendal took place on February 6, 2001. All of the sales prices were under R1,000 and assessed values varied between R20 and R30. Another 45 percent of the Bloemendal transfers have the same R16,000 “sales” price, but they occurred between November 2000 and November 2001. Although there was some variation in assessed values over this period, the vast majority were R1,500. As a result, the Bloemendal median assessment-sales ratio is 9.4 percent, the lowest for any of the areas shown in Table 5. Although the Bloemendal transfers are not as homogeneous as those in some George areas, this pattern still does not look as if it resulted from arm’s-length, market-based transactions. Therefore, not too much should be read into the statistics for Bloemendal.

Table 5: Summary Statistics, Sales File from Nelson Mandela Metropolitan Municipality

Allotment Area	Total Observations	Share of Observations	Median A/S Ratio	Mean A/S Ratio	CD	PRD
Algoa Park	114	1.8%	23.7%	24.8%	20.1%	1.087
Amsterdamhoek	89	1.4%	22.7%	23.5%	29.3%	1.017
Bethelsdorp	385	6.2%	28.6%	81.6%	215.2%	2.773
Bloemendal	1780	28.6%	9.4%	9.7%	51.3%	0.655
Central	119	1.9%	20.4%	34.7%	87.8%	0.745
Charlo	150	2.4%	20.3%	20.2%	26.7%	0.940
Clarendon Marine	25	0.4%	13.8%	28.4%	137.9%	1.977
Colchester	15	0.2%	66.7%	56.0%	49.5%	2.774
Cotswald	50	0.8%	24.2%	24.3%	21.0%	0.961
Fairview	60	1.0%	21.4%	23.9%	39.9%	1.123
Fernglen	31	0.5%	22.1%	22.6%	9.5%	1.010
Framesby	49	0.8%	23.3%	27.9%	34.3%	1.182
Gelvandale	99	1.6%	30.7%	46.2%	80.6%	1.472
Humewood	90	1.4%	22.3%	23.1%	31.6%	1.028
Hunters Retreat	241	3.9%	25.3%	25.2%	19.6%	0.982
Ibhayi	435	7.0%	32.5%	53.8%	111.4%	1.729
Kabega	189	3.0%	23.1%	24.1%	20.7%	1.042
Korsten	98	1.6%	27.0%	29.6%	42.7%	3.518
Kwadwesi	99	1.6%	22.5%	27.4%	48.9%	1.144
Kwamagxaki	44	0.7%	24.5%	28.9%	32.7%	1.124
Lorraine	161	2.6%	22.4%	22.6%	22.8%	1.039
Malabar	65	1.0%	27.9%	32.3%	44.0%	0.961
Mill Park	78	1.3%	16.3%	16.4%	23.2%	1.058
Motherwell	352	5.7%	46.7%	68.2%	83.8%	2.158
Mount Pleasant	84	1.4%	21.1%	23.5%	31.0%	1.070
Mount Road	144	2.3%	20.4%	21.9%	26.0%	1.354
Newton Park	156	2.5%	21.5%	27.0%	41.9%	1.390
North End	85	1.4%	28.0%	32.3%	46.7%	1.521
Parsonsvlei	60	1.0%	28.0%	34.8%	37.5%	0.969
South End	23	0.4%	16.8%	17.1%	21.4%	0.972
Summerstrand	230	3.7%	16.9%	15.9%	27.1%	0.982
Sunridge Park	52	0.8%	22.5%	23.2%	15.5%	1.030
Swartkops	19	0.3%	37.1%	37.2%	45.4%	1.430
Theescombe	118	1.9%	20.3%	23.3%	35.1%	1.139
Walmer	309	5.0%	20.2%	22.1%	33.4%	1.120
Westering	117	1.9%	25.8%	27.7%	22.3%	1.038

Although very low, the Bloemendal assessment level does not stand out as much in the group reported in Table 5 as it would have in the George neighborhoods, for low median assessment-sales ratio values are the most striking feature of the data for the 36 Mandela neighborhoods. Of the 36 neighborhoods, only three have median assessment-sales ratios greater than 35 percent: 66.7 percent in Colchester; 46.7 percent in Motherwell; and 37.1 percent in Swartkops. The mean value of the 36 median assessment-sales ratios is 24.9 percent. Such fractional assessment is not desirable from an equity and uniformity perspective.

These low median assessment-sales ratios, however, are due to very old valuations. According to a study by the Central Statistical Service (now Statistics South Africa), nearly 60 percent of white local authorities in the former Cape Province had valuation rolls that were more than five years old.²⁵ As noted earlier, information from the treasurer shows Port Elizabeth to be part of this pattern, as the old Port Elizabeth municipal area and areas brought into the city by the 1995 amalgamated currently use estimated values for 1983.

There is no clear pattern of assessment level in either the newly amalgamated areas or the previously taxed areas in the former Port Elizabeth city area. Although the average median assessment-sales ratio for areas incorporated into Port Elizabeth in 1995, at 29.3 percent, is slightly higher than the 24.9 percent average for all 36 areas (Table 5), three of the newly amalgamated areas have median assessment-sales ratios below the 36-area average: Kwadwesi (22.5 percent), Kwamagxaki (24.5 percent), and Walmer (20.2 percent).

One consequence of fractional assessment is that uniformity across properties is harder to achieve. When most properties are assessed significantly below market value, owners tend to think they are being treated favorably and thus are less likely to challenge their assessments. Indeed, the Port Elizabeth data show considerable non-uniformity. Only three neighborhoods have coefficients of dispersion below 20 percent: 9.5 in Fernglen; 15.5 in Sunridge Park; and 19.6 in Hunters Retreat. The mean of the coefficients of dispersion for all 36 areas is 46.3—more than three times the maximum suggested by the IAAO standard—and for newly amalgamated areas the figure is over four times the IAAO standard (62.0). Three of these five areas have coefficients of dispersion higher than the 36-area average: Ibhayi, 111.4; Motherwell, 83.8; and Kwadwesi, 48.9. Still, the highest CD is Bethelsdorp's 215.2. The extremely high coefficients of dispersion across the 36 neighborhoods examined lead to the conclusion that horizontal equity is not achieved in many areas in Port Elizabeth.

The final measure of assessment quality is the price-related differential, which is interpreted as a measure of vertical equity. Again, performance varies substantially across the 36 neighborhoods examined. For example, six of the neighborhoods have PRDs that fall within the acceptable range specified by the IAAO: 0.982 in both Hunters Retreat and

²⁵ This survey is cited and summarized in Bell 2002, 60-61. Until the 1990s, the valuation cycle in the former Cape Province was 10 years.

Summerstrand; 1.010 in Fernglen; 1.017 in Amsterdamhoek; 1.028 in Humewood; and 1.030 in Sunridge Park. Two of these six areas also have coefficients of dispersion within the IAAO target range—Fernglen (9.5) and Sunridge (15.5). The other four, however, have coefficients of dispersion that range from 19.6 percent to 31.5 percent, suggesting a relatively high degree of horizontal inequity across individual properties.

In addition, seven of the neighborhoods examined have PRDs below the IAAO target range indicating a progressive bias in the valuation process—i.e., a systematic bias of valuing high-value properties at a higher percentage of market value than low-value properties. The lowest PRD values are 0.655 (Bloemendal) and 0.745 (Central), but the other five neighborhoods range from 0.940 (Charlo) to 0.972 (South End). Given the characteristics of the “sales” in Bloemendal, not much weight should be placed on its PRD, but Central’s PRD of just 0.745 is not so readily explained. Finally, 23 neighborhoods have PRDs higher than the IAAO target. These vary from values not much above the upper end of the target range (1.038 and 1.039 in Westering and Lorraine, respectively) to extremely high values in five areas: 1.977 in Clarendon Marine; 2.158 in Motherwell; 2.773 in Bethelsdorp; 2.774 in Colchester; 3.518 in Korsten.

