Cross, C ; Kok, P. ; Van Zyl, J. & Do... M ; Mafukidze, J. & Wentzel, M. (2005)

UNDERSTANDING THE CITY'S DEMOGRAPHIC FUTURE: TOWARDS MODELLING THE EVIDENCE ON POPULATION AND HOUSEHOLD GROWTH

REPORT TO THE CITY OF JOHANNESBURG ON PHASE ONE OF A PROPOSED THREE-STAGE RESEARCH UNDERTAKING

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1 INTRODUCTION

The City of Johannesburg is currently reviewing demographic change in the metropolitan area, with a view to providing for shifts in population trends which have taken place since the original adoption of the *Joburg 2030* strategic plan in 2002. Estimates from the 1996 and 2001 Census results show the City population growing at 4.1 percent yearly, very much faster than metro population projections had earlier indicated. At the same time, the number of individual households needing City services has multiplied for unknown reasons, as existing households have split apart and separated.

Important elements of the current metro planning framework for delivery may therefore be invalidated. The potential impacts on City costs and planning in terms of well-directed provision of infrastructure and related services, as well as human development benefits, will be very great.

This sharp rise in population growth rates and proliferation of poor households underlines the volatility of the City population, and demonstrates the possibility of very rapid population shifts taking place in the short to medium term future. Johannesburg is the engine of South Africa's national economy, and it is also the preferred migration destination for the unemployed on a national basis: for the future of the country, the City must remain able to provide the conditions for sustained investment and economic growth. The need is for *new population projections* which will take into account the demographic drivers of change, and which can be developed into a *population model that will allow for self-correcting adjustments over time*, as disturbance factors shake the existing estimates.

The brief from the City for the present research assignment is therefore framed with a view to ultimately developing such a model, while also identifying the disturbance factors and supplying the indicators necessary to monitor these drivers of population change and allow the City as much control as possible.

In working toward this goal, the present report – Phase One of three projected phases – examines the existing possible data sources, undertakes preliminary modelling aimed at the factors driving migration, and looks at the economic and social processes behind new household formation. What the City needs to know includes:

- The numbers of people coming in;
- Their economic capacity;
- The probable increase to be expected from the established population;
- The growth in household numbers that can be anticipated.

This work – partly supported by the HSRC because of the importance of the brief – lays down the essential groundwork for the later phases of population model development.

1.1 Planning concerns for the City

Planning needs here are urgent. The *Joburg 2030* document shows hard services around the City suffering from lack of maintenance, to a great extent due to non-payment of service charges by the urban poor. The average age of Johannesburg's bulk infrastructure is given as 33 years, against an estimated useful life of 40 years: the future impact of free water and services on maintenance and budgeting is not clearly known as yet. The new social package of free services and cost reductions is now rolling out, but the financial implications are difficult to foresee without sound population modelling and an understanding of household growth rates.

Manufacturing and the clothing industry are in a weak condition for competitiveness, with structural problems and no easy way forward, although these industries are vital for the level of employment involved. According to *Joburg 2030,* the City seems to have no expansion sectors that are labour-intensive: future expansion will be in IT and financial services, sectors which are well known to be knowledge and skills intensive, and prone to lose vital personnel to migration overseas. The transport sector is relatively small, and construction is thought to be uncompetitive, while the expansion potential of social services must be limited by the needs of local government finance.

At the same time, the important tourist industry has shown little growth: Johannesburg is not a popular holiday destination for either domestic or international tourism. A brighter spot is the expanding area of cross-border retail tourism, where citizens of neighbouring countries migrate temporarily to the City to buy consumer goods for resale.

However, the impact of informal street trading, a key income source for the City's poor, has been extremely serious for the CBD; urban planning is still struggling to come to grips with the implications, while trying to revitalize the business district, control street trading and offer traders new market outlets. The interaction between opportunities in the informal sector and future levels of in-migration by the poor will be critical to the economic competitiveness of the City, and will impact the growth of the labour force.

At present, the City labour force is not competitive in international terms, and especially in comparison with the Far East. Over a quarter of the labour force is illiterate according to the *Joburg 2030* report, and 65 percent do not have a senior certificate. Few have a degree, and the match of available skills to the needs of industry and the economy is conspicuously poor. Results given below will show that much or most of the City's future labour force growth will come from in-migration rather than from the established population, as the AIDS-driven death rate for the City is currently underestimated and may well approach or exceed the birth rate. Skilled emigration is likewise little known. Johannesburg therefore has a vital interest in forecasting the numbers and capacities of future labour force members who will be coming into the city through in-migration.

In responding to the overall population challenge, City planners are working with compact city models of settlement in an attempt to hold down bulk infrastructure costs, just as they try to facilitate the urban transition for new in-migrants (see 4 below, *Change drivers and household*

formation: using the pilot study to develop the indicator set). The *Joburg 2030* report anticipates that the City poor will be relatively fewer by that date, and calls for concentrating poorer communities into 'special needs areas', though the ordinary settlement processes associated with migration and household formation can be expected to make this kind of dispensation very difficult or impractical. Although it appears to be acknowledged that demand for cheap residential accommodation on the peripheries and in the inner city will remain high, this point receives little discussion in the *2030 Report*, and it is not clear that the delivery and budget implications have been allowed for: uncertainties created by migration and household formation, and by the processes of settlement linked to these, are key here.

1.2 Research issues

In order to establish the content of the demographic model, City of Johannesburg has identified two sets of questions. In relation to population growth rates, these include:

1. Permanent in-migration into the City from inside South Africa;
2. Permanent migration out of the City to the rest of South Africa;
3. Forms of temporary or circular migration;
4. Foreign immigration;
5. Foreign emigration;
6. Fertility rates;
7. Mortality rates;
8. Life expectancy;
9. The impact of HIV/AIDS on migration, fertility, mortality and life expectancy.

In relation to household growth rates, issues included:

1. The definition of households and its relation to administrative service-delivery definitions of stands, backlogs, and related categories;
2. Household structure and size trends, including single-person households, nuclear families, extended families, divorced families, and others;
3. Trends towards women-headed households;
4. Trends towards orphan-headed households;
5. Patterns in collective living quarters, such as old age homes, hostels, orphanages and other institutions;
6. Unique dwelling circumstances, such as hostel upgrading into family units and multiple families sharing single rooms;
7. Residents' livelihoods strategies in response to poverty and insecurity;
8. Changing lifestyles choices, especially consumption patterns, among different social groupings under different socio-economic circumstances;
9. Targeting of social grants and subsidized service packages.

