

C D E R O U N D T A B L E

Number three, 1999

CDE Round Table is an occasional publication reflecting discussions held on key contemporary topics

The 1996 Census Key findings, problem areas, issues

A discussion around the results released in October 1998

On 9 December 1998 the Centre for Development and Enterprise (CDE) hosted a round table discussion on the recently released Census '96 results. This initiative brought together 28 experts and stakeholders from the public and private sectors at CDE's invitation. Participants included Dr. Mark Orkin and his colleagues from Statistics South Africa (Stats SA), other experts in demography and related policy research, and practitioners from government, parastatals and the private sector concerned with the application of demographic and statistical information.

This is an edited version of the day's proceedings, incorporating some additional information for the benefit of the reader. A brief overview is given overleaf, followed by

the fuller report, with comments.

The roundtable was designed to elicit and reflect a variety of viewpoints. Individual opinions were expressed, and no attempt was made to reach a consensus. No participant necessarily subscribes to any view recorded here unless it is expressly attributed to a source.

Topics discussed included the innovative methodology of Census '96; some unexpected findings; potential uses of the statistics; and whether the needs of business, policy-makers and planners in government might be better served by a different kind of data-gathering exercise (such as a continuous sample-based census) able to provide more up to date information more quickly.

'Census '96 marks a significant advance ... but South African demographic and income statistics are still far from satisfactory ... Government must commit itself to provide the resources to ensure that policy choices can be made on the basis of the best possible information.'

Ann Bernstein

CDE acknowledges Statistics South Africa (Stats SA) as the original source of the data in this publication.



Participants in the round table

- Francis Antonie**, senior economist, Standard Bank
- Professor Anthony Asher**, director, Department of Statistics and Actuarial Science, University of the Witwatersrand
- David Avnit**, executive chairman, Fedsure Health
- Dr Frik Barnard**, chief director, Department of Housing
- Ann Bernstein**, executive director, Centre for Development and Enterprise
- Frans Boshiela**, chief planner, Department of Land Affairs
- Andrew Donaldson**, chief director: financial planning, Department of Finance
- Dr Ros Hirschowitz**, chief director: research and development, Statistics SA
- Professor Douglas Irvine**, senior associate, Centre for Development and Enterprise
- Dr Gayle Martin**, human development economist, The World Bank
- Professor Johan Martins**, director, Bureau of Market Research, Unisa
- Professor Jeff McCarthy**, research professor, Graduate School of Business, University of Durban-Westville
- Enos Ngutshane**, executive manager, SA Rail Commuter Corporation
- Monde Nkasawe**, assistant director, Department of Constitutional Development
- Dr Mark Orkin**, head, Statistics SA
- Robin Plumbridge**, immediate past chairman, Gold Fields SA
- Tholoana Qhobela**, strategic planning director, Ogilvy and Mather
- Professor Lawrence Schlemmer**, consultant
- Professor Siphos Shabalala**, Office of the Premier, KwaZulu-Natal
- Professor Charles Simkins**, head, Economics Department, University of the Witwatersrand
- Dr Conrad Strauss**, chairman, Standard Bank
- Dr Peter Ubomba-Jaswa**, chief director: national population unit, Department of Welfare & Population Development
- Dr Eric Udjo**, director: thematic demographic analysis, Statistics SA
- Johan van Zyl**, population and development programme, Human Sciences Research Council
- Susanne Venter**, senior sampling executive, Markinor
- Peter Venter**, senior manager: market research, Telkom
- Gail York**, group marketing strategy manager, Times Media

Overview

This document is divided into eight sections. Following a brief introductory account of the background to the discussion, the main topics discussed at the roundtable are presented thematically.

CDE executive director Ann Bernstein set the scene for the roundtable discussion in her *Opening remarks*, raising some key issues suggested by the recently released census findings. The presentation on the major features of Census '96 by Mark Orkin, head of Statistics SA, and his colleagues Ros Hirschowitz and Eric Udjo, is summarised in the following two sections, *The census process and Some key findings*.¹ Discussion around the unexpected or problematical nature of some of these findings is reflected in the next section, *How reliable are the census data?* Five speakers then made brief inputs on key aspects of the census from their particular perspectives in the *Panel discussion*. Lawrie Schlemmer, Jeff McCarthy and Charles Simkins were asked to comment as experts in the fields of demographic and social research; while Andrew Donaldson and Dave Avnit spoke from their respective viewpoints in governmental finance and business. In a wide-ranging general discussion, much of the debate revolved around the question whether the needs of business, policy-makers and planners in government could be better served by alternative kinds of data gathering. This is reflected in the following two sections, *A full or sample-based census?* and *Drawing on other data sources*. Ann Bernstein draws attention to some major policy and research issues emerging from the roundtable in her *Concluding comment*.

CDE's summary of key points will be found at the end.

¹ Stats SA's own official accounts of Census '96 are contained in the following publications:
 – *Population Census 1996: The count and how it was done*
 – *Population Census 1996: Calculating the undercount*
 These are obtainable free of charge from Stats SA.
 User Enquiries: (012) 310-8600
 Website: <http://www.statssa.gov.za>



The round table discussion

Background to the Round Table

The census conducted in October 1996 counted South Africans for the first time as citizens of a democracy. Statistics South Africa (Stats SA) released the preliminary census figures nine months later in July 1997. The final estimates were published towards the end of October 1998, with more comprehensive and detailed data still to follow in 1999.

The 1997 preliminary estimates put the population for the country as a whole at 37 859 000 – a surprising figure, since this was about five million less than expected according to projections from the 1991 census. The preliminary estimates were disputed, but at the time Stats SA maintained that they anticipated only ‘slight changes’ in the final estimates. However, when these were published in October 1998 they reflected a significant upward adjustment of 6,7%, raising the population figure to 40 583 574.

Differences between the preliminary and final estimates are of more than academic interest. Among other things a smaller population would have implied a lesser

development challenge for South Africa. The figures are also politically controversial because the changes will affect provinces’ shares of the national revenue.

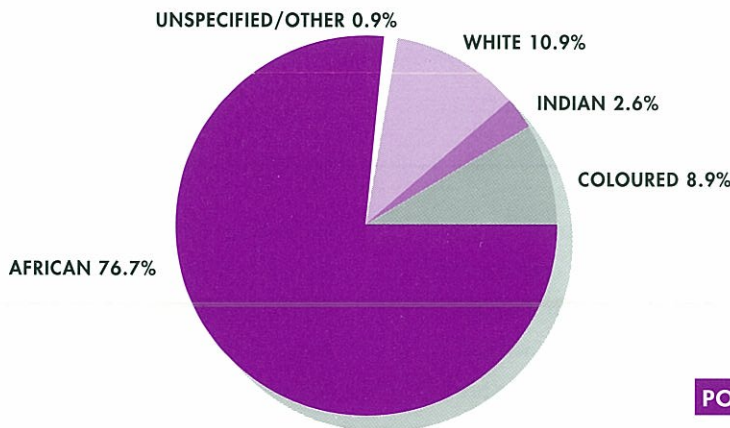
South Africa’s nine provinces collectively receive almost 60% of the national budget. Provincial governments use their allocations to implement national development policies and social service delivery plans, and to pay staff – including teachers. Population plays a significant part in determining a province’s share of the national revenue, though it is not the only factor in the funding formula. In the final estimates, compared with the preliminary estimates, Northern Province, KwaZulu-Natal and North-West increased their shares of the total population. By contrast, the relative shares of Gauteng and the Western Cape decreased.

The Census ’96 results diverge from earlier projections in important respects. This necessitates the re-evaluation of previous censuses, and of 1991 in particular. The apparent unreliability of historical data in South Africa means that previous projections and trends must be treated with caution, and research is needed to stabilise the data.

The conceptualisation and methodology of the census ... embodies international best practice and puts South Africa ahead of most countries

Lawrie Schlemmer

The participation by Statistics SA in this roundtable does not imply that it endorses any comments or views expressed by other participants



POPULATION IN SOUTH AFRICA
by population group
October 1996

Source: Statistics SA

Opening remarks

The census findings raise important policy issues ... The poorest and least advantaged South Africans are rural African women. Do affirmative action policies directed at an urban elite really address the fundamental challenges facing the country?