All of the newly amalgamated areas have PRDs not only greater than 1.0, but also higher than the upper end of the range specified by the IAAO standard. They range from 2.158 in Motherwell and 1.792 in Ibhayi to 1.120, 1.124 and 1.144 in Walmer, Kwamagxaki, and Kwadwesi respectively. All of these newly amalgamated areas reveal a regressive bias in valuing property for tax purposes by systematically valuing lower-value properties at higher shares of market value and higher-value properties at lower shares of market value. Although the rather homogeneous batch transfers do not dominate in any of these areas, there still is some question about the meaning of the “sales” prices for significant numbers of properties in some of these areas, so these statistics should be used cautiously. However, the variation in sales prices and assessed values suggest that markets may, indeed, be starting to develop in these newly amalgamated areas. Over time, one would expect the valuation process to improve as more market data is available and utilized.

City of Tshwane Metropolitan Municipality

Data

We received eight property data files from the valuation office in Pretoria, which now is part of the City of Tshwane Metropolitan Municipality. Each file contains data on a number of different neighborhoods. The eight files cover 211 neighborhoods, with a total of 47,092 observations. Each observation represents a residential property that was transferred. Table 6 summarizes the raw data in the files.

To develop a useable file comparable to those for the other two case study areas for which we have such data, the following steps were taken:

- Deleted all properties with either a zero sales price or a zero total assessed value;

- Computed assessment sales ratios for all properties;
- Deleted all properties with assessment-sales ratios equal to 1,000 percent or more and all properties with assessment-sales ratios of 1 percent or less;
- Deleted all observations with sales dates in 1999, because the assessed values were determined after this; and
- Deleted any neighborhood that had less than 15 remaining observations.

As shown in Table 6, this decreased the number of neighborhoods from 211 to 169 and the number of observations from 47,092 to 24,298.²⁶

Of the eight areas in Table 6, five are former black areas that were amalgamated into the City of Tshwane at the end of 2000: Ga-runkuwa, Hammanskraal, Mabopane, Temba, and Winterveld. Centurion became part of the City of Tshwane with the amalgamation of 2000; after Pretoria, it was the largest of the former municipal units that now are part of the metropolitan municipality. Akasaia was part of the Northern Substructure in the Pretoria area created by the 1995 amalgamations.

Table 6: Summary of Total and Useable Data Files on Transferred Residential Properties, Pretoria, South Africa

File	Raw Data Files		Useable	
	Number of Neighborhoods	Number of Observations	Number of Neighborhoods	Number of Observations
Akasaia	29	10129	23	3356
Centurion	28	8815	23	6002
Ga-runkuwa	12	2046	12	1778
Hammanskraal	1	127	1	66
Mabopane	12	727	11	255
Pretoria	122	24749	94	12724
Temba	6	162	4	81
Winterveld	1	337	1	36
Total	211	47092	169	24298
Percent	100.0%	100.0%	80.1%	51.6%

Applying the restrictions noted above eliminated nearly half the observations in the raw data files; as shown in Table 6, the 24,298 useable observations represent only 51.6 percent of total property transactions in the eight data files. In six of the eight areas, useable observations are either roughly half of total observations (52.0 percent in Hammanskraal, 51.4 percent in Pretoria, and 50.0 percent in Temba) or less (35.1 percent in Mabopane, 33.1 percent in Akasaia, and 10.7 percent in Winterveld). The other two

²⁶ Summary statistics for these 169 neighborhoods are included in Appendix 2. These are the data referred to in the discussion of the individual neighborhoods in this section.

have higher useable percentages (68.3 percent in Centurion and 86.9 percent in Garunukuwa). From this, it is obvious that there is no pattern that differentiates the former black areas from the other areas. In part, this is because the data are for the period after the 1995 amalgamations. This means some areas outside the property tax during apartheid already had been brought into Pretoria and Centurion. This explanation is supported by some of the statistics presented in the section on analysis of the data.

The biggest reason for excluding observations from the file of useable transactions was the age of the sales. For example, in Akasia 5,784 sales that took place in 1999 were deleted. The next most important reason for deleting observations was that the assessment/sales ratio was 1000 percent or greater. For example, in Akasia 1,118 observations were deleted because their assessment/sales ratio was 1000 percent or greater.

Analysis

Attridgeville and Mamelodi are two former black areas amalgamated into Pretoria in 1995. As a result, they are not listed separately in Table 6. However, the Pretoria data file permitted separate identification of these areas (see Appendix 2). *Attridgeville* has 165 useable observations (21.1 percent of total observations). The median assessment-sales ratio for these 165 residential properties is 116.7 percent. This is high in comparison to most other areas in the Pretoria data. It also exceeds the 110 percent upper limit suggested by the standard of the International Association of Assessing Officers. Moreover, the high levels of non-uniformity also exceed IAAO standards. The coefficient of dispersion is 94.6, which indicates an extremely high degree of horizontal inequity. Similarly, the price-related differential of 1.653 shows a high level of regressive bias, systematically overvaluing low-value properties compared to high-value properties. The sales reported for Atteridgeville were relatively random—albeit 50 of the sales had assessed values of R70,000 and sales prices of R29,640, but different sales dates.

The statistics for *Mamelodi* are not much better. First, the 291 useable transfers of property represent only 6.0 percent of total transfers. Based on these 291 remaining observations, the median assessment-sales ratio, at 87.0 percent, is comparatively high, although it is somewhat below the lower limit of 90 percent suggested by the IAAO standard. Both the CD and the PRD are quite high—64.6 and 1.465, respectively—although lower than in Atteridgeville.

The situation in Mamelodi is somewhat interesting regarding the nature of the observations. Unlike some of the other newly incorporated areas described above, there were no large batch transfers represented in the data from Mamelodi.²⁷ However, 218 of the 291 useable observations in Mamelodi (75 percent of the total useable observations) fall into one of only four assessed value ranges—49 assessed at R15,000; 26 assessed at

²⁷ 34 of the useable observations in Mamelodi had assessed values equal to R15,000, sales prices equal to R17,250 and sales dates of March 23, 2000. These observations represent 11.7 percent of the useable observations for Mamelodi.

R30,000; 101 assessed at R70,000; and 42 assessed at R80,000. While there is some uniformity in assessed values, there is no pattern in sales prices or sales dates. This suggests that a market may be starting to develop in Mamelodi, but is not yet reflected in assessed values. Also, it is interesting to note that 203 of the 291 useable observations in Mamelodi (70 percent of the total useable observations) have sales prices equal to or greater than their assessed values. This suggests that as this market information is utilized to revise assessed value estimates there will likely be upward pressure on assessed values.

Separately, we have data for 33 useable transactions (out of 109 total) in *Mamelodi Sun Valley*. These observations generated results very similar to those for Mamelodi: median assessment-sales ratio, 87.7 percent; CD, 77.3; and PRD, 1.394.

The situation is similar for most of the former black areas amalgamated into City of Tshwane in 2000. For example, let's look at *Ga-runkuwa*. The data provided to us was broken down into 11 sub-areas of Ga-runkuwa—areas 1 through 9 and 16 and 17. In addition, there was another area called Ga-runkuwa-view. The first 11 areas included a total of 83 useable observations with the number ranging from just 1 in two areas to 18. We aggregated these 11 areas together and computed summary statistics for the aggregate set of observations. For these 83 observations, the median assessment-sales ratio is 82.3 percent, the CD is 56.8, and the PRD is 1.264. While the average assessment level is not terribly low, the level of horizontal inequity revealed by the CD is quite high—nearly four times the upper limit of the IAAO standard—and the level of regressive bias also is very high. The sales in these 11 areas appear to be generally random in nature. This is not the case in *Ga-runkuwa-view*, however. All 1,695 observations have the same assessed value (R8,000), the same “sales” price (R16,000) and the same sales date (July 7, 2001). As a result, the traditional measures of assessment quality turn out to be very good—the median (and mean) assessment sales ratio is 50 percent, the coefficient of dispersion is zero (since no properties have assessment/sales ratios that vary from the 50 percent median ratio) and the Price Related Differential is 1.0. Thus, these do not reflect market transactions, which limits the value of information provided by them.