These issues are to be placed in context in relation to the focus of the research brief on (a) well-resourced and poorly-resourced migration streams, and (c) rates of household formation for the entire city given both migration and socio-economic change drivers. The final output of the whole research sequence should be accurate, self-adjusting population projections for the whole population of Johannesburg.

Although not all of these individual research issues as numbered above can be discussed in this Phase 1 report due to the limitations of time and funding, results will allow comment on most of the central issues, if not a full resolution of the definitions and implications. In particular, indications

are wanted as to what would be included in the demographic model, to be constructed in Phase 2 when adequate resources would be available.

Work done in Phase One comments on data sources concerning 1-7 under *population growth*, though actual figures for these categories will not be delivered until Phase Two. In respect of *growth in household numbers*, the present report makes substantive comments on 1-3 and 7-9, which are the more important issues from this list. Other topics will unfold in the later research phases.

1.3 Developing the population modelling: proposed phases of work

In order to address these issues as specified in the research contract with HSRC and still meet the time frame for the initial report, the project team developed a proposed three-phase sequential approach:

1) PHASE ONE: INTRODUCTORY MODELLING, REVIEW OF DATA SOURCES, IDENTIFICATION OF CHANGE DRIVERS AND DEVELOPMENT OF INDICATOR LIST

The introductory phase includes a brief review of literature and interviewing to identify what is known about the demographic dynamics of Johannesburg. It has also developed some *initial migration modelling* applicable to Johannesburg's situation as an origin and destination for migration, and has incorporated variables such as household size and migrant characteristics. Basic work has been done toward Phase Two in relation to numbers of households and population numbers, population growth and growth in the number of households. Work still remains to be done toward the issues of life expectancy and the impacts of HIV/AIDS on other demographic processes, which will be covered in Phase Two.

This work has included a review of the available data sources for population statistics and demographic modelling: in particular, it covers the *critical shortfalls in the official Census data*, and suggests alternatives and supplementary options.

Phase One has also included work on household formation and household behaviour, including a brief field survey of 70 cases using quota sampling, in order to obtain direct information from strategic settlements in relation to household and migration dynamics. Using this data together with previous studies and literature sources, it has been possible to construct an initial operational *list of indicators for change driver factors*, the disturbance factors which are likely to cause the later population projections to go off track.

2) PHASE TWO: DEVELOPMENT OF POPULATION PROJECTIONS AND POPULATION MODELLING, INTEGRATION OF HIV/AIDS IMPACTS, MAIN SURVEY WORK

The main modelling phase will undertake a new complete population projection for City of Johannesburg as a whole, which will provide for low-resource migrants, high-resource migrants, the established population and also out-migration and emigration. For the techniques to be used, see below in this report, *2, Reviewing the data and preparing methods*. The working models will be capable of integrating and tracking key rates for household formation and for population growth as they vary over time, Barring the entirely unforeseen, these models will then be able to continually generate accurate projections so long as indicators are continually reviewed and updated according to plan.

In this modelling phase, the first local surveys using the indicators provisionally targeted in Phase One will be used to obtain up-to-date and targeted data on change drivers for household formation and for migration, as they affect the continuing accuracy of the basic rates on which population projection is based. Using the local surveys and also focus groups, the set of indicators for change drivers/ disturbance factors will be reviewed on an ongoing basis as the work goes forward.

The final output will be a summary picture of Johannesburg's likely demographic future, in the context of the policy questions around city carrying capacity for population growth and for household formation. Based on an improved understanding of Johannesburg population, migration and household formation, policy measures capable of influencing migration and household formation will be identified and highlighted to the best extent possible.

3) PHASE THREE: MONITORING OF TRENDS THROUGH LOCAL SURVEYS AND QUALITATIVE WORK, AND UPDATING PROJECTIONS

In this phase of the research, a continuing rotating series of local surveys will be put in place for monitoring of trends and change drivers on an ongoing basis. Perhaps three local surveys per year will be carried out in different parts of the city on a rotating basis, at an interval of 3-5 years in order to track indicators and identify new trends.

These local surveys will use the designated set of indicators to feed in up-to-date data to the working models, so as to ensure that basic rates for population projections are kept as accurate as possible, and the projections for growth rates and household formation do not rapidly become outdated.

1.4 Layout of the report

Following on the issues raised in the Introduction, Section 2, *Reviewing the data and preparing methods,* takes up the question of the national Census in relation to other official and private data sources, and considers some of the technical issues involved with laying the foundations for population projections and modelling. The subsequent section, *Potential migration to and from Johannesburg: people's perceptions and migrant intentions*, looks at the issues around in- and out-migration from the standpoint of migrant intentions, and helps to identify the factors involved both in migration decisions and with the population of potential migrants.

In the fourth section, *Change drivers and household formation: using the pilot study to develop the indicator set,* considers the City strategy of supporting the urban transition among the in-migrating poor, and asks the question of what will happen if this strategy is unsuccessful in the face of extreme unemployment and a growing dependence on welfare. To develop the set of change-driver indicators, it looks at the household dynamics which can be identified in township and shack areas, and also in an area dominated by international migrants. It describes the results of the pilot study in these areas, and identifies trends and drivers behind the rapid changes in household dynamics over the last ten years. In 5, *Concluding remarks: toward population modelling for Johannesburg,* the report returns to the issues raised in the research brief.

2 REVIEWING THE DATA AND PREPARING METHODS

The census enumerations of 1996 and 2001 offer the most comprehensive available data on the demographic characteristics of the geographical areas of South Africa. As such, the census forms an

inevitable backdrop to surveys and to projections of population changes. However as comprehensive as these censuses are, they are not by any stretch of the imagination, flawless. This paper speaks to the key reservations of using census information as a basis for projections at a municipal level.

2.1 Census resources

In this review two main Census products are considered for both 1996 and 2001. These are:

a) the Community Profile, and
b) the 10% sample of responses

Other products useful for making projections are available from StatsSA these include the "small area" dataset and commissioned products like the migration database used by the HSRC.