Ann Bernstein

In her opening remarks, CDE executive director Ann Bernstein noted that the private sector has long had an interest in demographic issues. Through the Urban Foundation it had invested a considerable amount of money to develop a demographic model for the country, in part to compensate for the imperfections of apartheid-driven censuses. More recently in 1995 CDE produced a document analysing and re-working the previous census and demographic and income statistics.² These concerns are central to policy issues and priorities for organisations such as CDE and the private sector more generally.

Reviewing the key issues, Bernstein underscored the fact that the census is a national resource. Both the public and the private sector need reliable, accessible and up to date statistics. The independence of these statistics is crucial. Even in a democracy there must be 'an iron wall' between people doing the demographic work and the politicians, who may have an interest in influencing information to suit their own ends. It is vital to ensure the non-political objectivity and analytic reliability of national demographic data-collection.

The Census '96 findings raise important policy issues, with challenging implications for resource allocation. They show, for example, that the poorest South Africans are rural African women. Do affirmative

action policies directed at an urban elite really address the fundamental challenges facing this country?

The census findings on the rate of urbanisation are lower than some predictions, and higher than others. There is great uncertainty in this crucial area that impacts on infrastructural planning and investment choices based on demographic trends, and on research into the relationship between urbanisation and poverty.

Deep inequalities highlighted by the census also put a question mark over the basis on which the central state funds the provinces. In dealing with national poverty and inequality, a needs-driven policy might not be the most efficient response. Should the funding formula be needs-based, as at present, or should the test be the potential impact of investment?

Bernstein noted that there is currently a fierce international debate about the cost and value of a periodic national census as opposed to some kind of ongoing sample census.

The lapse of time since the 1996 census, with the initial set of final results not available until two years after enumeration, and full results not available until well into 1999, raises critical questions about the currency of the country's information resources – a particularly important issue for a developing country like South Africa.

The census process

Dr Orkin welcomed the roundtable as an initiative that provided the first opportunity for Statistics SA to hear how such a wide range of stakeholders and analysts would respond to the data it was responsible for

providing. He stressed, however that Stats SA's job is to produce policy-relevant data, not to engage in policy debates. Stats SA stops at the threshold of user's needs – it is for users to take the data forward into the

² *Post-Apartheid Population and Income Trends: A New Analysis* (CDE Research no. 1, September 1995)

arena of policy issues.

Putting the lapse of time between the census and the publication of results in perspective, Orkin pointed out that in Canada and Australia, with smaller populations and better resourced censuses, no results were released until more than two years after enumeration.

He noted that the independence of statistics and statistical research in South Africa is the primary aim of the new Statistics Act, which had passed through Cabinet in draft form and flowed from two years of consultation between Stats SA – previously Central Statistical Services – and the new more broadly based interim Statistics Council. This Act will create an agency entirely autonomous in its professional aspects, accountable to government only for its administrative and financial efficiency.

The advent of democracy has meant that Stats SA is now better equipped academically and professionally to tackle demographic research. The enlarged Statistics Council has facilitated a livelier and more vigorous engagement with professional communities and stakeholders; and Stats SA is able to make use of international consultants and attract specialist staff, in particular from other parts of Africa.

Turning to the census, Dr Orkin noted that this had been very different from its predecessors. For the first time in 25 years, no part of South Africa was excluded from the count – as the TBVC states had been during the apartheid era. The census also employed a new and more appropriate methodology. By contrast with 1991, the '96 census questionnaire was developed in consultation with a reference group, and had been designed around the typical South African respondent – black, female, illiterate, middle-aged and living in a rural area. It was then tested extensively, and translated into all eleven official languages. The enumeration itself was black-led, an important factor in securing high levels of participation and overcoming black South Afri-

cans' historical distrust of the census process. The ratio of supervisors was doubled; and enumerator training increased from one to three days.

Most importantly, the census employed a uniform 'ground-based' methodology across the whole country. Based on a prior countrywide demarcation of enumerator areas with 100-200 dwellings, the aim was to gain access to individual households everywhere – whether in Houghton, squatter camps, or deep rural areas. By contrast, the 1991 census had relied on demographic modelling to calculate overall totals by population group. For example, in 1991 only 17,9 million Africans were actually counted in an estimated total of 30 million, because the ground count did not cover the former TBVC states; 'sweeps' were done without demarcation in rural parts of other self-governing territories; and elsewhere, particularly in informal settlements, aerial photographs were used to count the number of dwellings, followed by small-scale surveys.

With the night of October 9/10 as the reference point, 100 000 enumerators gathered data in 86 000 demarcated enumerator areas covering the whole of South Africa, using questionnaires in the language of the respondents' choice. Given a choice of

For the first time in 25 years, no part of South Africa was excluded from the count

Stats SA

SOUTH AFRICA'S POPULATION: CENSUS '96
Final and preliminary estimates

PROVINCE	PRELIMINARY ESTIMATES		FINAL ESTIMATES	
	Numbers	%	Numbers	%
Eastern Cape	5 865 000	15,5	6 302 525	15,5
Free State	2 470 000	6,5	2 633 505	6,5
Gauteng	7 171 000	18,9	7 348 423	18,1
KwaZulu-Natal	7 672 000	20,3	8 417 021	20,7
Mpumalanga	2 646 000	7,0	2 800 711	6,9
Northern Cape	746 000	2,0	840 321	2,1
Northern Province	4 128 000	10,9	4 929 368	12,1
North West	3 043 000	8,0	3 354 825	8,3
Western Cape	4 118 000	10,9	3 956 875	9,7
South Africa	37 859 000	100,0	40 583 574	100,0

Source: Statistics SA

Since an undercount is an inevitable feature of any census, it is essential to calculate the proportion of people missed in the actual enumeration ... Stats SA put the final national undercount rate at 10,7%

Stats SA

being interviewed or completing questionnaires themselves, most respondents were interviewed in their own homes.

Since an undercount is an inevitable feature of any census, it is essential to calculate the proportion of people missed in the actual enumeration. The use of a nationwide post-enumeration survey (PES) conducted immediately after the census, to calculate the undercount, was another significant point of difference between Census '96 and the 1991 census. In the latter, the PES was restricted to formal areas and was conducted six months after enumeration; and in any case the final estimate of the size of the population was based on demographic modelling. The count on the ground was adjusted to model estimates. One of the strengths of the 1996 PES, according to Dr Orkin, was that it provided an empirically based method – using the best of the field staff, and closer supervision – for adjusting the raw count. It was pointed out, however, that some statistical analysts had argued that the PES itself could possibly have repeated biases in the original count because analogous difficulties might have been experienced.

The PES was carried out in November 1996, drawing on a countrywide sample of 800 enumerator areas. A short questionnaire was administered to all households in these areas. On the basis of the PES respondents' reports of who were missed or counted, the preliminary estimates were calculated. For the final estimates, however, a much more searching procedure was instituted. Some 340 000 individual records were then revisited, to check whether respondents' claims in the PES about which members of the household had been counted or missed in the original census matched the raw data gathered by the census. It is notable that 78% of individuals were accurately matched through the PES (compared to 30% in the 1991 PES), despite the fact that 50% of all South African households have no official or formal

address. However, it was impossible to match people in some highly mobile groups, such as hostel dwellers.

Stats SA put the final national undercount rate at 10,7%, after the painstaking process of matching 340 000 records as mentioned above. The 'undercount rate' is the difference between the final estimate (the 1998 figures) and the raw census data, expressed as a percentage of the final estimate. The final estimated rate was markedly higher than Stats SA's preliminary (1997) national estimate of 6,8%. Nevertheless, universally accepted methodologies were used in the calculation of the preliminary estimates; and valuable lessons were learnt from this exercise which will help in future census-taking (for example, the fact that in rural areas, people overstated those who were actually counted – a point discussed more fully below). The undercount of 10,7% in Census '96 is similar to or better than in other intermediately developed countries like Argentina and Morocco, and compares favourably with the 1991 average of 11% for the three minority groups and 17% for Africans, achieved in those parts of the country where counts were actually done.

Adjustments made on the basis of PES findings account for many of the key differences between the preliminary and final results.