A similar pattern exists for *Mabopane Unit R*. As in Ga-runkuwa-view, the median assessment-sales ratio is 50.0 percent, the CD is 0.0, and the PRD is 1.0. Again, uniform batch transfers explain these results—all 26 properties have the same assessed value (R7,500), the same “sales” price (R15,000) and the same sales date (January 26, 2000).

The rest of *Mabopane*, however, provides another interesting situation like we found in Mamelodi. The data provided us divided the observations in Mabopane (excluding Unit R) into 11 areas—areas A through E, M and N, R and S, and U and X. Together, these 11 areas have 229 useable observations, ranging from just 3 in area N to 59 in area M. We consolidated all these observations and computed descriptive statistics for the aggregate pool of 229 observations. There is substantially more variation across these 11 areas than in Unit R. The 229 useable observations (38.0 percent of the total) reveal an overall assessment level of 81.7 percent, as measured by the median assessment-sales ratio. Both the CD and the PRD are extremely high: 71.9 and 1.550, respectively. Like Mamelodi, 214 of the useable observations in Mabopane (93 percent of the useable observations) fall into just three assessed value ranges—54 have assessed values of R29,000; 107 have

assessed values of R94,000; and 53 have assessed values of R50,000. However, they all have relatively random sales prices and dates. Again, this suggests that a market may be developing in Mabopane, but it is not yet being reflected in assessed values. It is also interesting to note that in 154 of the cases (two-thirds of the total useable observations) the sales price is equal to or greater than the assessed value. This suggests that as this market information is utilized to revise assessed values, there will likely be upward pressure on assessed values.

In *Hammanskraal*, there are 66 useable observations (52.0 percent of total observations), for which the median assessment-sales ratio is a very high 128.3 percent. Once more, both the CD and the PRD also are very high, at 58.1 and 1.405, respectively. Hammanskraal had some sales that looked like batch sales (albeit the “sales” took place throughout the year 2000). In spite of the sales date, 86 percent of the 66 useable sales had assessed values of either R70,000 (37 sales) or R140,000 (20 sales). While one third of the sales were for prices between R28,000 and R29,000, the remaining two-thirds of the sales prices were more randomly distributed. This suggests that a market may be developing which has not yet been reflected in assessed values. Just over one-third of the observations have sales prices equal to or greater than their assessed values.

The file for *Temba* has useable observations in four neighborhoods (Kudube 1, 2, 6, and D), but only Kudube D has at least 15 useable observations. Again, we aggregated all the observations in Kudube together to calculate the descriptive statistics. For the total of 81 useable observations, the median assessment-sales ratio is 96.7, which is within the acceptable range of the IAAO standard. The uniformity of assessments, however, falls well short of the acceptable levels. The CD is 65.3, and the PRD is 1.292. Of these 81 observations, 70 percent have assessed values of either R50,000 or R89,000. Sales prices and sales dates, however, are more random suggesting again that a market may be developing. Fifty-seven percent of the observations have sales prices equal to or greater than the assessed value indicating, again, that as this sales information is utilized in the valuation process in the future there will be upward pressure on assessed values.

In *Winterveld* only 10.7 percent of observations are useable (36 out of 337). Otherwise, the numbers are much like those for most other recently amalgamated former black areas: median assessment-sales ratio, 86.4 percent; CD, 63.8; and PRD, 1.409. Fifty-six percent of the observations have the same assessed value—R60,000. Sales prices and sales dates are more randomly distributed.

Finally, we consider Soshunguve, a former black area that became part of the Northern Substructure (not part of old Pretoria city, the Central Substructure) in the 1995 amalgamations. The data files include 15 Soshunguve neighborhoods with at least 15 useable transfers of residential properties; among these, the smallest number of useable sales is 29, and six have between 162 and 441 useable observations. These 15 neighborhoods have some of the highest median assessment-sales ratios observed. All but

three are above 100 percent, and three of these are above 800 percent;²⁸ the lowest median ratio is 70.9 percent. Uniformity of assessments generally is lacking. Coefficients of dispersion in four are at least near the IAAO upper limit (the highest of these is 15.3), but in most others the CD is well above the maximum suggested level of 15. The highest, however, is 92.0, so these are not the highest CDs observed in the case study areas. The price-related differential in one neighborhood (with 303 useable transfers) is a very low 0.762; otherwise, the PRDs run high, ranging from 1.085 to 3.322. As always, where there is reason to believe that at least a large share of the underlying “sales” do not represent true market transactions, these statistics are less instructive than where the observations meet the test of arm’s-length, market transactions between informed buyers and sellers.

How to interpret these numbers for individual neighborhoods varies from neighborhood to neighborhood. For example, in Soshunguve East 84 percent of the observations have an assessed value of R60,000, but sales for these properties range from R9,500 to R120,000 with no discernible pattern in sales dates. This evidence suggests that a market may be developing in this neighborhood and the statistics may give some indication of the uniformity of assessments. Also, nearly three-fourths of the observations have assessment/sales ratios over 100 percent indicating that the sales prices are lower than assessed values. As this market information is utilized in the valuation process, one might expect downward pressure in assessed values in this neighborhood.

Alternatively, in Soshunguve H there are 330 useable sales. Seventy-two percent of these observations indicate an assessed value of R29,000. Of this group, 134, or 57 percent of the total, indicate a sales price of R5,940. Thus, although there is some variation in sales dates, the sales in this neighborhood look more like batch sales and the descriptive statistics should be viewed with caution.

In summary, leaving aside Soshunguve, the former black areas amalgamated in 1995 and 2000 generally have reasonably high assessment levels. Five of the eleven areas for which we have useable data have median assessment-sales ratios between 81.7 percent and 87.7 percent. Two others are much lower (50.0 percent each) and two are much higher (116.7 percent and 128.3 percent). Aside from the two special cases identified above that show “perfect” uniformity (Ga-runkuwa-view and Mabopane Unit R), all areas have high degrees of non-uniformity. Aside from these two case, CDs range only from very high to even higher—from 56.8 to 94.6. Vertical inequity also runs high. Leaving aside the two special cases, PRDs range from 1.264 to 1.653. All of these measures of horizontal and vertical equity are well above the maximum values set by the IAAO standards. If based on arm’s-length market transactions, these numbers reveal very poor assessor performance with respect to uniformity.

How does this record in the former black areas compare to other parts of the Tshwane area? The numbers vary quite a lot among the neighborhoods for which we have useable

²⁸ Recall that properties with a ration of 1,000 percent or higher were deleted, and thus are not included among the useable observations.

observations on transfers of residential properties. Table 7 provides summary data for all 147 neighborhoods for which we had enough useable transfers to permit the performance statistics to be calculated; thus, the black areas considered above are included in the Table 7 tallies.²⁹

Table 7: Distribution of 147 City of Tshwane Neighborhoods by Levels of Three Assessment Performance Measures

Median Assessment-Sales Ratio		Coefficient of Dispersion		Price-Related Differential	
Value Range	Neighborhoods	Value Range	Neighborhoods	Value Range	Neighborhoods
Up to 50.0%	3	Up to 15.0	7	Up to 1.0	5
50.1 to 75.0	10	15.1 to 30.0	67	1.001 to 1.100	45
75.1 to 100.0	108	30.1 to 60.0	51	1.101 to 1.25.0	51
100.1 to 125.0	11	60.1 to 90.0	16	1.251 to 1.500	26
125.1 and over	15	90.1 and over	6	1.501 and over	20
Total	147	Total	147	Total	147

The modal range for the median assessment-sales ratio is 75.1 to 100.0 for both the total group of 147, and for the nine black neighborhoods discussed above (other than Soshunguve). For the whole group, 108 of the 147 fall in this range, and for the black areas, three of nine are in this range. However, two of the three neighborhoods at or below 50.0 percent are in the group of nine black areas considered above. Only one of the 15 above 125 is in this group of black areas.³⁰ Thus, there appear to be no sharp differences between the black areas and the entire set of neighborhoods with regard to assessment level.