The **small area database** published for 2001 makes available the most spatially detailed census data. It is an aggregation of a few key enumerator area variables. The aggregation reduces the number of geographic entities from the original 80 000 plus enumerator areas to approximately 56 000 "small areas". While the spatial detail is useful for examining distributions within places the available variables are very limited in scope. The variables currently available include univariate statistics on age (in five year cohorts), prevalence of household services, the highest education level of individuals and the prevalence of informal housing.

The small area data set and the community profiles (see below) are the only non-commissioned census resources that can reveal intra-municipal characteristics. The data available from 2001 is significantly poorer than that from the 1996 census. In 1996 a far wider range of information was made available at enumerator area as part of the community profiles. In addition, the aggregation of data to "small area" level and the limited number of available variables signals that StatsSA has significant concerns about the reliability of their results.

Commissioned research includes descriptions of where people currently live and where the y lived before (assuming they moved). Both the place of origin and place of enumeration are coded at sub place level. This information is obviously of great value in describing the main dimensions of human movement.

2.1.1 *Community Profiles*

In 1996 the **Community Profile provided** fairly detailed information of the characteristics of enumerator areas. In 2001 these details were limited to what approximates a local suburb The Community Profiles provide users with some ability to specify how the area data should be presented. For example, users can specify that they would like to access to water service levels disaggregated by gender for all suburbs in northern Johannesburg. Although the community profile is large (it is presented in a series of 12 CDs) not every combination of questions asked in the census is available. Some variables of key interest to those making projections are entirely absent from the Community Profile. These include the details of deaths in households during the past year. For the greatest flexibility (i.e. to examine any variable by any other variable) users have to look to the ten percent sample.

The 2001 Community Profiles provides a limited number predefined disaggregation of census results at suburb level. Unlike the small area data users are (within the predefined limits) able to customise their queries for each area or combination of areas.

2.1.2 *The 10% sample of responses*

In 2005 StatsSA finally released a 10 percent sample of census responses. This dataset, which comes on a single CD available from StatsSA but most easily obtained from SADA, enables users to combine variables from the personal, household and mortality sections of the census as they see fit. The shortfall of this dataset is that the responses are coded only as far as municipality and magisterial district level. Users can thus not examine profile of suburbs etc. To examine intra-municipal charactecharacteristics users have to revert to the community profiles and small area dataset with their limited detail. An obvious difference between the 10 percent sample and the other census products is that analysts have to take the impact of sample error when using the sample data.

2.2 Changes in the City's demographic characteristics: 1996 - 2001

A comparison of the demographic profiles of the city in 1996 and 2001 allow an analysis of recent trends and, presumably, inform what demographic changes can be expected in the near future. Although all of the above resources detail the characteristics of Johannesburg to a greater or lesser extent the 10 percent samples are used in the calculations below. The resource is used as it is the most flexible however no sub-municipal trends can be presented.

The two age pyramids presented below point to the main questions arising from recent demographic change in the city. They show both marked continuity in overall shape (the equal balance of males and females, the relative dearth of young people and the strong dominance of the population of economic active age) and dramatic change over the five year period in question. Particularly striking is the overall increase in population.

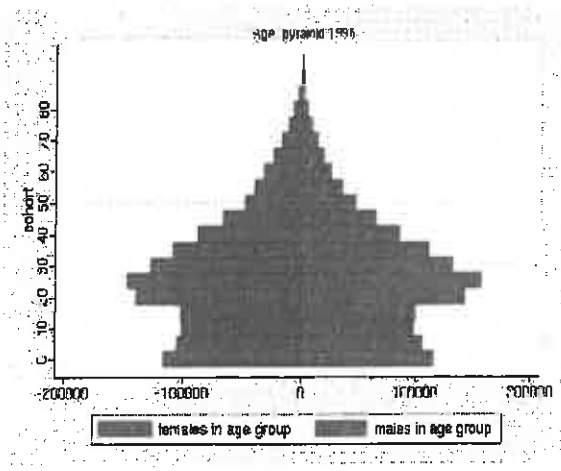


Illustration 1: Johannesburg's age pyramid 1996

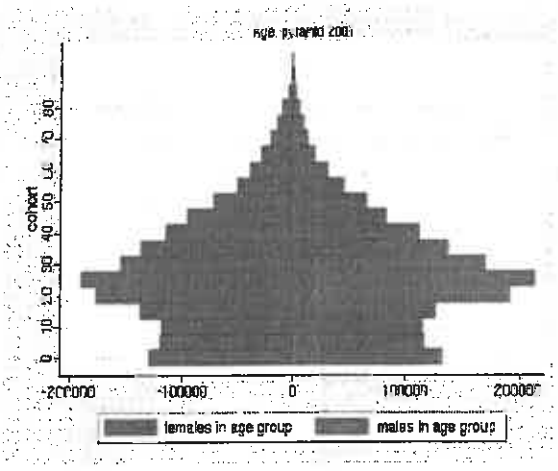


Illustration 2: Johannesburg's age pyramid 2001

During this period the population of Johannesburg increased from 2.6 million to 3.2 million. This change corresponds to an annual increase of 4.5 percent - a growth rate significantly greater than that of the South African population as a whole. The population of the city is growing at almost twice the current national rate of 2.3 percent per annum.

The general continuity in pyramid shape is also informative. In 1996 the single largest age cohort was of those aged 25 to 29. Five years later this cohort was still the largest - despite everyone having aged by five years in the interim. This trend can only be explained by the prominence of the in-migration of people of economic active age. However as younger cohorts show a commensurate

increase in population it seems that these fertility levels are being maintained or the in-migrants are bringing their children with them (see section on birth rates below).

The rapidity with which the 2001 pyramid tapers off reflects that the aged population is growing at a slower rate than the rest of the population. Although some of the tapering off may be attributable to the out-migration of the aged a rising death rate is a more plausible cause. Other national data points to a marked increase in the death rate over the period in question (see section of death rates below).

2.3 Household numbers and "unbundling"

Although the population is growing at a rapid pace it is not population *per se* that present the greatest challenge to city administrators and those concerned with service delivery. This challenge relates to the delivery of households services which are delivered to households rather than to individuals i.e. to services like housing, electricity, refuse removal and water provision.