The effect of adjustments for undercount can be illustrated, for example, by the Eastern Cape: the original raw count showed a population of 5,6 million; but when the estimated undercount for the province rose from 4,8% to 10,6%, this raised its population to an estimated 6,3 million. In certain provinces undercount rates increased sharply in the final estimates, and were notably higher than the national figure. In Northern Province, the undercount rose from an estimated 3,9% to 11,3%; in KwaZulu-Natal, from 8,5% to 12,8%; and in Northern Cape, from 9,0% to 15,6%.

THE UNDERCOUNT RATE FOR OCTOBER 1996
Final and preliminary estimates

PROVINCE	PRELIMINARY ESTIMATE % undercount	FINAL ESTIMATE % undercount
Eastern Cape	4,8	10,6
Free State	6,4	8,8
Gauteng	8,7	10,0
KwaZulu-Natal	8,5	12,8
Mpumalanga	5,3	10,1
Northern Cape	9,0	15,6
Northern Province	3,9	11,3
North West	6,0	9,4
Western Cape	7,3	8,7
South Africa	6,8	10,7

Source: Statistics SA

By contrast, the Western Cape suffered a net loss in its estimated population between the 1997 preliminary results and the final figures. (It was the only province in which this happened.) The 1996 raw count of 3 612 835 was raised to 4 118 000 in the adjusted preliminary estimates, but in the final estimates the population dropped to 3 956 875; and as a result the Western Cape's share of the national population shrank from 10,9% in the preliminary estimates to 9,7% in the final estimates. Dr Orkin indicated that there were problems relating to the Western Cape's preliminary figures – though not the final estimate – and said that Stats SA was still investigating the matter.

According to Stats SA, there were two main reasons overall for differences between the preliminary and final results: some of the provincial processing centres – most notably in Northern Province, KwaZulu-Natal, and North West – had not completed or submitted all their returns by the time the sample for the preliminary estimates was drawn; and the undercount had been under-reported, particularly in rural South Africa.

A significant finding that emerged in analysing the PES was that rural people were

more likely to under-report household members who had been missed in the original enumeration. This is largely attributable to the fact that in rural areas – with larger families, lower levels of education, and a great amount of migrant labour – it is more likely that respondents giving household information in the census, and in the PES a month later, will be two different people; and the PES informant may not know or remember what was said originally.

Some key findings

Dr Ros Hirschowitz presented some key results from the census. These included data on population groups, the urban/non-urban breakdown, and findings on education levels, employment, skills and incomes.

Rather than using imposed apartheid definitions of race, the census asked respondents to categorise themselves, and fieldworkers were instructed not to challenge these self-perceptions. Accordingly, 77% of South Africans classified themselves as African, 11% as white, 9% as coloured, 3% as Indian. There was no reported hostility to the question being posed, possibly suggesting that most South Africans are

comfortable with informal racial classification. As a result of this new procedure there are some problems in comparing 1996 results with past figures, although the proportion who did not classify themselves by race was less than one percent.

According to the census, more than half of South Africa's people (54%) live in urban areas. Gauteng is the most urbanised province, with 95% of residents living in urban areas, followed by the Western Cape with 90%. Northern Province is the least urbanised, with only 10% of its people in urban areas. However, Hirschowitz noted that the legally proclaimed urban areas under the

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Stats SA



Educational qualifications and gender clearly affect occupational opportunities and the chances of being unemployed

Stats SA

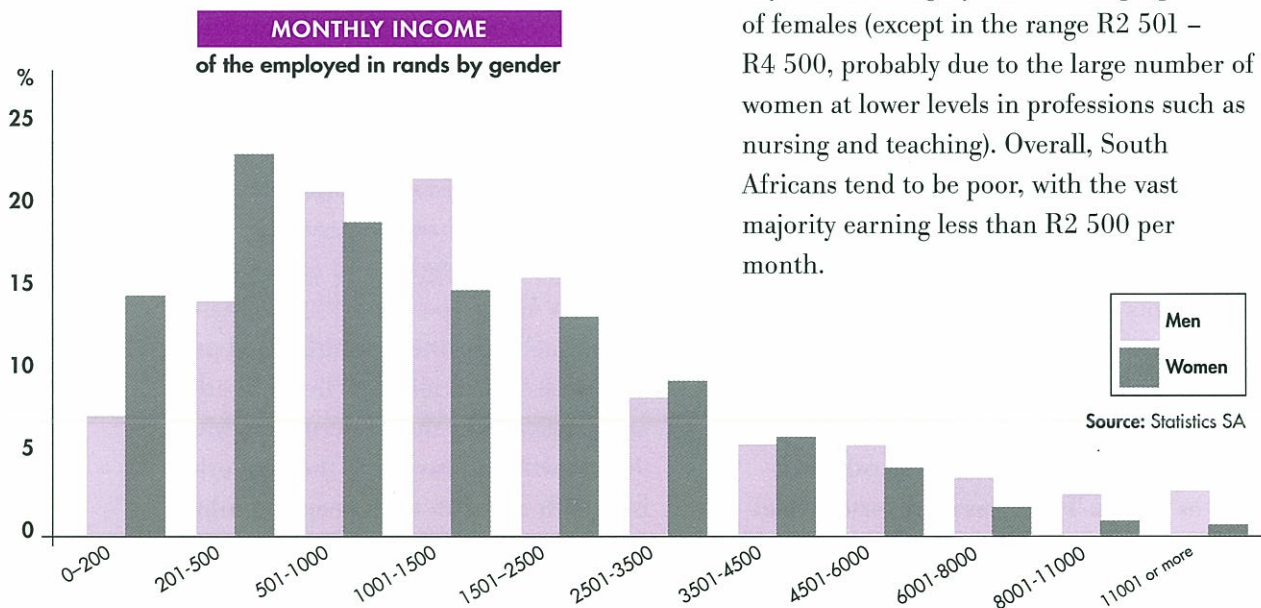
previous dispensation were still being used to define urban areas for Census '96. While this enables comparisons with other studies, such as the annual October household surveys, it also led to some anomalies. For example, the Northern Cape and Free State were classified as largely urban, despite their sparse and dispersed populations; while the Northern Province was classified as largely non-urban, although significant concentrations of people live in over-crowded conditions that are in effect more urban than rural. Commenting on the need to re-examine definitions of 'urban' and 'non-urban' when final boundaries for local authorities are established, Hirschowitz said that it would be desirable for these definitions to change only gradually, bearing in mind the need for historical comparability. In future, functional rather than formal urban and non-urban classifications could possibly be applied, based on Census '96 and incorporated in the geographical information system, as elaborated below.

Education statistics reflect the discriminatory practices of the past, with marked gradients across the population groups. For instance, the percentages of people of twenty years old or more with no education show a marked decline as one considers African, coloured, Indian and white population groups: 24, 10, 7 and 1% respectively.

Conversely, for those with higher education, there is a marked rise: 3, 4, 10 and 24% respectively.

Educational qualifications and gender clearly affect occupational opportunities and the chances of being unemployed, though this is an area that needs further research. Using the 'expanded' definition of unemployment (rather than the more recent official definition, which requires an unemployed person to have looked for a job in the previous four weeks), the census showed an unemployment rate of 34% for the country as a whole in October 1996. The unemployment rate for African women was 52%; for African men, 34%; but only about 4% for whites of both sexes. Among the employed of all races, 30% were in elementary (unskilled) occupations, with only 5% in the management echelon. However, as many as 50% of white men were in managerial, professional or technical occupations, with 11% of African men in this category. By contrast, twenty six percent of African men, 41% of coloured women and 57% of African women were working in unskilled occupations.

According to the census data on incomes among the employed, people who earn less than R500 a month are largely women, whereas men predominantly occupy the upper income categories. In general, as income increases, the proportion of males in any income category exceeds the proportion of females (except in the range R2 501 – R4 500, probably due to the large number of women at lower levels in professions such as nursing and teaching). Overall, South Africans tend to be poor, with the vast majority earning less than R2 500 per month.





How reliable are the census data?

Despite some problems the 1996 data are probably close to the correct magnitudes in general. However, in a number of important areas the statistics need to be stabilised through crosschecking with other sources, or require further research.

A major theme of Stats SA's presentation and the subsequent discussion at the roundtable was the unexpected nature of some of the census findings, and related questions about the reliability of information in certain key areas.