Turning to uniformity of assessment levels across individual properties within a neighborhood, however, the story is somewhat different. For the 147 neighborhoods in total, the modal range for the coefficient of dispersion is 15.1 to 30.0, which extends from just over the IAAO upper limit of 15 to double that level. By contrast, none of the nine black neighborhoods (the group excluding Soshunguve) is in this range. Two are in the 30.1 to 60.0 range, four are in the 60.1 to 90.0 range, and another is above 90.0. At the other extreme, two have CDs of zero, as a result of batch transfers at a single “sales” price and a single assessed value—a result that, given the circumstances, is not reassuring.

²⁹ The valuers’ data files break broader geographic areas into numerous neighborhoods, and we generally have used those neighborhoods individually. Exceptions are two former black areas, for which neighborhoods were consolidated to get a larger sample, rather than eliminate several individual neighborhoods that, by themselves, did not have at least 15 useable observations. In Ga-runkuwa, a single set of measures represents 11 neighborhoods, and in Mabopane, the performance measures represent 10 neighborhoods and in Kudubes the performance measures represent 4 neighborhoods.

³⁰ Another 12, though, are among the 15 Soshunguve neighborhoods.

Finally, the modal range for the price-related differential for the group of 147 neighborhoods is 1.101 to 1.250, a range that falls well above the IAAO standard's upper limit of 1.03. Seven of the nine black areas have PRDs above 1.25. The other two have PRDs of exactly one, but because this is the result of batch transfers at values set administratively rather than by market forces, these perfect results provide no comfort. This provides a useful reminder that the temptation to read too much into the performance measures must be resisted for areas in which significant numbers of transfers do not reflect true market transactions.

Conclusions

The purpose of this study was to examine how newly amalgamated areas have incorporated into the municipal tax base areas that were previously outside the property tax. We looked at four case study areas—George Municipality, Nelson Mandela Metropolitan Municipality, City of Tshwane Metropolitan Municipality, and Moses Kotane Municipality. Although the scope of our inquiry necessarily was limited by the difficulty of obtaining relevant data, together with budget and time constraints, a number of interesting themes have emerged from the effort.

Observations About Newly Taxable Areas

First, we found that all municipalities have made progress in incorporating into their municipal tax bases areas amalgamated during the first restructuring of local governments in 1995, with the exception of Moses Kotane Municipality, which did not exist in 1995. However, most of the municipalities have not made much progress in incorporating into their municipal tax bases areas amalgamated during the final restructuring of local governments in December 2000. Of the areas studied, the City of Tshwane Metropolitan Municipality (Pretoria) seems to have gone farthest in this direction, as all the newly amalgamated areas have been valued. The approach there has been to use less property information and less sophisticated models for estimating value in getting the newly taxable areas into the tax base, and then to increase the amount of information and the level of valuation sophistication with each revaluation. At this stage, though, the new areas are said to be valued differently from formerly taxable areas. Another exception may be the efforts of Nelson Mandela Metropolitan Municipality (Port Elizabeth) to incorporate some of the rural areas inherited from the Western District Council in December 2000.

Given the enormity of the challenges faced by the municipalities, the rather slow progress is not surprising. The areas amalgamated in 1995 and 2000 were largely former black local authorities or rural areas that were outside the property tax base prior to 1995, and these pose the biggest problems. Before they could be brought into the tax base these areas had to be surveyed, individual plots had to be identified and described, ownership had to be transferred, owners had to be identified and contacted, cadastres had to be created, and values had to be determined.

The difficulty of the task of determining values cannot be overstated. Assessed values are supposed to be an estimate of the market value of a property. In many of the newly amalgamated areas, however, private property ownership was nonexistent prior to 1995 and there were no markets. In short, there was no market information upon which to base assessed values. We have seen that a number of rules of thumb were used to make these first estimates, but there was really no way they could have been very accurate in approximating market values. The tendency has been to apply uniform values and to err on the low side.

That values in formerly untaxed areas are very low is our second major finding. This applies to both “sales” prices and assessed values. As mentioned above, there were no sales prior to 1995 so there was no information upon which to base assessed values. Since extending the right of property ownership to blacks and making homes available at subsidized prices, the “sales” prices listed are often merely a transfer price for the property that is politically determined and does not reflect any meaningful notion of market value. Much the same situation applies to the manner in which assessed values have been determined in some areas—e.g., valuing a home on a gravel road at R1,000 and one on a paved road at R2,000. Although the homes are modest in essentially all respects, these values are low (about \$100 and \$200, respectively). Moreover, the degree of differentiation in such cases is not grounded in empirical evidence related to market values, and in several cases no differentiation is made even though the properties are of different sizes.

A third major finding relates to the updating of property tax rolls and the very notion of market value. Valuers look at market activity to determine the value of individual properties based on the characteristics of the property and market sales of comparable properties. Location generally is a major factor in determining comparability.

A serious problem in the former black local authority (BLA) areas is that markets have to develop in these areas, and currently this process is not very far along. Most property transfers have been the initial, subsidized transfers from the government to the new private owner-occupants. Any subsequent sales that do take place may not meet the definition of market sales. They may or may not be arm’s-length sales between a willing buyer and willing seller who are unrelated, and who have no other reason to agree to a price other than a market-level price. However, for a sale to represent a true market sale—and for the sales price to be useful in making inferences about the general level of market prices for similar properties—***both the buyer and seller must be well-informed about the local property market.*** This condition often is not met in sales taking place in newly taxable areas. In part, this simply results from the fact that many individuals in these areas have no experience with private property. It is a foreign concept. They have not owned real property before, and they tend not to think in terms of market prices for an asset such as a home. We were told in most study areas of instances in which new homeowners decided they wanted to move and then simply moved, without notifying anyone that ownership has changed. Moreover, the prices at which they are reported to have sold are essentially token amounts well below the likely value of the property—typically just enough to move to another location and get started.

There are two reinforcing problems here. First, lack of information about market value—and unfamiliarity with property ownership—leads to sales at prices that differ widely from a true market value. Second, even if this were not the case, the fact that sales tend not to be reported would make tracking the sales and using the information to assist in valuing other properties very difficult, at best.

Thus, a well functioning local property tax requires: (1) a clearly defined and well functioning property market with a reasonably sensible set of values—this is very difficult to achieve in many newly amalgamated areas of South Africa, since they are coming out of a combination of communal tenure traditions and administered prices—and (2) a requirement that actual sales values of transactions must be recorded. The South Africa system of recording sales is reasonably appropriate for traditionally richer areas, but currently does not work well for low value properties in the townships.

The lack of true market sales means that it will be difficult for valuers to update assessed values in any meaningful way; there simply is little if any reliable market information available in these areas. In addition, it means that the traditional tools for evaluating assessment uniformity and fairness are difficult to interpret, and perhaps meaningless. If assessed values and “sales” prices are essentially politically determined numbers, what do assessment-sales ratios and the derivative equity measures mean?