During the period is question the number of households in Johannesburg rose from 732 000 to 1.05 million. This corresponds to an average annual increase of 7.5 percent each year. The discrepancy between this and the cities' population growth rate (4.5 percent per annum) can only be explained by a reduction in household size. According to the 10% samples in 1996 the average Johannesburg household was composed of 3.5 people, by 2001 it had dropped to 3.07. Even when the population remains static a reduction in average household size increases the number of houses that need to be constructed and serviced. When coupled to natural population growth and in-migration rates the burden placed on local government authorities by the reduction in household size becomes marked.

The trend towards smaller household size is a feature that has marked the South African landscape for many decades. However the rapidity of the recent reductions in household size seems to call for an explanation other than that of the demographic transition in which societies move from a situation typified by high mortality/ high fertility to one typified by low mortality/ low fertility. An alternative explanation becomes required when, the demographic transition has, at least in part, been reversed (see 'death rates', below).

2.4 State subsidies for housing and services

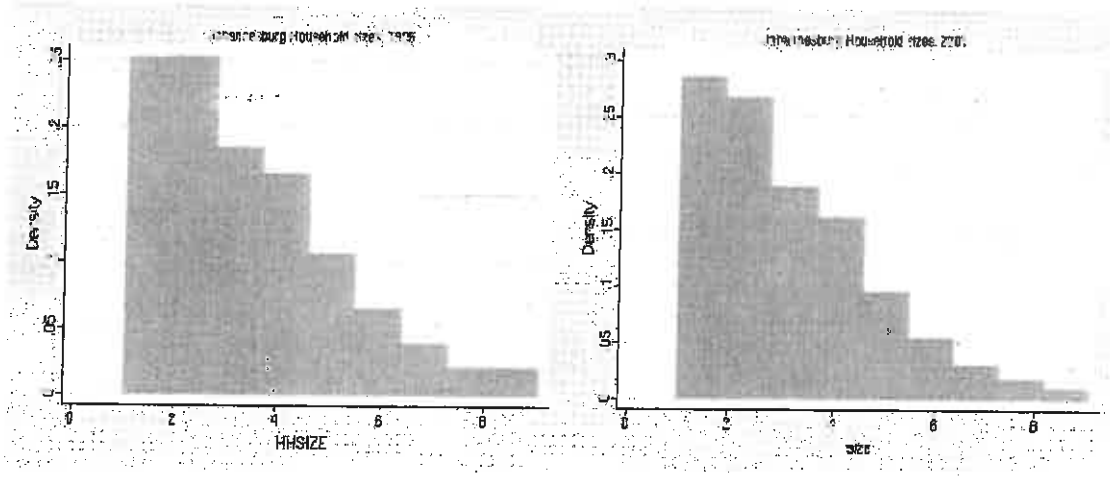
One factor which could be involved in the changes in household size lies in the nature of state subsidies for housing, water and other essential services. Although enacted too recently to show up in the 2001 census data, or to help account for household unbundling in the census period before 2001, these subsidies can probably be expected to be involved in household decisions after that date which involve the formation of new households.

The subsidies for services are allocated to households rather to individuals and are defined in a way that would encourage households to unbundle into ever smaller units. The situation is best explained by example. Assume that a large "extended" family of nine people is supported by three state pensions. If this household were to obtain RDP housing (with the associated services) it would, on the basis of the joint household income, qualify for a housing subsidy of R15 700. Although this would supply a house of inadequate size it would ensure that the household could access the free allocation of 6Kl water (i.e. 666 litres per household member each month) and 50kWH of electricity (i.e. 5.5 kWH per household per member each month). However if the household "unbundled" into three separate entities (each headed by a pensioner) they would, collectively, qualify for three full subsidies of R25 800 each. Moreover in the process every individual would treble their individual allocation of free water and electricity (to 2Kl water and 16 kWH each). Access to formal housing is a strong attractor in its own right, and might persuade even a harmonious household to split in the pursuit of solid assets.

Census information and recent surveys throw little light on to the dynamics underpinning the reduction in household size (see the socioeconomic explanations put forward in Section 4, below). As a rule such studies do not elicit details about household size and location at some point in the past (for example at the time of the previous census).

As surveys can not identify "new" households it remains unclear as to which socio-economic or population groups are driving the reduction in household size and thus driving the demand for state services. Consequently it is unclear as to whether the unbundling of households is particularly prominent among the poor. As close to 70 percent of households qualify for a housing subsidy, defining those household which have accessed RDP subsidies as "new" does not help to single out the economic imperative driving unbundling, unless the households in question have actually succeeded in gaining access to an RDP house at the time of their forming as separate entities. It is also clear that the logic compelling unbundling does not geographically confine household creation.

An additional force driving unbundling is, for example, scholars attempts to access suburban schools. Rural and township households, in their quest to access quality schooling, attempt to send their children and grandchildren to live in those suburbs associated with desirable schools. By doing this they may create another household in a different town or province.



One of the few things clear about the reduction in household size is that it has been most marked among large households – and such households have traditionally been among the poorest. However despite the association of large household size with both rapid unbundling and lower income there may not be a simple correlation between income and economic conditions. The unbundling may be due less to the economic circumstances than to the greater capacity of large households to unbundle.

The graphs above juxtapose household size in Johannesburg for 1996 and 2001. One clear difference is the marked drop in the proportion of two-person households between these years.

In 1996 the number of two-person households slightly exceeded that of the number of people living alone. By 2001 that relationship had been heavily reversed. During this period the proportion of single-persons households increased from 22.4 percent to 25.3 percent. Between 1996 and 2001 the proportion of Johannesburg households which had more than four members dropped from 23 percent to 20 percent.

Because Johannesburg households are, by national standards, relatively small and already contain a high proportion of people living alone they have, on average, limited ability to unbundle. Consequently the association behind unbundling and household size is such that Johannesburg tends to be relatively unaffected by the trend except in so far as in-migration is concerned. Fortunately, in-migration trends are relatively well captured by the census (see below).