Several of the issues below, especially coverage of possible undercounts in certain categories, were identified by the task team constituted by the Statistics Council in its review of Census '96. At the same time as recommending the results for official publication, the Council set up a research process to investigate the issues towards improving the implementation of Census 2001.³

African males missing?

The census shows a total of 14,9 million African males, compared with 16,2 million African females. Some analysts, including Charles Simkins and Lawrie Schlemmer, have argued that a substantial number of black males may be missing from these figures – possibly up to half a million – as the masculinity (or sex) ratio seems too low for the black South African population. Large numbers of black men could possibly have been missed in the count because they are a mobile group, living in hostels or other temporary accommodation, or as single households.

On the sex ratio for the population as a whole, the final estimate for 1996 is that females comprise 51,9% of the population, significantly higher than the projected figure of 50,5% based on the 1991 estimates. Professor Schlemmer has pointed out that

demographers expect an excess of females in highly developed societies with high longevity, but a sex ratio of nearly 52 females to 48 males is difficult to credit in a developing society of moderate longevity like South Africa. If true, Professor Schlemmer's assessment might generate a concern that up to one million black men may not have been counted. However, Stats SA drew attention to the fact that the sex ratio actually measured in Census '96 was surprisingly close to that measured in the 1970 census, after adjusting for the respective numbers of immigrant males (notably miners): so that the modelled sex ratios invoked by Professor Schlemmer and other analysts in the intervening years might have been too high all

In a number of important areas the statistics need to be stabilised through crosschecking with other sources, or require further research

Stats SA

CENSUS '96 : PHASE II Some issues for further investigation

The Census Evaluation Task Team appointed by the Statistics Council noted in its report on the final PES adjusted count that 'the first question asked about any population census is: Is its estimate of the size of the population correct?'⁴

It identified a number of issues for further investigation in Phase II. Among these was the reconciliation of the 1996 PES adjusted count with the results of demographic modelling by population group, in order to assess various matters including:

- the size of the undercount of men
- the size of the 0 - 4 age group
- the size of the white population
- the extent of international migration to and from South Africa.

These questions are discussed more fully in this section of the document, **How reliable are the census data?**

The task team noted that those using the PES adjusted census figures 'need to be made aware of these unresolved issues'.

^{3,4} The resolution of the Statistics Council regarding Census '96, and the report of its task team upon which the resolution draws, may be viewed on the Stats SA website: <http://www.statssa.gov.za>



COMPARISONS OF THE FINAL PES ADJUSTED COUNT FROM
CENSUS '96 AND PROJECTIONS FOR 1996 FROM THE
1991 DEMOGRAPHIC MODEL

POPULATION GROUP	PROJECTIONS FROM DEMOGRAPHIC MODEL IN 1991		FINAL PES ADJUSTED COUNT FROM CENSUS '96	
	Numbers*	%**	Numbers*	%**
African	32 119 000	76,3	31 127 631	77,4
Coloured	3 578 000	8,5	3 600 446	9,0
Indian	1 052 000	2,5	1 045 596	2,6
White	5 346 000	12,7	4 434 697	11,0
Unspecified/other***			375 204	
Total	42 096 000	100,0	40 583 573	100,0

Source: Statistics SA

* ROUNDED TO WHOLE NUMBERS

** THE PERCENTAGES ARE ROUNDED TO THE FIRST DECIMAL PLACE

*** THIS CATEGORY INCLUDES APPROX. 8000 PEOPLE, MAINLY IN THE NORTHERN CAPE, CLASSIFYING THEMSELVES AS GRIQUAS

Some analysts argue that a minimum of 300 000 whites appear to be missing – they either weren't counted originally and were missed again in the PES, or else have left the country

Lawrie Schlemmer

along. Since the roundtable, Professor Simkins has arrived at a sex ratio midway between the measured and the previously modelled ratios, and consonant with an estimate that some 400 000 black men may not have been counted. However, this is also based on demographic modelling and its underlying assumptions regarding fertility and mortality.

Children missing?

The number of children in the 0 – 4 age group seems too low. The 1996 census shows 4,4 million children in this age category, compared with almost 4,7 million (11,6%) in the age category 5 – 9 years. According to Stats SA, given the fertility estimates from the census data, the proportion of 0 – 4 year olds should be at least the same as the proportion of 5 – 9 year olds, after corrections for misreporting. This discrepancy adds to uncertainties about the total fertility rate. However, under-reporting of children in the youngest age-category is a well-known feature of censuses in Africa. Stats SA anticipates that a proposed degree of smoothing among the young age categories, without adding to the overall total, will be agreed upon in further research.

Whites missing?

The statistics that have occasioned the most comment are the figures for the white

population: 4,4 million or just under 11% of the total as against 5,1 million or 12,7% in the 1991 estimates, projected to 5,3 million in 1996. Even after various technical adjustments are made, some analysts argue that a minimum of 300 000 whites appear to be missing – they either weren't counted originally and were missed again in the PES, or else have left the country.

According to Stats SA, further research at a fine geographical level in the Census '96 data will be necessary to check whether the PES may have underestimated the white undercount, amongst other things because of problems faced by enumerators in penetrating the security systems of houses, blocks of flats, and townhouse complexes; and one lesson learnt from this is that the next census must work through the bodies corporate of blocks of flats and townhouses. One participant in the roundtable pointed out that white enumerators might have been more successful in getting beyond security walls. He also believed that Stats SA had not attended sufficiently to possibilities for recruiting white enumerators, and that on 9/10 October about 500 enumerator areas in Johannesburg – for example – were without interviewers.

The missing numbers may also reflect undeclared emigration by whites who have left the country without informing the Department of Home Affairs. According to Stats SA, statistics from the five main receiving countries suggest under-reporting of emigration from South Africa by a factor of two to three. Canadian and British authorities, for example, report three times as many South African immigrants to these countries as those who tell the South African authorities they are emigrating. Cumulative emigration since 1976 may thus be 400 000 to 600 000, rather than 200 000 which is the official figure. There may well have been further significant losses in this respect since 1996.

Urban-rural controversy

Findings on the urban-rural split are unexpected. According to the census more than half of the population (53,7%) were living in urban areas by 1996, while estimates by forward projection from 1991 had put the urban population at less than half (48,3%). Stats SA contends that the difference can be partly explained by the fact that the 1991 undercount adjustments boosted the rural African population by about 3%. Arriving at the facts of the matter is further complicated by problems noted earlier in the definition of urban and rural categories. New research planned by Stats SA will try to establish which South Africans are *functionally* urban by looking at factors such as individuals' income, type of work, place of work and previous residence, using small-area statistics in the new geographical information system (GIS).

In any event, it is extremely important to recognise that the urban-rural distinction is not a fixed description of people's life experience. For example, while two thirds of African young men under the age of 19 live in non-urban areas, 60% in the 30 – 34 age cohort live in urban areas, indicating a massive migration in search of work. As people's working lives tail off, there is a movement back into non-urban areas.

CDE would argue that there is a pressing need for a national study of urbanisation and migration. We currently have little accurate knowledge of the rate, scale, or pattern of migration in South Africa. For a country in which only about half of its population is urbanised, this is an enormously important demographic factor.⁵ The Census '96 data, which canvassed respondents' present and previous addresses, now provide a valuable basis for such a study.

Illegal foreigners missing?

On the vexed question of the number of foreigners illegally in South Africa, the census can provide no answers – because it didn't attempt to probe this. How many 'self-naturalised' citizens there are, who told enumerators they were South African when they were not, is anyone's guess.⁶ Dr Orkin argued that no census can be expected to establish the number of illegal immigrants – this is a task for the Department of Home Affairs, immigration authorities and the police. What the census did report is that some 814 000 people are not South African-born, and 405 000 said that they are not South African citizens. Clearly these categories are likely to overlap to some extent. All that can be said is that fewer than half a million people are prepared to indicate that they aren't South Africans citizens, whether here legally or illegally.

Income missing?