The quality of data in newly taxable areas is not comparable to the quality of data in areas previously paying a property tax. Given the lack of real markets in these areas, it is likely that it will take some time to improve the coverage and quality of data in newly taxable areas. Thus, a longer transition period may be required before uniformity objectives for property valuation are fully achieved in newly taxed areas.

Given these caveats, however, there may be some preliminary evidence available that suggests markets may be starting to develop in some areas. For example, in Mamelodi, Mabopane, Hammanskraal, Temba, and some neighborhoods in Soshungu there is some preliminary sketchy evidence to suggest markets are starting to develop. It is also interesting to note that in most of these cases, albeit not all, sales prices are systematically higher than assessed values suggesting that there may be upward pressure on assessed values as this sales information is incorporated into the valuation process.

A fourth finding relates to how newly taxed areas are treated under different property tax systems. George has a composite rating system, the Nelson Mandela Metropolitan Municipality has a flat rating system, and the City of Tshwane Metropolitan Municipality has a site rating system. However, no discernible difference was identified in how newly taxed areas have been brought into the tax base in each area. There is no significant difference in the patterns of median assessment/sales ratios, coefficients of dispersion, or price related differentials to suggest one system of property taxation should be preferred over another on grounds of assessment quality.

Observations About Formerly Taxed Areas

In addition to the problems of undeveloped property markets and the need to develop property records for areas not previously subject to property taxation, amalgamation of formerly taxed areas also presents problems. Property taxation is to be applied uniformly throughout each of the new municipal units formed effective at the end of 2000. In most cases, the redrawing of local government boundaries and merging of several former units into a new, larger one has meant merging property tax systems that differ across the former local units. We have found this in our case study areas.³¹ Assessed values may have been determined as of different dates. If values in one part of the amalgamated area relate to 1999 and those in another relate to 1985, it is very likely that effective tax rates will be higher in the former than in the latter. The average assessment level tends to fall over time if assessed values aren't updated. Moreover, because market values change at different rates for some neighborhoods and properties even within a single municipality, the uniformity of assessment relative to market value diminishes over time, causing higher coefficients of dispersion. Even without this influence, the coefficient of dispersion for a newly consolidated area will be higher if the taxable values are for different time periods in the several units brought together to form the new municipality. This would be true even if there were no degradation of the quality of assessment due to the passage of time.

Another potential problem in creating a uniform tax system when merging two or more formerly taxed areas is that the formerly independent areas may have different tax base definitions. As noted, Wilderness had a site value tax, while other units now merged into the new George Municipality used composite rating. This means that the very definition of the taxable base has to be changed for at least part of the amalgamated unit. A lesser, but not insignificant problem is that tax rates may differ across the units making up the new, larger municipality.

These problems are remediable, and rather easily so, in comparison with the problems of areas with no property markets and no history of property taxation. At least the formerly taxable areas have functioning real estate markets and property tax administrative structures.

The Road Ahead

What lessons or insights can be gained from this investigation? First, for equity and the long-term acceptance of the property tax as a legitimate revenue source for local government, each of the reconfigured local governments organized at the end of 2000 must move as quickly as possible to create a uniform system of property taxation within its boundaries. This requires harmonizing existing property tax structures. That is, for all parts of the municipality, defining the tax base in the same manner (site only, or site and improvements), valuing that base as of the same date, and applying the same rate, or

³¹ For a more detailed discussion of some of the problems in Cape Town, see van Ryneveld and Parker 2002.

structure of rates. If this necessitates very sizeable changes in tax burdens for some areas or property types, a phase-in period may be desirable, since large, abrupt changes may cause taxpayer discontent. This concern must be balanced against the need for consistent treatment of all parts of the municipality, so any phase-in should be relatively brief—probably more on the order of three years than 10 years. A creative approach to phasing in new values is discussed in van Ryneveld and Parker (2002).

When parts of the municipal unit have had no property markets and no property tax, there is no way to move immediately, or even very quickly, to a truly uniform tax system throughout the area. The tasks entailed have been noted; accomplishing them will take time. A robust property tax requires robust property markets, so markets will have to develop where there have been none. A large portion of the South African population has not been accustomed to private property ownership. Extending markets to new areas in this setting is different from opening up a new area to development where everyone is accustomed to and comfortable with the institution of private property ownership. Private property has been extended to those previously denied this right in South Africa, but the newly taxable areas have not yet developed high levels of market transactions as we understand them, even though ownership changes occur. As noted earlier, there are many stories of blacks selling their recently acquired homes at very low prices and moving on without recording the sale and the change of ownership.

In this context, we need to take note of the conclusion reached by Youngman and Malme as they looked at property tax reform in Central and Eastern Europe. Specifically, they concluded that “. . . property taxation has taken on new importance, serving not only as a revenue instrument, but also as an adjunct to decentralization and privatization” (Youngman and Malme 2001, 1). Efforts to extend property taxes into areas previously outside the tax have helped create new ownership schemes defining property rights and assigning them to the families living on the plots of land—a necessary step to the ultimate development of real estate markets. Similarly, other initiatives undertaken to extend the property tax have strengthened local administrative and organizational efforts. These nonfiscal consequences of implementing a property tax in previously untaxed areas should not be ignored.

Although local governments seemingly are dependent upon the private sector for developing real estate markets where none existed, there are some things they can do to help the process along. In these areas, there is a need to develop (1) the *notion* of market value, (2) some feeling as to its *level*, and (3) a system for maintaining records of ownership. It is possible that notions of the level of market value are informed by assessed values. Some private valuers in South Africa have suggested to us that this is occurring—that they are aware of instances in which people negotiating a sales price look to see what the government thinks the value is. This is likely to be particularly so for those unaccustomed to the institution of private property, once they have begun to think in terms of the existence of a “typical” or “appropriate” value—i.e., a market value.

If this is the case, then the very low, largely arbitrary assessed values we have encountered in several of the areas studied may retard the development of good property markets. In some newly taxable neighborhoods, the administratively determined “sales”

prices and assessed values produced very low assessment-sales ratios. It is difficult to defend an assessed value being only 50 percent, or some other small fraction, of a subsidized sales price.

To help overcome this problem, local governments should make a very serious effort to develop assessed values for tax purposes that are reasonable estimates of market values. In part, this may entail some loosening of the notion of comparability among properties, being open to looking beyond the borders of the area where the properties to be valued are located. Some private valuers under contract to develop assessed values for newly taxable areas have told us they have, in fact, done this. It involves looking to other areas for evidence on how different property characteristics affect market value, and—through use of informed judgment—applying that information to the newly taxable areas. At least one such valuer suggested that this is a first, logical step in what probably must be an iterative process in developing markets and a sense of market values. In other words, the first estimate of market value very probably will not be right on target, but it should be in the right ballpark. Then, prospective buyers and sellers will take this information into consideration, along with other, perhaps more local, considerations, and market transactions will move values somewhat to more appropriate and sustainable levels. There is some logic to this argument.

Once reasonable estimates of market values have been developed for the tax rolls, they should be publicized, to help get the public thinking in terms of market prices. This probably should go beyond simply making the tax rolls public records, by making access to those records convenient. This could be part of a public education program, which might also include information about market trends.

To close the loop and make sales prices useful in maintaining the tax roll, the sales that occur must be recorded. The need for this—the legal requirement—also would be part of the public education program. The transfer tax in South Africa provides a mechanism for collecting information on sales prices, and tax penalties can provide the incentive to report prices accurately. However, the South African tax rate is rather high, which tends to discourage reporting sales, or at least reporting them accurately. When sales are detected that have not been properly recorded, requirements should be enforced and penalties imposed. If the seller has left the area and cannot be reached, it might be appropriate to assess the penalties against the buyer. If this policy were set and publicized, it could be another factor in helping to assure proper reporting, as prospective buyers would seek assurance that they would not be liable for unpaid taxes plus penalties.