The lack of clarity regarding the driving forces behind the reduction in household size sorely affects the ability of analysts to predict the tempo with which unbundling (and thus service demand) will continue. A better understanding of unbundling is unlikely to come from the existing data and probably awaits a survey that explicitly captures this dimension. This however does not affect analysts' ability to speak to the tempo at which the population changes. One of the simplest ways of projecting population growth for any region is to assume that recent trends will continue apace. Doing this may provide policy makers with a reasonable estimate of future population size, unfortunately it does not inform them of how the population is to change. Policy makers require not only crude headcount of anticipated populations but descriptions of that population. Will the new population profile be younger, more educated and from the region? The next section presents a critical overview of the census as a tool for measuring the main demographic factors that inform such descriptions – birth, death and migration. The review speaks directly to the utility of the census as a tool for projecting growth trends at city level.

A survey which allows comparison between current household composition and location and the situation some time in the past is required to isolate the forces driving household unbundling.

2.5 Population change

Underlying changes in population is a complex interplay of factors including the social conditions, economic expectations and geo-political circumstances. Some of these factors may have an immediate impact – for example the economic situation in Zimbabwe has a noticeable impact on migration patterns. However in the longer term anticipating these trends in ultimately a matter of speculation and prone to massive error. Although demographic factors may change dramatically over time, the year-on-year change is usually (unlike economic growth rates or geo-political conditions) predictable. The following section briefly reviews the data on the main drivers of demographic change: migration, birth and death.

2.5.1 *Data on birth rates*

Birth rates can be deduced from the age profile in the 10% sample and community profiles. All live births in the year preceding the census are denoted as age "0". The number of births in the preceding year can be used to estimate, *inter alia*, the crude birth rate (the number of live births per 1000 population). Nationally, the crude birth rate derived from the 2001 age profile in 2001 is 19.5 per 1000. Although this corresponds closely with the expected average of 22 in 2003 (Unicef[1]) the difference is not insignificant. At 18.3 the crude birth rate for Johannesburg is slightly lower than the national average.

Figures like those produced by Unicef and MRC are ultimately based on specialised surveys like the 1998 and 2003 Demographic Household Surveys. These surveys solicit detailed information of life events like births, death, disease etc. from a large sample of households. As the DHS is designed to ensure that no relevant life events have been forgotten (or erroneously included in the survey) it tends to be reliable and provide high quality information on such events. The census, on

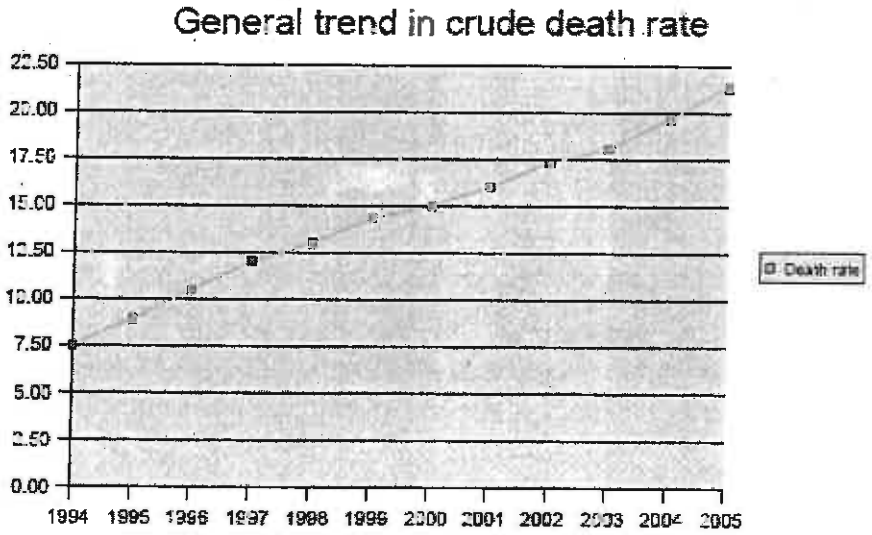
1 http://www.unicef.org/infobycountry/southafrica_statistics.html

the other hand, is necessarily brief and does not allow for the level of checking required to ensure a similar quality of response. Consequently discrepancies between estimates are not unexpected. Nevertheless the close proximity of the crude birth rate derived from the census and the expected value instil some confidence in the reliability of the former.

Unfortunately DHS and similar surveys cover relatively rare events in households and yield typically yield few observations of recent births and deaths. Consequently, despite their large sample sizes, such surveys are rarely able to speak reliably of trends at sub-provincial of sub-national level. For municipal estimates there are thus no alternatives to the census for estimates of this driver of natural population increase.

2.5.2 *Data on death rates*

For 2003 Unicef derives a crude death rate of 18 per 1000 population. Their estimates confirm the generally accepted belief that there has been a massive increase in South Africa's crude death rate over the past few decades. That trend, which is inevitably related to the prevalence of HIV/AIDS is illustrated below.



Source: various with extrapolations for interim years

The census covers deaths by asking for details of deaths that had occurred in that household in the preceding year. It also explicitly solicits details of recent births and whether those children are still alive. The former data can be used to derive the crude death rate and the latter to derive the infant mortality rate. The census produces an estimate of 692 000 deaths in the year preceding the census. This corresponds to a death rate of 16 per 1000 population – an estimate very close to that anticipated by demographers (see above graph). At 18.1 the derived death rate for Johannesburg was higher than the national average. The estimate is thus seemingly far more accurate than the uncovered by Stats SA in its examination of death records. Stats SA's study[2] into the causes of death revealed 451,936 deaths across the country for 2001. Official records thus seem to miss one-third of all deaths. Obviously the rate at which official records miss a death varies between regions. Johannesburg, for example, is likely to have a relatively low miss-rate but high rate of including people residing from outside the city. Either way the magnitude of the difference between the census death rate and the official records strongly indicates that the latter is not a viable source of estimates.

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[2] Mortality and causes of death in South Africa, 1997–2003. Findings from death notification

However despite the seeming accuracy of the census in enumerating deaths, an important caveat has to be sounded – particularly for Johannesburg. Both censuses and surveys rely on household surveys to capture the life events. However, as seen above, one quarter of Johannesburg households are made up of a single person. When that person dies, so too does the household. Consequently the census/ survey is unable to capture that event. As they are unable to capture deceased households, the census invariably underestimates the crude death rate - with the level of underestimation being proportional to the number of single-person households. There are indications that the increasing impact of HIV/AIDS is likely to increase the number of single person households, resulting in ever-declining reliability of the available census information.