In general a census is a notoriously poor source of income data. Professor Simkins argued that no census can provide the necessary detail, the required degree of accuracy, nor sufficiently up to date information on incomes. While it is important to include these kinds of questions, not too much credence should be attached to the answers, which require careful interpretation. A number of expert participants felt that information on incomes in Census '96 should be treated with caution. Professor Simkins pointed out that the problem can be illustrated by comparing figures for personal income among the employed provided by the census with the national accounts for 1996. According to the census, as reported in *Census in Brief*, all income of employed people added up to R244 billion for employed persons (ages 15 – 65). On the basis

There is a pressing need for a national study of urbanisation and migration. We currently have little accurate knowledge of the rate, scale, or pattern of migration in South Africa

CDE

⁵ This point was stressed in CDE's recent publication *South Africa's 'Discarded People': Survival, Adaptation, and Current Challenges* (CDE Research no. 9, October 1998).

⁶ CDE reported in its publication *People on the Move: A New Approach to Cross Border Migration in South Africa* (CDE Research no. 6, June 1997) that illegal immigrants are estimated by various sources to be anywhere from 2 million to 8 million people at the most extreme.

In general a census is a notoriously poor source of income data ... CDE would caution people in government, officials and other analysts to be very careful about drawing solely on the census's limited income data as a basis for characterising inequality in South Africa

CDE

of the 10% sample, which contains further information on incomes among people not employed and 'additional household income', the total personal income measured by the census is estimated at R272 billion. However, the national accounts for 1996 show personal income as R453 billion (*Reserve Bank Quarterly Bulletin*, June 1999). Reasons for this include the fact that the census didn't measure the incomes of people in institutions, hostels and compounds; many respondents didn't specify their income; people may have understated their incomes deliberately for various reasons – some probably with an eye on their anticipated tax submissions; and the lack of data on the large numbers of whites, and black men, who appear to be missing. Furthermore, employed people do not include additional payments for medical aid, housing and pensions made by their employers, but these are included in GDP. For these reasons it is obviously unwise to aggregate incomes across households without first imputing values to the missing or under-stated instances in order to correct for these effects.

Another reason for treating the census findings on income with caution stems from an unavoidable but major methodological limitation: the questionnaire asked the respondent for each household to estimate the incomes – from all sources – of other household members. In many cases the answers were likely to be highly impressionistic.

Ann Bernstein argued that it could be misleading to take the census findings on incomes at face value as indicators of poverty, not only because of these uncertainties, but

also because they do not adequately cover non-cash earnings. Respondents were asked about all sources of income but many might not have translated earnings in kind into a monetary equivalent, particularly in the case of non-urban households and domestic workers. While detailed questions are not appropriate in a census – for example, teasing out the value of farm produce in rural subsistence households – this means that important information was missed. This must also apply to the various benefits that many domestic workers receive over and above their wages. According to the census findings, domestic service is one of the four largest employment sectors in South Africa, with over a million people employed in private households.

Poverty is unquestionably a grave problem in South Africa, but CDE would caution people in government, officials and other analysts to be very careful about drawing solely on the census's limited income data as a basis for characterising inequality in South Africa. Being aware of this problem, Stats SA asked a range of questions on households and individuals in Census '96 to cover other components of poverty in addition to income, for example access to infrastructure, living conditions, and access to education. Modern analyses of poverty are conducted both in 'money-metric' terms (where income is the central variable) and in 'participation' terms, where access and use of services, labour market situation and other variables are relevant. The census data will support analyses of both types.

The panel discussion

Lawrie Schlemmer commended the excellent conceptualisation and methodology of the census, which embodies international best practice and puts South Africa ahead of most countries. However, there are real problems in the minutiae of data collection.

These include factors such as differing cultural definitions of family relationships (for instance, ways in which respondents understand the term 'mother', which affects fertility and mortality data); access to high-security middle-class residences; and

'difficulties of place', for example in politically contested areas where activists mobilised against the census because they wanted local people to be counted as residents of one province rather than another.

There has been alarmingly little public debate about some of the more surprising census findings. Have over 2 million people moved to urban areas since 1991? How accurate were the 1991 estimates of the urban/rural divide? Does South Africa really have fewer than 500 000 non-South African citizens? Have many more whites left the country than emigration statistics suggest? This is vital information for government. (For example, the number of whites in the country is a matter of considerable significance for the revenue service.) These findings are also of critical importance for South Africans' understanding of their society. It was deplorable that the media had failed the public by not recognising the importance of the information that had been released, and therefore did not pick up the issues.

Statistics such as these are politically charged, and since the available information is not firm enough, the danger is that at present people can 'go into an orchard of alternative estimates' and pick what suits them. It is to be hoped that some areas of uncertainty will be reduced in September 1999, when the Statistics Council expects to hold a major conference as part of Phase Two in the evaluation of the census statistics.

While Stats SA had done its best under difficult circumstances, Schlemmer said, it had fuelled uncertainty by releasing and then defending the provisional population figures so vigorously, only to make significant changes in the final estimates to compensate for the undercount. Ironically, Stats SA's honesty in acknowledging various difficulties around the 1996 enumeration has contributed to the present climate of uncertainty.

COMPARISON OF THE FINAL POPULATION ESTIMATE FROM CENSUS '96 WITH MID-YEAR ESTIMATES FOR 1996 FROM THE 1991 DEMOGRAPHIC MODEL

VARIABLE	1996 MID-YEAR PROJECTION FROM 1991		FINAL ESTIMATE FROM CENSUS '96	
	Numbers*	%**	Numbers*	%**
Gender: Male	20 838 000	49,5	19 520 887	48,1
Female	21 258 000	50,5	21 062 685	51,9
TOTAL	42 096 000	100,0	40 583 753	100,0
Area: Urban	20 332 000	48,3	21 781 807	53,7
Non-urban	21 764 000	51,7	18 801 765	46,3
TOTAL	42 096 000	100,0	40 583 753	100,0

Source: Statistics SA

* ROUNDED TO WHOLE NUMBERS
 ** THE PERCENTAGES ARE ROUNDED TO THE FIRST DECIMAL PLACE

A major cause for concern is that the findings reported by Census '96 appear to discredit earlier censuses, and the 1991 exercise in particular. This leaves us without a reliable base line for projections, and makes comparisons of socio-economic circumstance over time very difficult. For example, because we do not know what to make of estimates based on the 1991 census, we are now unable to calculate the tempo of recent urbanisation.

We are 'at sea', Professor Schlemmer said, and the necessary precision and detail to 'firm up and get an anchor' cannot be provided by a system of periodic full censuses. He therefore urged Stats SA to develop more frequent, sample-based censuses, perhaps a strengthened version of the October Household Survey. Among the advantages of sample-based censuses is that levels of statistical error can be estimated; they allow for greater attention to the quality of fieldwork; and fieldworkers can be trained to handle reporting problems with greater care and sophistication.

Jeff McCarthy emphasised that most users of the census data are interested in predictions that can be derived from the results. They want to know precisely which people are where, with what attributes, and in what numbers, not only at the time of the census but – even more importantly – when projected into the future. This information is required not only for South

There has been alarmingly little public debate about some of the more surprising census findings

Lawrie Schlemmer

The census's credibility will be tested in important ways when users start to draw on and examine its detailed local information

Jeff McCarthy

Africa as a whole, but for various sub-regions right down to the small enumerator areas. The private sector needs this information to determine market sizing; the public sector, to maximise cost-effectiveness and improve service delivery. But prediction means projection, and this raises the question of how to 'project backwards' to earlier censuses, so as to compare the present with the past in order to project into the future. The fundamental implication is that as much effort must go into correcting the errors and inaccuracies of the past as in building confidence in the present data.

The new geographical information system (GIS) is a tool that puts South Africa ahead of many other countries. However, the transferability of its data between different software systems is a problem that requires attention. (Stats SA

noted subsequently that it uses the government's standard GIS platform as set by the Surveyor General, with which proficient professional users have had lengthy experience.) It is also a matter of concern that this technology may be relatively inaccessible to South African social scientists and the general public, who are much less numerate than their counterparts elsewhere. Readily accessible, low-cost products not only in electronic formats but also in print are essential in order to encourage the use of statistical information and promote greater numeracy. In response to this point, Dr Orkin said that an extensive range of free or low-price print products would be available, as well as the possibility to commission print tables at various geographical levels on variables specified by the user.