For now, until robust property markets develop and property tax assessment systems are put in place that can capture the market-generated information effectively, there remains the problem of how to value the many newly taxable properties. There also is the fact that many new property owners have little income. Property tax relief is provided by many South African localities now [see Bowman, 2002b], and it is likely to be part of the local property tax policy (“rates”) plans expected to be required under new national legislation. These two considerations can be brought together, to provide relief to those least able to pay a property tax while also reducing the urgency of developing accurate estimates of market value for tax rolls. Specifically, property tax relief for residential property could

take the form of an exemption of the first several thousand rands of value, perhaps R20,000.³² This would be the full value of many of the homes in question, and would make their accurate valuation less important, since they would not determine current tax obligations. It also would target more relief to those likely to be most in need of that relief, at a lower level of foregone tax revenue than under such alternatives as the now-common uniform percentage tax reduction. It still would be important to attempt to develop accurate estimates of market value for the tax rolls, but this relief approach could dovetail well with the fact that it is going to take time to be able to develop such values for all properties.

³² For a discussion of current relief programs as well as this alternative, see Bowman 2002b. A table comparing the level of relief provided for homes of different values under a 25 percent homestead exemption and the alternative of exempting the first R20,000 is provided at p. 154.

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Appendix 1: M E M O R A N D U M

From: Michael E. Bell and John H. Bowman

RE: Upcoming Study Tour in South Africa

Date: February 4, 2002

We recently received a grant from the Lincoln Institute of Land Policy in Cambridge, Massachusetts to look at how areas previously outside the property tax net have been brought into the net. Initially, we will be examining this issue in three case study cities—The Nelson Mandela Municipality, George, and Rustenburg. The purpose of this memorandum is to lay out issues that we would like to explore during our visit to South Africa in March. Because our time in each locality will be limited, we thought it best to send ahead a list of the information needed, in the hope that some may be pulled together beforehand.

Specifically, we would like to address the following issues/questions:

- Describe the current situation in the municipality, including:
 - i. The number of jurisdictions amalgamated in December 2000 to make up the current municipality, and the name of each jurisdiction.
 - ii. The population of the municipality broken, down by previous jurisdictions.
 - iii. Amount of property taxes, and that amount as a percentage of (1) own-source local revenue and (2) the local budget.
 - iv. The number of residential properties by class, both in total and for each former jurisdiction.
 - v. Describe how each of the areas previously outside the property tax net was brought into the net, including:
 - a) Dates when areas outside the property tax were brought into it.
 - b) How individual properties were identified and described.
 - c) How owners and their addresses were determined and identified.
 - d) Whether or not property record cards have been developed for individual properties and if so, how they were developed. Site visits? Arial photographs? Maps?

- e) How was the value for individual properties determined—area based, or ad valorem? Was there a phase-in?
 - f) When were initial valuations done? Updated?
 - g) What was the cost per parcel (erf) of valuations in the new areas? How does this compare to the cost per parcel in former white areas previously subject to taxation?
 - h) What has been the history of appeals in newly taxable areas?
 - i) Have there been many sales in newly taxable areas?
 - j) Have newly taxable areas been proclaimed?
 - k) What is the payment/collection rate by area—both newly taxable and previously taxed areas.
- Can we get data on properties in newly incorporated areas that have sold as arms-length transactions? A table of such data probably would need only five columns –
 1. Unique erf identification number
 2. Assessed value in 2000 or 2001
 3. Sales price
 4. Date of sale
 5. Neighborhood

Appendix 2

	Number Obs	Percent of Total Obs	Number of Useable Obs	Percent of Useable Obs	Percent Useable	Mean R	Median R	CD	PRD
Amandasig	119	1.2%	92	2.7%	77.3%	112.8%	132.5%	28.5%	1.033
Annlin	257	1.0%	196	1.5%	76.3%	158.6%	91.3%	94.2%	1.651
Arcadia	41	0.2%	28	0.2%	68.3%	83.7%	74.4%	43.6%	1.305
Atteridgeville	783	3.2%	165	1.3%	21.1%	181.6%	116.7%	94.6%	1.653
Booyens	148	0.6%	96	0.8%	64.9%	104.2%	94.3%	29.4%	1.103
Bronberrik	29	0.3%	22	0.4%	75.9%	97.0%	90.4%	22.6%	1.054
Brooklyn	189	0.8%	120	0.9%	63.5%	87.3%	86.9%	23.3%	1.139
Capital Park	232	0.9%	183	1.4%	78.9%	101.6%	95.5%	23.6%	1.058
Celtisdal	25	0.3%	14	0.2%	56.0%	82.6%	86.5%	18.4%	1.062
Chantelle	172	1.7%	111	3.3%	64.5%	123.7%	100.0%	31.6%	1.172
Christoburg	35	0.4%	27	0.4%	77.1%	62.5%	61.2%	27.2%	1.119
Claremont	227	0.9%	161	1.3%	70.9%	98.5%	87.1%	34.1%	1.103
Clarina	63	0.6%	46	1.4%	73.0%	120.1%	106.3%	29.8%	1.215
Claudius	39	0.4%	26	0.4%	66.7%	96.9%	90.0%	26.5%	1.204
Club View	241	2.7%	179	3.0%	74.3%	79.4%	76.2%	30.7%	1.059
Colbyn	61	0.2%	47	0.4%	77.0%	95.7%	85.7%	28.0%	1.305
Constantia Park	158	0.6%	117	0.9%	74.1%	98.3%	89.9%	26.0%	1.113
Danville	612	2.5%	498	3.9%	81.4%	112.5%	80.1%	70.6%	1.177
Daspoort	183	0.7%	126	1.0%	68.9%	102.7%	89.1%	35.7%	1.163
Daspoort Estates	53	0.2%	41	0.3%	77.4%	107.7%	87.6%	46.3%	1.221
Derdepoortpark	22	0.1%	15	0.1%	68.2%	163.9%	97.8%	90.0%	1.401
Die Hoewes	89	1.0%	71	1.2%	79.8%	72.4%	82.4%	20.8%	0.990
Die Wilgers	152	0.6%	109	0.9%	71.7%	88.5%	85.4%	24.6%	1.072
Doornpoort	733	3.0%	519	4.1%	70.8%	114.6%	90.0%	40.7%	1.221
Dorandia	130	0.5%	83	0.7%	63.8%	99.9%	84.6%	30.8%	1.149
Doringkloof	241	2.7%	163	2.7%	67.6%	81.8%	73.9%	25.6%	1.080