The problem of excluding deaths in single person households will endure until such a time that surveys capture – without double counting – the deaths of former household members who died while living alone. Unfortunately this omission has a parallel in the migration data (see below).

The only source of the above mortality data is the 10% sample. The "mortality" module of the Community Profile ignores this aspect of the census, and details only whether the mother and father of the respondent were alive at Census time. While this information is of no use in establishing mortality rates it should be useful in informing policy makers as to the level of orphaning etc. This information is of particular interest as the impact of HIV/AIDS is increasingly manifest. It is widely believed that the pandemic is contributing strongly to the level of orphaning and of child-headed households. At a national level there is some evidence of this.

In 2001 14 percent of children, defined as people under the age of 19, reported that at least one parent was no longer alive. Fewer children at 0.8 percent reported that at least one parent was dead in 1996. However, in 2001 the proportion of Johannesburg children who had lost a parent equalled the national average in 1996 at 10 percent. Despite the escalating death rate during this period, this was a negligible increase on the nine percent reported in 1996. This negligible increase in orphaning is at odds with the high death rate among a population dominated by those of reproductive (and economically active) age. It would seem, *prima facie*, that either orphaned children leave the city or the Census was inefficient in capturing this dimension of Johannesburg life.

2.5.3 *Data on migration rates*

Both the 1996 and 2001 censuses provide detailed information available about human movement in the period immediately preceding the census. In 2001 the Census asked the name of the place where the respondent lived five years ago (i.e. at the time of the 1996 Census) it consequently allows for detailed description of migration into and out of any place. The 2001 Census thus reveals where in-migrants came from and where out-migrants moved to - albeit by ignoring any interim stops. Unfortunately, while the census data is able to speak to patterns of immigration (in-migration from another country) it is not able to speak to emigration (out-migration to another country) by households or individuals.

Household members who have moved to other countries on a temporary or permanent basis are excluded from the definition of the household. Consequently, just as the census is silent as to deaths among people who lived alone, it is silent as to the number of people who have emigrated. Once again this is a factor of particular importance to Johannesburg, as emigration is thought to have depleted the ranks of professions required to sustain a modern, rapidly developing economy.

2.5.4 Discussion

Census data is able to provide the only municipal – and occasionally sub-municipal – measures of demographic trends. As such it informs an inevitable backdrop to projections and survey samples.

However, the census is much more reliable at measuring some other aspects of demographic change. It is seemingly most valuable when it speaks to natural population growth, in-migration and immigration, though these aspects of census data are not free of problems which could interfere with population projections. But the census information is of questionable value when it comes to measuring the impact of death and emigration aspects that are of particular concern to city managers and policy formulators.

In practice, demographic projections are unable to distinguish between death and emigration. Models compensate for this deficiency by imputing some value for each. More often than not these values are defined by what makes the model work rather than by what can be substantiated from population registers or other government records.

The deficiencies in the data will endure until a better reflection of the following is captured:

- the dynamics of household unbundling
- household members who have emigrated or who are temporarily working in other countries
- deaths among people who live alone
- orphaning in metropolitan areas.

It is improbable that these information gaps will be filled until a survey focussed on these issues is completed. Issues that would be covered in such a survey include

a) the status of household members who now live alone,
b) where each household members lived at some predefined point in the recent past (including descriptions of location, household size and its composition)
c) emigration (temporary and permanent) of "former" household members etc.

2.6 Projecting components of population growth from available data

Population projections are done using a base population, with further data integrated as necessary from other suitable survey sources. The following sections review the situation in regard to data and procedures for producing population projections for the City of Johannesburg.

2.6.1 *Base population for demographic projections*

Depending on the information available, the base population could be set at the present, or even at a point earlier in time. Regarding the base population to be used for a projection of the Johannesburg population, at first glance it would appear that enough information is available to construct a base population without too much difficulty: population censuses were conducted in 1996 and 2001. However, the information collected by these two censuses cannot be accepted at face value.

Under-enumeration was significant in both of these censuses. For instance, in 1996 the formerly white suburbs were massively under-enumerated, and a similar trend probably repeated itself in 2001. Under-enumeration of the foreign born, especially in high density inner-city areas, also occurred, in particular because of their unwillingness to disclose their presence. A number of factors contributed to this under-enumeration, and these will be more fully explored in the envisaged Phase Two research.

At present, it can be questioned whether the present Johannesburg population may not be higher than the figure presented in the TOR for the present research. If so, there are many implications for

the City, affecting planning in particular. In this light, adjustments of the Census figures may have to be made.

2.6.2 *Projecting the fertility component*

The reproduction rate of a population – its fertility – plays the largest role in population growth. Since the late 1960s, and even earlier, various segments of the South African population started a demographic transition from high to low fertility. This trend in fact started earlier in major metropolitan areas such as Johannesburg. In continental African terms, the fertility of the Johannesburg population can be described as relatively low. Thus one can safely conclude that fertility will not be the cause of excessive population growth in Johannesburg.

However, it should be mentioned that two factors will ensure the importance of fertility as an integral component of positive growth in the next few decades:

- The population structure – the present age structure – is the result of much higher fertility in the past 20 to 40 years. That ensures there are now large numbers of people in the reproductive age groups;

- Fertility of recent migrants from rural areas, both local and foreign, will affect total population fertility in the City . These people have moved to the city from areas with a tradition of higher fertility compared to the established residents. Fertility, as a part of culture, does not change overnight, and pockets of high fertility among more recent in-migrants will tend to push up general fertility rates for Johannesburg.

In the case of fertility, a number of information sources are available that should provide a good sense of past and present fertility trends. In addition to the national Census, these sources include the 1998 SADHS, and the 2002/3 SADHS, as well as reported birth and deaths as recorded by national DOH/Stats SA and the City Department of Health.

2.6.3 *Projecting mortality rates*

Deaths occurring in a population (mortality) have to be taken into account in a population projection. South Africa, and more so Johannesburg, saw a period of nearly nine decades during which mortality rates declined in the general population, albeit at different speeds in various communities. Evidence for that can be found in the rising life expectancy and rapidly declining infant mortality rates during this period.