Finally, Professor McCarthy warned that no matter how sophisticated the production and manipulation of data may be, it is useless unless it tallies with common sense observations and the daily experience of users. 'Ground-truthing' will be an important element in assessing the 1996 census. The census's credibility will be tested in important ways when users start to draw on and examine its detailed local information – once this becomes available.

Andrew Donaldson began with a 'word of fiscal gratitude' to Stats SA, who had conducted the census 'at considerably less cost than the IEC would lavish on the 1999 elections – and very much less than the IEC would have liked to spend'.

A participant observed wryly that the census had told us with a fair degree of accuracy a lot of things we didn't know before, while the election would tell us something we knew already. Taking this up, Mark Orkin pointed out that while the census brought in up to 50 pieces of data on about 40 million people, the 1999 elections would bring in only one piece of

The geographical information system

In a computer-based geographical information system (GIS) each piece of information/data stored in the computer is linked to an exact geographical co-ordinate. This allows for quick calculations of the numbers or cases applicable in different areas, and the presentation of data in map or tabular formats.

A GIS covering the entire country was developed in the course of 1997 and 1998 by Stats SA in association with the Department of Land Affairs, the Independent Electoral Commission and others.

The definition of enumerator area boundaries for Census '96 was largely based on conventional maps, aerial photographs, sketch maps and text descriptions. The country was divided into some 86 000 enumerator areas, but in some cases unoccupied areas were not divided up and mapped in the first instance. However, after the GIS was developed it became possible to consolidate and formalise demarcation for the country's whole surface area. This enabled Stats SA to evaluate the demarcation undertaken for Census '96, and the adequacy of coverage in the enumeration process. According to Stats SA it is unlikely that any populated areas were missed by both the census and the PES.

The GIS database will play a major role in generating data products from Census '96, in the inter-census survey programme, and in planning and administering future censuses.

data from some 20 million voters, for twice the cost – and that census respondents had been visited in their own homes rather than having to make their way to an assigned location.

The census data, Donaldson said, will be an invaluable resource for government in a great many ways. The results will be crucial to the distribution of fiscal resources to provinces, and central government's support for municipal services. The state now has better information on specific needs – for example, in terms of the disability statistics for provinces. Illustrating possible applications of census data in policy development and planning, Donaldson noted, for instance, that information on sectoral job patterns showing that some 80 000 people work in agriculture in the Northern Province signals an area where there could be very considerable returns on the development of sound extension and support services.

Data on household infrastructure – electricity, water, telephones and sanitation – will provide a valuable base line from which the state's delivery of services and the impact on poverty can be measured. Research on vital statistics, of the kind now being conducted by Stats SA, will allow government and other researchers to do better work on the demographic, social and economic implications of AIDS and its impact on employment.

In all cases it is important to track developments over time for planning purposes – including population movement between provinces – and to do so more frequently than through a five-yearly census. Comparability and continuity with census surveys must be built into the October Household Survey and other interim measures.

Donaldson also noted that the census findings would strengthen concerns about the role of labour market trends in reinforcing economic inequality. In particular, he said, it is striking that 50% of whites

Using the census data

In the private sector, the census is an important source of data for market research and the development of business and strategic plans.

The census findings have important implications for provincial funding allocations from central government, and intergovernmental transfers to local government.

Census data will be an essential sectoral planning tool in government, providing a nation-wide guide to needs and the status of services down to enumerator area level.

The census provides a basis for more informed and targeted policies on income maintenance programmes, such as pensions, welfare and child grants.

Data on household services provide a potential base line for determining the impact of state programmes on poverty and service delivery.

The co-ordination of data use must be a top priority in government. Different departments have been working with different projections from a variety of sources. There is an urgent need to establish the use of reliable and comparable data as a base line across sectors for effective planning. Better cross-sectoral planning can greatly reduce the misallocation of state resources.

but only 18% of the African population are employed. Among those who are employed, 50% of whites and, once again, only 18% of Africans have jobs in manufacturing, management and the professions.

Dave Awnit began by observing that while the '96 census is a most important resource, there is a great need for more recent data, and for a larger number of data points in order to ascertain trends. Statistics derived from a periodic five-yearly census are difficult to interpret and use in rapidly changing fields. For example, to understand and manage health care in both the private and public domains, one must deal with trends which are literally two or three months old, most dramatically in terms of the impact and progress of the AIDS epidemic.

Sound statistical projections are

It is important to track developments over time for planning purposes – including population movement between provinces – and to do so more frequently than through a five-yearly census

Andrew Donaldson

Caution has to be exercised in drawing conclusions from the census. The more surprising the conclusions, the more likely they are to be wrong

Charles Simkins

essential to ensure appropriate approaches to health care in both the public and private sectors. Largely because of apartheid, South Africa's health infrastructure is out of kilter with where the people actually are, where they are going and where disease is generated. The census data can help in addressing this situation. We need to understand urbanisation trends, which have a significant impact on disease. Other data, for example the availability of clean water, are also directly relevant to public health policy and planning. It is extremely important for policy researchers in general not to work in narrow sectoral confines but to correlate data across a variety of fields such as health, education, and access to water and other services.

More broadly, from a business perspective it can be said that there are huge unserved markets in South Africa that require cleverly constructed and innovative products. The key is to direct resources to the right areas, and the census findings can help to identify these.

Charles Simkins (who designed CDE's demographic model, serves on the Statistics Council and was a member of the task team that reviewed the census), stressed the need for 'patient detective work' on demographic information. No data sources are entirely reliable. For instance, despite all the care taken in the census, the under-enumeration is estimated at 10,7% and that estimate is itself subject to a degree of uncertainty. The census is a large and important piece of evidence, but has to be cross-checked against other available information such as the October Household Survey and the Stats SA employment statistics.

Caution has to be exercised in drawing conclusions from the census. The more surprising the conclusions, the more likely they are to be wrong. An example is the urbanisation rate, where comparisons between censuses are

complicated by the fact that areas are redefined in the course of the urbanisation process.

An historically defined sense of what's going on is needed, against which to check current data. Each census changes our view of preceding censuses, implying a need to reconstruct South Africa's demographic history since 1970 through debate and research carried out by a number of different demographers.

Public access to the census data is an important issue. Electronic media are not necessarily the optimal way to convey information to the public at large, and printed volumes should be placed in public and academic libraries, as happened with previous censuses. The cost of census products also needs to be kept under review.

Research possibilities raised by the census include the spatial distribution of the population, where apartheid patterns will be slow to change. Trends in the labour market and the development of human capital will have to be kept under close scrutiny, as the dominant source of inequality in SA is in the labour rather than the capital market. This will entail looking both at income generation and markets for the private sector, and at the labour market conditions which workers face and are likely to face in future. Developments in education and training must be closely monitored.

Finally, Simkins noted that the census has laid the basis for a more precise approach to income maintenance programmes such as pensions, disability and child grants. The challenge is to determine the optimal combination of programmes so as to make the best use of available funds to relieve poverty. Income maintenance has been a vital factor in maintaining stability in the South African social system since the 1930s, and we now have important new information to feed into our new social contract.



A full or sample-based census?

While roundtable participants paid tribute to Stats SA's conduct of the census, much of the discussion revolved around the question whether this form of data gathering is appropriate to South Africa's needs.

Business, and in particular the advertising and market research industries need timely and accurate information. In the words of one private sector participant, her organisation in advising its clients 'like every other company, draws on seven or eight different sources, extrapolates, and hopes to God that the figures make sense – because there are no reliable data on just about anything in this country'. Census '96 was therefore to be welcomed as a new beginning, she said; but while it provides valuable information for business, it fails the test of currency – some figures were out of date even before they were published. Of course, it is important to distinguish between two different data types: some situations change more slowly, for example age distributions, while others change more rapidly, for example access to electricity when cables are being laid.

Why rely on a one-off count? A number of participants argued for a continuous sample-based census staffed by professionals; while others raised the possibility of register-based data-gathering. A sample-based census could aim to be very comprehensive, covering most people in the country every 10 years. It would certainly have to be a larger operation than the existing October Household Survey, which with 20 000 households still doesn't have a large enough sample to allow analysis at the level of the average local authority. A rolling survey would provide continuity and strengthen confidence in the data, avoiding the 'strange jumps' in adjusted estimates two or three years after the count. Enumerating a sample of, say, 400 000 instead of a full census of 40 million or more, Lawrie

Schlemmer pointed out, would enable the quality of fieldwork and the precision of household data to compensate substantially for statistical error, which can be estimated in any case.