	Number Obs	Percent of Total Obs	Number of Useable Obs	Percent of Useable Obs	Percent Useable	Mean R	Median R	CD	PRD
East Lynne	161	0.7%	114	0.9%	70.8%	99.0%	90.4%	27.3%	1.103
Eersterust	322	1.3%	218	1.7%	67.7%	135.3%	104.2%	50.1%	1.263
Elarduspark	283	1.1%	200	1.6%	70.7%	92.4%	87.5%	22.5%	1.089
Eldoraigne	1160	13.2%	877	14.6%	75.6%	73.2%	70.5%	32.9%	1.148
Eloffsdal	44	0.2%	33	0.3%	75.0%	95.7%	86.0%	31.6%	1.103
Erasmia	183	2.1%	127	2.1%	69.4%	110.7%	93.3%	40.7%	1.183
Erasmuskloof	123	0.5%	91	0.7%	74.0%	132.3%	89.1%	70.5%	1.382
Erasmusrand	52	0.2%	39	0.3%	75.0%	79.2%	75.9%	18.3%	1.057
Faerie Glen	560	2.3%	393	3.1%	70.2%	164.5%	91.1%	105.4%	1.894
Florauna	109	0.4%	77	0.6%	70.6%	104.3%	89.3%	32.5%	1.129
Ga-rankuwa-1	35	1.7%	18	1.0%	51.4%				
Ga-rankuwa-16	24	1.2%	8	0.4%	33.3%				
Ga-rankuwa-17	15	0.7%	7	0.4%	46.7%				
Ga-rankuwa-2	13	0.6%	5	0.3%	38.5%				
Ga-rankuwa-3	4	0.2%	1	0.1%	25.0%				
Ga-rankuwa-4	22	1.1%	5	0.3%	22.7%	108.2%	82.3%	56.8%	1.264
Ga-rankuwa-5	9	0.4%	3	0.2%	33.3%				
Ga-rankuwa-6	7	0.3%	1	0.1%	14.3%				
Ga-rankuwa-7	64	3.1%	15	0.8%	23.4%				
Ga-rankuwa-8	29	1.4%	14	0.8%	48.3%				
Ga-rankuwa-9	129	6.3%	6	0.3%	4.7%				
Ga-rankuwa-View	1695	82.8%	1695	95.3%	100.0%	50.0%	50.0%	0.0%	1.000
Garsfontein	617	2.5%	417	3.3%	67.6%	96.5%	82.2%	35.4%	1.148
Gezina	96	0.4%	75	0.6%	78.1%	99.3%	93.6%	26.3%	2.859
Groenkloof	84	0.3%	63	0.5%	75.0%	98.3%	90.9%	28.5%	1.127
Hammanskraal	127	100%	66	0.5%	52.0%	166.9%	128.3%	58.1%	1.405
Hatfield	113	0.5%	86	0.7%	76.1%	96.0%	84.7%	44.2%	2.566
Hennospark	95	1.1%	60	1.0%	63.2%	78.4%	79.1%	29.1%	1.343

	Number Obs	Percent of Total Obs	Number of Useable Obs	Percent of Useable Obs	Percent Useable	Mean R	Median R	CD	PRD
Hestea Park	106	1.0%	68	2.0%	64.2%	112.0%	103.5%	17.1%	1.055
Heuweloord	239	2.7%	171	2.8%	71.5%	79.5%	81.3%	33.1%	1.087
Highveld	340	3.9%	263	4.4%	77.4%	73.7%	74.2%	33.7%	1.214
Irene	382	4.3%	282	4.7%	73.8%	82.1%	77.8%	25.1%	1.114
Jan Niemand Park	117	0.5%	87	0.7%	74.4%	105.4%	92.3%	33.1%	1.272
Karen Park	182	1.8%	130	3.9%	71.4%	138.1%	106.1%	41.5%	1.248
Kilner Park	153	0.6%	112	0.9%	73.2%	104.6%	94.2%	24.7%	1.082
Kloofsicht	44	0.5%	26	0.4%	59.1%	97.0%	92.8%	23.7%	1.069
Kosmosdal	228	2.6%	144	2.4%	63.2%	47.0%	48.5%	12.4%	1.037
Kudube - 1	34	21.0%	11	13.6%	32.4%				
Kudube - 2	12	7.4%	6	7.4%	50.0%	132.8%	96.7%	65.3%	1.292
Kudube - 6	24	14.8%	11	13.6%	45.8%				
Kudube - D	89	54.9%	53	65.4%	59.6%				
Kwaggasrand	202	0.8%	132	1.0%	65.3%	100.0%	93.5%	21.0%	1.068
La Montagne	38	0.2%	24	0.2%	63.2%	136.1%	88.7%	69.7%	1.402
Laudium	195	2.2%	124	2.1%	63.6%	102.3%	88.1%	48.0%	1.265
Les Marais	25	0.1%	20	0.2%	80.0%	86.3%	78.6%	31.7%	1.149
Lindo Park	116	0.5%	50	0.4%	43.1%	71.3%	65.4%	24.2%	1.083
Lotus Gardens	96	0.4%	69	0.5%	71.9%	120.4%	100.6%	43.5%	1.315
Lukasrand	22	0.1%	16	0.1%	72.7%	77.5%	78.6%	16.6%	1.022
Lynnwood	133	0.5%	92	0.7%	69.2%	100.6%	78.8%	48.9%	1.404
Lynnwood Glen	126	0.5%	77	0.6%	61.1%	87.1%	84.7%	21.0%	1.077
Lynnwood Manor	77	0.3%	57	0.4%	74.0%	91.5%	82.4%	26.7%	1.112
Lynnwood Ridge	70	0.3%	53	0.4%	75.7%	100.0%	91.5%	25.4%	1.062
Lyttelton Manor	437	5.0%	306	5.1%	70.0%	90.5%	85.4%	29.2%	1.096
Magalieskruin	135	0.5%	99	0.8%	73.3%	102.7%	83.8%	43.2%	1.175
Mahube Valley	626	2.5%	343	2.7%	54.8%	286.0%	359.0%	22.7%	1.280
Mamelodi	4865	19.7%	291	2.3%	6.0%	119.4%	87.0%	64.6%	1.465

	Number Obs	Percent of Total Obs	Number of Useable Obs	Percent of Useable Obs	Percent Useable	Mean R	Median R	CD	PRD
Mamelodi Sun Valley	109	0.4%	33	0.3%	30.3%	132.3%	87.7%	77.3%	1.394
Maroelana	28	0.1%	21	0.2%	75.0%	106.8%	95.7%	30.8%	1.118
Mayville	75	0.3%	56	0.4%	74.7%	84.0%	80.5%	25.2%	1.093
Menlo Park	162	0.7%	107	0.8%	66.0%	94.0%	86.7%	28.7%	1.142
Meyerspark	182	0.7%	135	1.1%	74.2%	93.7%	85.7%	22.8%	1.065
Mobopane - A	14	1.9%	6	2.4%	42.9%				
Mobopane - B	51	7.0%	19	7.5%	37.3%				
Mobopane - C	36	5.0%	19	7.5%	52.8%				
Mobopane - D	15	2.1%	7	2.7%	46.7%				
Mobopane - E	10	1.4%	5	2.0%	50.0%				
Mobopane - M	150	20.6%	59	23.1%	39.3%	128.4%	81.7%	71.9%	1.550
Mobopane - N	8	1.1%	3	1.2%	37.5%				
Mobopane - S	59	8.1%	32	12.5%	54.2%				
Mobopane - U	81	11.1%	29	11.4%	35.8%				
Mobopane - X	178	24.5%	50	19.6%	28.1%				
Mobopane Unit R	119	16.4%	26	10.2%	21.8%	50.0%	50.0%	0.0%	1.000
Montana	22	0.1%	16	0.1%	72.7%	91.4%	82.7%	31.4%	1.136
Montana Park	309	1.2%	225	1.8%	72.8%	137.5%	83.3%	85.1%	1.528
Montana Tuine	239	1.0%	197	1.5%	82.4%	108.7%	87.3%	46.7%	1.214
Monument Park	166	0.7%	117	0.9%	70.5%	92.7%	80.0%	30.6%	1.124
Moregloed	105	0.4%	85	0.7%	81.0%	104.7%	97.4%	24.9%	1.097
Moreletapark	1355	5.5%	1091	8.6%	80.5%	176.2%	79.4%	147.2%	1.697
Mountain View	265	1.1%	197	1.5%	74.3%	106.1%	87.9%	35.6%	1.154
Muckleneuk	157	0.6%	110	0.9%	70.1%	110.0%	86.3%	52.7%	1.269
Murrayfield	120	0.5%	86	0.7%	71.7%	97.9%	84.0%	34.3%	1.140
Nelmapius	1318	5.3%	64	0.5%	4.9%	126.0%	80.8%	80.3%	1.555
Newlands	68	0.3%	43	0.3%	63.2%	98.0%	88.9%	25.2%	1.087
Nieuw Muckleneuk	41	0.2%	31	0.2%	75.6%	72.3%	66.7%	29.3%	1.064