Up until the early nineties, when doing projections, mortality, as a component of population growth, proved to be the most stable element when developing assumptions. Since then, mortality rates have started to rise, with a major impact on life expectancy. As noted, HIV/AIDS is the main reason. The HSRC conducted a major population-based HIV prevalence study in 2002, and is repeating it at present. This SABSM study should provide useful data to estimate the proportion infected, the force of mortality amongst the HIV population, and related factors needed for projection purposes.

2.6.4 *Projecting migration rates*

This component of population growth possibly provides the biggest challenge in terms of data. In addition, the movement of people to large urban areas is driven by employment opportunities. Therefore economic cycles, the situation on sending areas, and the flow from foreign countries all combine to make any such predictions highly uncertain.

What are the main movements into and out of Johannesburg?

- Intra-Gauteng movements. Census data provides some estimates.
- Inter-provincial movements. Census data provides some estimates in order to model magnitudes and direction of flows, though accurate recording can be a serious problem.
- Movements from Johannesburg out of the country, otherwise known as emigration. Modelling of this phenomenon is faced by highly unreliable data. For sectoral projections, however, emigration is very important because the movement is highly correlated with outflows of highly skilled and capital-rich individuals.
- Movements of the foreign born to Johannesburg. A number of categories can be identified which are mutually non-exclusive, including short-term traders, the undocumented, labour migrants, asylum seekers, and others. Once again, data problems should be anticipated in terms of the numbers and categories.

Accordingly, some of the larger flows involved in modelling migration are able to be calculated mainly from Census data. At the same time, some aspects of in-migration and out-migration, as well as other population processes, which affect the City of Johannesburg are not well recorded on the Census. Projections for emigration and cross-border migration in particular would call for the use of supplementary data from various sources.

2.6.5 *Household projections*

We concur that the projection of households is an essential element for planning purposes. Various surveys and population censuses provide evidence of the reduction in the mean household size. In a study of the size and structure of the population in Soweto in 1988, one of the authors pointed to a number of factors that were already starting to impact on the size of the average household. Of those not mentioned in the TOR, we note the reduction in fertility: we would like to point to the fact that nearly 50 % of South African women fall into the category 'never married', which is likely to be a more important demographic factor than the relatively lower rates of divorce.

Labour migration may also play a role in this respect, and it is also important to note that to form a single household – identified as an important category in the TOR – requires a critical minimum income. Lastly, when projecting households, one should be mindful of taking into account the idea of the household "life cycle", or developmental cycle.

2.7 Methods of projection

For projecting the population, we propose using a standard cohort-component projection method. For estimating the number of deaths as a result of HIV infections, we would suggest using EPP, a software package developed by the Futures Group. Household projection methods have undergone some development and it is important to take account of changes in methodology, although the ratio method provides reasonable results. However, a final decision on the type of household projection method will be made during the project phase.

3 POTENTIAL MIGRATION TO AND FROM JOHANNESBURG: PEOPLE'S PERCEPTIONS AND MIGRATION INTENTIONS

3.1 Introduction

In order to undertake any migration projections it is necessary to know what migration data are available and what the possible future migration trends might be. In this section attention will thus be given to the availability and utility of migration data in South Africa.

To determine the likely changes to the projected migration numbers under ever-shifting conditions, it would also be useful to have an idea of the relative impacts of the factors contributing to migration. For that reason the perceptions of Johannesburg among members of the public (living outside Gauteng) are discussed as well. However, a major part of this section is devoted to developing a framework for and modelling intentions to migrate to and from the City of Johannesburg, and how these intentions may impact on future migration and population projections for the city.

The main reason why migration intentions receive so much attention here is that intentions are the best available indicator of future migration. Intentions can also serve as "early-warning signals" since they indicate whether or not people in a particular area have a desire to get away from that area (i.e. want to "vote with their feet"). By analysing the factors contributing to migration *and non-migration* intentions one can get an understanding of the underlying motives for a planned migration *while the migration is still being planned* – that is, not afterwards as is common in research on the reasons for migration that is often plagued by *ex post facto* rationalisations for past behaviour, memory lapse and the problems people have with reporting (verbalising) complex past decision-making processes. Of course it would be best if research could cover not only intentions to migrate but also subsequent actual migration behaviour (as the well-known American migration expert, Gordon De Jong, has done in the Philippines and Thailand).

Migration data from censuses and most surveys usually only reflect past behaviour. While it is useful to study past migration to determine types, spatial patterns and preferably also trends over times, when it comes to population projections such information is not necessarily sufficient to enable demographers to forecast future migration patterns and trends. It would therefore not be entirely satisfactory to have access to projections which merely reflect past trends that have been extrapolated into the future. Nevertheless, data on past migration remains important and most of the next sub-section is devoted to South African data reflecting past migration patterns and trends.

3.2 Reviewing migration data in South Africa

The best data sources for migration studies are (a) population censuses (because they cover the entire country and therefore readily lend themselves to be used for analysing relatively detailed migration patterns and trends), (b) purpose-made migration surveys (because they provide insight into at least the factors that affect migration at the micro level to an extent that censuses with

limited numbers of questions cannot), (c) large, multi-purpose surveys that include questions on migration along with questions on other social and economic variables that are not directly relating to migration, and (d) local surveys that cover spatially very detailed patterns of residential mobility and perhaps also other factors associated with local spatial mobility. In this section the first three types of sources of migration data are discussed. Although local surveys are not covered in this discussion, they may be the most important mechanism for identifying new spatial trends in the city and for monitoring the reliability and concurrence with actual trends of the available population projections over time.

3.2.1 Census-based migration data

In South Africa four censuses have so far included questions on internal migration, but all included questions on nationality or citizenship. The questions on internal migration varied from migration over indefinite time periods (e.g. the censuses of 1991 and 1996) to migration over fixed periods (e.g. the 1980 and 2001 censuses). In Kok, O'Donovan, Bouare and Van Zyl (2003) the history and appropriateness of South African census data on migration are discussed in some detail. A very short historical summary should therefore suffice here.