A sample-based census would lend itself to a range of panel studies following the same people over time. Such panels could, for example, throw light on how the poorest 10% of South Africans cope; provide more information about the one million single-person households; help us to understand how education affects employment prospects; as well as a host of other issues.

A continuous sample-based census would also allow for the development of more professional enumerator teams. While the three days of training given to enumerators in the 1996 census was an improvement on past practice, there must still be some doubt about the quality of the enumeration. In order to satisfy RDP requirements, when money was allocated for Census '96, most of the enumerators taken on were previously unemployed; many had never worked before, and it was to be expected that they were unaccustomed to the required work habits. Experience with large surveys suggests that for any survey team employed on a one-off or periodic basis, an attrition rate of up to 40% may be expected. A really efficient survey requires time to select and develop able and committed staff – a process that is more suited to a rolling survey.

Proponents of a continuous sample-based census conceded that funding could be a problem, however, even though it might well be more cost-efficient than a periodic census, and costs could be partly covered by savings on a full count. Charles Simkins argued that it would require a population register as its frame, which would be very costly to establish and maintain.

Responding to the debate, Mark Orkin said there is no simple solution to the issue.

Why rely on a one-off count? A rolling survey would provide continuity and strengthen confidence in the data

*Roundtable participant,
private sector*

No meaningful discussion of the form of census-taking in South Africa can ignore the limited resources available

Mark Orkin

In a full census, a substantial lapse of time is unavoidable before final results can be published. On the other hand, while a sample-based survey could provide more timely information, Orkin argued that it would be extremely difficult to achieve a defensible sample in an unevenly developed country like South Africa, and it would be risky to base provincial funding allocations and government planning projections on sample-based substitutes for a periodic census. At least one, if not two, full censuses would be needed before the GIS developed out of Census '96 would be of sufficiently uniform quality and detail to generate an uncontested sample frame. Government departments need data on population size, location and age distribution down to local authority level, which is the key user unit for planning purposes – and this requires a larger census-type activity. For such reasons, both Australia and Canada still sustain five-yearly full censuses.

Orkin nevertheless acknowledged that there is a very strong case for exploring alternatives. There is a mix of needs, and a mix of possible instruments, that will require more sustained discussion with stakeholders. Stats SA recognises that panel studies are the best way of measur-

ing labour force activity, for example; and these are on the agenda as part of South Africa's commitment to the IMF's special data dissemination standards, to track the labour force with repeated visits.

However, no meaningful discussion of the form of census-taking in South Africa can ignore the limited resources available, Orkin said. South Africa spent about R10 a head on the 1996 census, as against R30 a head in Australia and R60 a head in the United States. As for labour force surveys, Stats SA had proposed four studies a year of 10 000 households, compared with Australia and Canada, where labour force studies cover 30 000 to 50 000 households a month. Government belt-tightening had now forced Stats SA to cut back its plans to only two labour force surveys of 10 000 households per year, though it is still seeking funds for a larger sample.

These labour force surveys were due to be panel studies, i.e. involving repeated visits to households. The shortage of funds means that Stats SA will have to trade off its October Household Survey against the labour force surveys. Elements from the household survey will probably be tagged on to the labour force surveys, piggy-backing on labour statistics to gather data on other issues.

Drawing on other data sources

A number of roundtable participants urged Stats SA to develop the capacity of national, provincial and local government to collect information continuously while engaged in their normal business, not only to enrich the country's database but also to provide a crosscheck for census-based statistics. The revenue service, electricity suppliers, life assurance companies, hospitals and retirement funds can all be tapped for vital statistics; while local authorities' involvement in housing

enables them to record population movements in their areas on an ongoing basis. A cross-cutting process of this sort could help to ensure that Stats SA gathers reliable information of the kind needed by policy-makers. As in other countries, officials could be placed in key government departments to collect data.

However, other participants warned against an uncritical reliance on agencies such as these to provide supplementary data. All data sources must be treated with



Products and costs

The census results are published in a variety of print and electronic formats.

Participants in the roundtable questioned Stats SA on the costs of census data, and how this might limit access by the general public, non-government organisations and other potential users. In response, Dr Orkin argued that the accessibility of the data was likely to revolutionise South Africa's statistical culture.

A range of public and academic libraries will receive print products free – and as a result of the roundtable discussion Dr Orkin undertook to increase the number of such institutions. Free products available to the general public include *Census in Brief*, with 88 tables and graphs.

Printed products costing a few hundred rand include national and provincial age tables (to local authority); and other primary tables by urban/rural, gender and population group. Users may order tables drawn to their own needs on Census '96 variables, yielding 'community profiles' for specified geographical areas from enumerator areas upwards.

Electronic products include a 10% national sample, and provincial samples; national and provincial community profile databases; and primary tables for over 800 local authorities.

Costs of electronic products vary according to user category and for multi-user and single-user licenses. For example, the national 10% sample of unit records on CD-ROM will cost a business with a multi-user licence R100 000; a university R50 000; a single-user consultant R20 000; and a single-user NGO R10 000. Charges and services are also subject to negotiation.

Charges must be seen in the context of Stats SA's decision to spend R6 million to develop the product base. Stats SA's initial prices were comparable to those in Canada and Australia, but were cut drastically on the recommendation of the Statistics Council's task team, who argued that South Africa's circumstances required a different pricing structure.

Information about Census '96 products is available from Stats SA.

User Enquiries: (012) 310-8911
e-mail: info@statssa.pvw.gov.za
Website: <http://www.statssa.gov.za>

There is an urgent need for government departments to establish the use of reliable and comparable data as a base line across sectors

*Roundtable participant,
public sector*

caution; and controlled processes would have to be put in place. For instance, because local authorities have an interest in exaggerating figures that may affect their funding by central government, they can be unreliable as information sources – questionnaires sent to local councils countrywide by the Bureau for Market Research in 1996 had yielded a national population of more than 80 million!

Responding, Mark Orkin noted that Stats SA had recently sourced several million rand from the Swiss Development Corporation to build financial reporting capabilities in local government. Staff had been trained to visit smaller or more dilatory councils to teach them how to keep records and complete the forms the

Finance Department needs to control budgeting. In the field of vital statistics, Stats SA collates data on births and deaths it receives from other departments; and it is currently engaged in an intensive process to expand and refine registration systems. A new questionnaire for births is being developed to gather information at clinics or hospitals where children are born, while data for other births will continue to be collected when they are registered with Home Affairs. For deaths, a new system of classification is to be instituted; Stats SA is looking at ways to improve the completion of death certificates; and it is also investigating various alternative sources of information.

According to Orkin, the longer-term

target internationally is to move away from census or survey-based data gathering towards register-based statistics. 'Tidy democracies' like Sweden and even certain Eastern European countries have been able to abandon censuses and do periodic dips into their registers instead. However, South Africa has a long way to go before arriving at that point

A number of participants in the roundtable stressed the importance of authoritative information on demographic trends in order to match delivery with resources and ensure that money is not wasted. Reliable data on urbanisation and mortality trends, for example, could help to

avert the approval of projects in areas where houses would be standing empty in five years' time.

More generally, participants noted that there is an urgent need for government departments to establish the use of reliable and comparable data as a base line across sectors. Different departments currently use a variety of different projections, developed by consultants drawing on different information sources. The misallocation of state resources can be greatly reduced by cross-sectoral planning, which should also involve the private sector. The co-ordination of data must be a top priority in government.

Concluding comment by Ann Bernstein, executive director, CDE

South Africa must accord the highest priority to the generation of accurate and timely national demographic and income data. This is crucial for the country's economic and social development

Major uses for this data include sectoral planning in government, relating policy to needs and the status of various services; developing policy on the country's stock of human capital, education and training; unemployment and income distribution policies; intergovernmental transfers to provinces and local government; consumer research; and the development of business and strategic plans.

The new GIS-based information system provides government with an opportunity to plan and co-ordinate the allocation of resources and service delivery across sectors on the basis of local-level data so as to achieve maximum impact. The effective use of this resource must receive attention at the highest levels of government.