	Number Obs	Percent of Total Obs	Number of Useable Obs	Percent of Useable Obs	Percent Useable	Mean R	Median R	CD	PRD
Nina Park	148	1.5%	99	2.9%	66.9%	157.0%	101.7%	64.1%	1.316
Olievenhoutbos	1416	16.1%	725	12.1%	51.2%	110.8%	85.7%	38.7%	0.992
Parktown Estates	44	0.2%	28	0.2%	63.6%	117.0%	80.9%	58.5%	1.338
Philip Nelport	46	0.2%	26	0.2%	56.5%	150.5%	123.4%	81.1%	1.123
Pierre van Ryneveld	466	5.3%	319	5.3%	68.5%	76.1%	74.3%	24.6%	1.048
Pretoria	118	0.5%	83	0.7%	70.3%	95.8%	87.8%	31.9%	1.105
Pretoria Gardens	164	0.7%	128	1.0%	78.0%	96.3%	90.0%	23.1%	1.084
Pretoria North	324	1.3%	238	1.9%	73.5%	105.4%	94.7%	29.3%	1.135
Pretorius Park	449	1.8%	286	2.2%	63.7%	210.1%	110.7%	129.6%	1.495
Proclamation Hill	95	0.4%	71	0.6%	74.7%	103.7%	90.0%	35.9%	1.149
Queenswood	231	0.9%	180	1.4%	77.9%	96.5%	89.9%	24.9%	1.082
Rietfontein	353	1.4%	243	1.9%	68.8%	108.3%	95.5%	32.2%	1.147
Rietondale	91	0.4%	68	0.5%	74.7%	100.8%	94.8%	26.6%	1.074
Rietvalleipark	33	0.1%	22	0.2%	66.7%	83.2%	82.8%	10.2%	1.012
Riviera	68	0.3%	50	0.4%	73.5%	94.2%	88.8%	25.9%	1.088
Rooihuiskraal	588	6.7%	423	7.0%	71.9%	80.0%	77.0%	24.8%	1.069
Rooihuiskraal Noord	379	4.3%	318	5.3%	83.9%	61.9%	61.6%	27.5%	1.239
Roseville	45	0.2%	37	0.3%	82.2%	106.6%	95.2%	28.6%	1.119
Saulsville	458	1.9%	50	0.4%	10.9%	92.2%	86.0%	27.4%	1.065
Silverton	298	1.2%	222	1.7%	74.5%	96.3%	88.8%	25.6%	1.099
Sinoville	411	1.7%	306	2.4%	74.5%	100.2%	93.5%	25.0%	1.095
Soshanguve A	4	0.0%	3	0.1%	75.0%	391.4%	340.0%	59.3%	1.690
Soshanguve East	344	3.4%	162	4.8%	47.1%	218.3%	282.9%	33.6%	1.803
Soshanguve South	938	9.3%	187	5.6%	19.9%	826.1%	832.3%	0.8%	1.085
Soshunguve AA	166	1.6%	54	1.6%	32.5%	437.3%	313.8%	61.9%	1.556
Soshunguve BB	29	0.3%	29	0.9%	100.0%	125.6%	100.0%	51.5%	1.210
Soshunguve CC	8	0.1%	8	0.2%	100.0%	122.4%	106.5%	37.5%	1.162
Soshunguve DD	33	0.3%	32	0.9%	97.0%	88.0%	70.9%	45.0%	1.194

	Number Obs	Percent of Total Obs	Number of Useable Obs	Percent of Useable Obs	Percent Useable	Mean R	Median R	CD	PRD
Soshunguve F	66	0.7%	48	1.4%	72.7%	376.4%	484.5%	30.5%	2.573
Soshunguve FF	46	0.5%	44	1.3%	95.7%	149.4%	133.9%	50.3%	1.553
Soshunguve G	69	0.7%	63	1.9%	91.3%	379.4%	484.9%	35.3%	2.536
Soshunguve GG	115	1.1%	48	1.4%	41.7%	158.8%	97.5%	92.0%	1.681
Soshunguve H	1152	11.4%	330	9.8%	28.6%	504.4%	488.2%	21.4%	3.322
Soshunguve HH	414	4.1%	32	0.9%	7.7%	172.3%	125.6%	81.9%	2.301
Soshunguve IA	1	0.0%	1	0.0%	100.0%	50.0%	50.0%	0.0%	1.000
Soshunguve JJ	375	3.7%	303	9.0%	80.8%	407.0%	974.0%	5.0%	0.762
Soshunguve K	611	6.0%	184	5.5%	30.1%	470.4%	487.8%	15.3%	1.617
Soshunguve L	1343	13.3%	441	13.1%	32.8%	476.0%	455.3%	27.0%	1.822
Soshunguve LL	202	2.0%	58	1.7%	28.7%	847.7%	926.9%	12.4%	2.933
Soshunguve P	2182	21.5%	1	0.0%	0.0%	842.7%	842.7%	0.0%	1.000
Suiderburg	139	0.6%	104	0.8%	74.8%	99.4%	82.1%	39.9%	1.156
Sunnyside	92	0.4%	62	0.5%	67.4%	98.4%	85.7%	36.5%	1.192
The Orchards	716	7.1%	544	16.1%	76.0%	122.9%	104.3%	28.4%	1.131
The Reeds	964	10.9%	684	11.4%	71.0%	79.9%	77.2%	24.4%	1.084
Theresa Park	339	3.3%	251	7.5%	74.0%	119.3%	101.5%	28.3%	1.135
Tileba	26	0.1%	21	0.2%	80.8%	87.2%	82.9%	27.1%	1.083
Val-de-Grace	24	0.1%	16	0.1%	66.7%	85.5%	82.0%	17.6%	1.031
Valhalla	344	1.4%	239	1.9%	69.5%	90.7%	87.5%	22.8%	1.075
Villieria	493	2.0%	353	2.8%	71.6%	103.6%	93.6%	28.4%	1.275
Wapadrans	119	0.5%	86	0.7%	72.3%	118.5%	86.6%	60.7%	1.288
Waterkloof	205	0.8%	143	1.1%	69.8%	110.2%	85.2%	56.1%	1.430
Waterkloof Glen	113	0.5%	72	0.6%	63.7%	91.2%	88.1%	23.6%	1.089
Waterkloof Heights	32	0.1%	25	0.2%	78.1%	90.5%	81.9%	34.6%	1.181
Waterkloof Ridge	400	1.6%	298	2.3%	74.5%	118.7%	94.8%	50.9%	1.405
Waverley	295	1.2%	204	1.6%	69.2%	106.0%	85.9%	42.1%	1.210
Weavind Park	27	0.1%	23	0.2%	85.2%	100.7%	86.0%	34.0%	1.161

	Number Obs	Percent of Total Obs	Number of Useable Obs	Percent of Useable Obs	Percent Useable	Mean R	Median R	CD	PRD
Weirda Park	660	7.5%	440	7.3%	66.7%	81.7%	78.2%	23.6%	1.057
West Park	207	0.8%	147	1.2%	71.0%	102.6%	95.9%	23.4%	1.077
Wingate Park	127	0.5%	91	0.7%	71.7%	86.3%	80.6%	22.2%	1.081
Winterveld	337	100.0%	36	100.0%	10.7%	131.8%	86.4%	63.8%	1.409
Wolmer	109	0.4%	72	0.6%	66.1%	86.9%	80.0%	26.1%	1.085
Wonderboom	171	0.7%	115	0.9%	67.3%	106.3%	96.5%	28.1%	1.213
Wonderboom South	235	0.9%	169	1.3%	71.9%	104.2%	91.2%	30.0%	1.125
Zwartkop	321	3.6%	225	3.7%	70.1%	90.2%	83.3%	29.7%	1.125