Census '96 marks a significant advance on earlier censuses in a number of respects, but South African demographic

and income statistics are still far from satisfactory. Important areas of ignorance persist. The apparent unreliability of historical data in South Africa means that trends and projections must be treated with great caution, and research is urgently needed to stabilise the data and correct errors as far as possible.

South Africa's demographic data must be firmed up. Further research is needed to resolve debates about even broad population figures such as the differences between the PES-adjusted and the modelled estimates for African males and for whites. We do not know how many South Africans emigrated between 1991 and 1996, let alone the number who may have emigrated since then. The biggest unknown continues to be the scale and nature of illegal immigration to South Africa, with potentially enormous consequences for development planning. Since no census can provide the necessary information in this regard, it is imperative to establish the numbers by other means, so as to arrive at some figures with a reasonable degree of probability.

South Africa must accord the highest priority to the generation of accurate and timely demographic and income data

Ann Bernstein



At this point we do not have a sufficiently reliable picture of population movements over time – not only for the Southern African region, but also between provinces, and from rural areas to cities. The census statistics for migration within South Africa itself still have to be evaluated and analysed.

While urban areas – and the metropolitan areas in particular – clearly continue to be the focus of population and economic growth, the rate of urbanisation requires further analysis and research, as does the degree of *effective* urbanisation. There are conceptual problems about the urban/rural distinction which the GIS based census data may help us debate.

The other side of the coin is that almost half of all South Africans continue to live in non-urban areas. These places are complex and varied in character; but the census data are important indicators of rural poverty and the extent and nature of rural development challenges. The country desperately needs an effective rural strategy as part of its national vision for economic growth and development. There is a dynamic continuum all the way from deep rural areas to the heart of the city, and strategies must be developed to deal with the realities of a countryside that is increasingly dependent on the urban economy, and where urban options are a central part of almost every rural person's life choices.

It is impossible to over-emphasise the need for accurate national data on population movements and urbanisation. Without this, policy approaches towards a wide range of socio-economic challenges will continue to be based on questionable assumptions, with no guarantee that resources will be allocated more efficiently in future than they were in the past. A

better understanding of urbanisation trends will have important consequences in many areas; from where social and physical infrastructure should be invested, to housing, land, water, health and transportation policies. Research analysing the census data on migration should be encouraged. CDE itself is currently engaged in a major study in this field.

More work on income statistics is needed. No census can provide the necessary detail, the required degree of accuracy, nor sufficiently up to date information in this regard. The inadequacy of the census data highlights the need to strengthen the country's data-gathering processes in an area of vital concern to market research, and for public policies aimed at poverty reduction and the redistribution of racial income shares.

Over and above the data that a periodic census can provide, business and government need a continuous supply of up to date information for effective planning. An urgent priority for government must be to ensure that Stats SA is in a position to sustain and extend its data-gathering activities, checking the census findings and tracking trends. Information from local, regional and national sources must be integrated; and the involvement of the private sector in socio-economic data gathering and analysis must be maximised.

While there is disagreement about the feasibility of a regular sample-based census, the arguments against it are not conclusive and this option needs to be considered seriously.

Scarce resources mean that hard choices have to be made. Government must commit itself to provide the necessary resources to ensure that policy choices for the country can be made on the basis of the best possible information.

Business and government need a continuous supply of up to date information for effective planning. An urgent priority for government must be to ensure that Stats SA is in a position to sustain and extend its data-gathering activities

Ann Bernstein

CDE's summary of key points

The apparent unreliability of data from earlier censuses means that trends and projections must be treated with caution, and research is needed to stabilise the data as far as possible

CDE

Census '96

- Census '96 marks a significant advance on earlier censuses in a number of respects. Its conceptualisation and methodology embodied international best practice, putting South Africa ahead of most countries.
- For the first time in 25 years no part of South Africa was excluded from the count – as TBVC states had been during the apartheid era. The census employed a uniform ground-based methodology across the country, aiming to count the members of every household. By contrast, the 1991 census relied heavily on demographic modelling to calculate overall totals by population group.
- A post-enumeration sample survey was undertaken to determine the degree of under- or over-count. After painstaking research, Stats SA put the final national undercount rate at 10,7%, considerably higher than its preliminary (1997) estimate of 6,8%. Improved adjustments for rural undercount led to key differences between the preliminary and final results.
- The 1997 preliminary estimates put the population at 37 859 000, markedly lower than expected. However, the final estimates released in October 1998 reflected an upward adjustment, putting the population at 40 583 574.
- Despite some problems the final data are probably close to correct magnitudes in general. However, in a number of areas the statistics need to be stabilised through cross-checking with other sources, or require further research.

Some areas for further investigation

- As the results diverge from earlier projections in important respects, this necessitates the re-evaluation of previous

censuses, and of 1991 in particular.

- The apparent unreliability of data from earlier censuses means that trends and projections must be treated with caution, and research is needed to stabilise the data as far as possible.
- The number of African men seems too low in terms of the sex ratio. Some analysts suggest that up to half a million males could be missing from the figures, and may have been missed in the count because they are such a mobile group.
- Possibly 300 000 whites appear to be missing. They were either not counted originally and were missed again in the PES, or have left the country without informing the South African authorities. According to Stats SA, statistics from the five main receiving countries suggest under-reporting of emigration from South Africa by a factor of two to three.
- A census is not an appropriate mechanism for trying to establish how many foreigners are illegally in any country – and Census '96 did not attempt to do so. Nevertheless, this area of ignorance is of critical importance to South Africa.
- The census found that almost 54% of the population were living in urban areas in 1996. Since some forward projections from 1991 had put the urban population at less than 50%, this raises important questions about the rate of urbanisation, which further analysis of the census data may help to resolve.
- As the census used a formal definition of urban areas – namely, legally proclaimed urban areas – this led to some anomalies in the classification of particular areas as rural or urban. New research planned by Stats SA will try to establish which South Africans are *functionally* urban.



Income and employment

- The census findings underline the fact that the the labour market is the main source of inequality in South Africa. Trends in employment, education and training must be closely monitored.
- Information on incomes in the census data must be interpreted with caution. Arguably, no census is likely to provide the necessary detail, the required degree of accuracy, nor sufficiently up to date information on incomes. This highlights the need to strengthen other data-gathering processes in this area.
- It could be misleading to take the census findings on incomes at face value as indicators of poverty not only because of uncertainties about reported income, but also because they do not adequately cover non-cash earnings, which may be particularly important for non-urban households and domestic workers.
- Poverty is unquestionably a grave problem, but on their own the census's limited income data do not provide a sufficient basis for characterising inequality in South Africa. It is important to take other indicators of poverty into account, such as the census data on living conditions, access to infrastructure and education.

A full or a sample-based census?

- Business and government need a continuous supply of up to date information for effective planning. Tracking developments must be done more frequently than through a five-yearly census in many cases.
- There are arguments for moving from periodic full censuses to a continuous sample and/or register-based approach, supplemented by panel studies.

- Stats SA maintains that there is no simple solution to the issue, and that at this stage a sample-based census would be too uncertain and insufficiently detailed for planning purposes and governmental decisions. Stats SA nevertheless recognises the need to explore alternatives with stakeholders.
- Data gathering in South Africa is constrained by the limited resources available. We compare very poorly in this regard with countries such as Australia and Canada, both of which sustain five-yearly censuses.
- It is cause for concern that government belt-tightening has forced Stats SA to cut back drastically on its plans for labour force and household surveys.

Public priorities

- It is vital to ensure the non-political objectivity, analytic reliability and independence of national demographic data-collection. Even in a democracy there must be 'an iron wall' between people doing demographic work and politicians, who may have an interest in influencing information for their own ends. The new Statistics Act embodies important safeguards in this respect.
- South Africa must accord the highest priority to the generation of accurate and timely demographic and income data. This is crucial to the country's economic and social development.
- The new GIS-based information system must be used effectively in government, to plan and co-ordinate resource allocation and service delivery across sectors for maximum impact at local level.
- Government must commit itself to provide the resources needed to ensure that policy choices can be made on the basis of the best possible information.

It is cause for concern that government belt-tightening has forced Stats SA to cut back drastically on its plans for labour force and household surveys

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