In the census of 1980 respondents were asked where individual household members had lived exactly five years before (i.e. on 6 May 1975) and from where they had moved (if living elsewhere in 1975). In the 1991 census respondents were asked how long each member of the household had been living at the enumeration address but without any spatial questions (i.e. without any reference to a previous place of residence from where the person might have migrated before). In Census 1996 an impressive battery of questions was included, covering the migrant status of every individual in the household, the year of the last move and the previous place of residence. Also included were questions dealing with migrant labour (the first and only census so far to cover this topic). Census 2001 asked whether or not each person in the household had lived in the same sub-place/ward at the time of Census 1996 (i.e. exactly five years before) and, if not, information was elicited on year and origin of the last move. The most important problem with the Census 2001 migration data in this context is that small children under the age of five years are not included in the statistics.

(a) Readily available census data

(i) Some full-census (the so-called community profile) data from the last two censuses can be obtained from Statistics South Africa (Stats SA) via the Internet at http://www.statssa.gov.za/census01/Census96/HTML/default.htm (Census 1996 – but for the nine provinces only) and http://www.statssa.gov.za/census01/Census/Database/Census%202001/Census%202001.asp (Census 2001 – for the provinces and all municipalities). A new electronic product, called "small area statistics", has also been announced and is the only product to be provided to users who request data at a level lower than sub-place name, and it is based "on a small area layer (SAL) that was created by combining all enumerator areas (EAs) with a population of less than 500 with adjacent EAs within the same sub-place".[3] *However, none of these data sets contains migration data.* Migration data at a lower than provincial level can only be obtained from Stats SA upon request (at what seems to be a fair production price).

(ii) The data from the 10 per cent samples of these two censuses, which include the migration data, can also be requested from Stats SA, and for instructions on how to obtain this data set for 2001, the following website can be visited: http://www.statssa.gov.za/census01/-

[3] To order a copy of the CD the reader can email info@statssa.gov.za or call +27 12 310 8600.

html/C200110percent.asp.[4] Another interesting product used by Stats SA is the *Statistics South Africa Data Explorer* (powered by Nesstar WebView),[5] which is an "entrance to a virtual data library allowing one to search for, locate, browse and download a wide variety of statistical and related data".[6] This product contains unit records included in the 10 per cent samples from the last two censuses (as well as data from the General Household Survey and the Labour Force Survey – see also Section 3.2.2).

(b) Findings from Census 2001[7]

A total of 347 268 persons migrated into Johannesburg from abroad and from other South African municipalities during the five-year period preceding the 2001 census (i.e. 11 October 1996 to 10 October 2001). Since no information is available on how many migrants left Johannesburg to settle in another country, migrants from abroad (totalling 39 265) have not been included in the remaining figures presented here. In the same period almost 200 000 (192 685) persons migrated out of Johannesburg to other municipalities in South Africa, resulting in a total (positive) net-migration figure (i.e. the number of in-migrants minus the number of out-migrants) of just more than 115 000 (115 318).

The volumes of migration into and from Johannesburg are important for understanding the demographic processes involved, but for the purposes of population projections it is especially the expected volume of *net migration* by age and sex that is important.

Graph 1 shows the age distribution (in 2001) of *in-migrants* into Johannesburg during the period 1996–2001 by population group. From the graph it is clear that a vast majority of in-migrants are young adults in the age bracket 20–29 years. In Graph 2 the age distribution (in 2001) of *out-migrants* from Johannesburg during the period 1996–2001 by population group is shown. A comparison of these two graphs provides some useful general insights into the demographic processes involved in these two migration streams. From Graph 2 it is clear that the peak for out-migrants is shifted slightly to the right (i.e. to an older age group) when compared to that of in-migrants. Out-migrants show a slight concentration in the pre-/retirement age group of 60–64 years (for all four population groups).

An analysis of the *net migration* experienced by the City of Johannesburg during the period 1996–2001 makes interesting reading. During this period Johannesburg experienced a net in-migration among black Africans (+145 698), coloureds (+2 241) and Indians/Asians (+13 374), but a net out-migration (of -6 730) among whites. An analysis of the age distribution for *net migration* in respect of Johannesburg, depicted in Graph 3, which is based on the absolute totals in each case, shows that, while total net migration was positive between the ages 5 and 45 years, it was negative for persons from 55 to 74 years of age. There was zero total net migration from age 75 years upwards (as for the age group 45–50 years). The proportionally large net out-migration of whites between the ages of 5 and 19 years and again between 30 and 84 years is clear from Graph 3. The less pronounced negative net migration among the coloured population between the ages of 5 and 14 years and again between about 35 and 64 years is also clear.

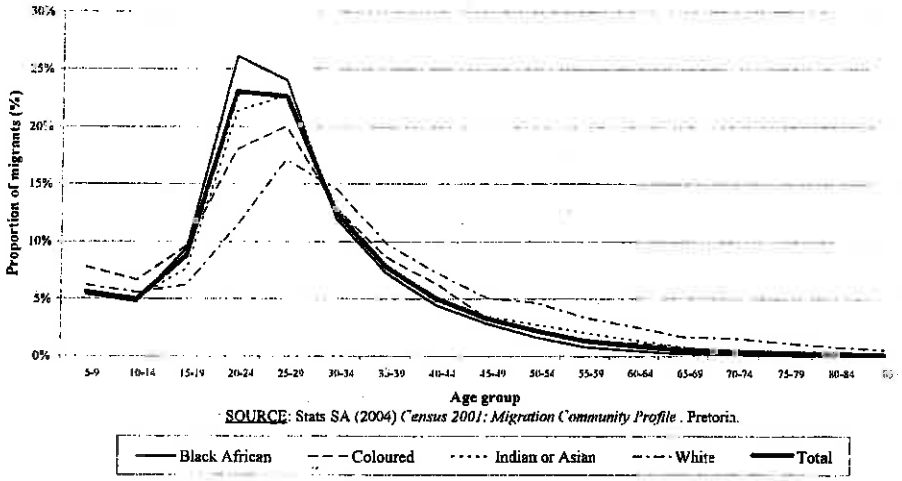
[4] The 10 per cent sample is available from the South African Data Archive (SADA) at: http://www.nrf.ac.za/sada/ahdetails.asp?catalognumber=0139

[5] This product is based in the Pan-African Census Explorer (PACE) that was developed by the African Census Analysis Project (ACAP) – see http://www.acap.upenn.edu/.

[6] Mr Piet Alberts of Stats SA can be contacted for further information in this regard.

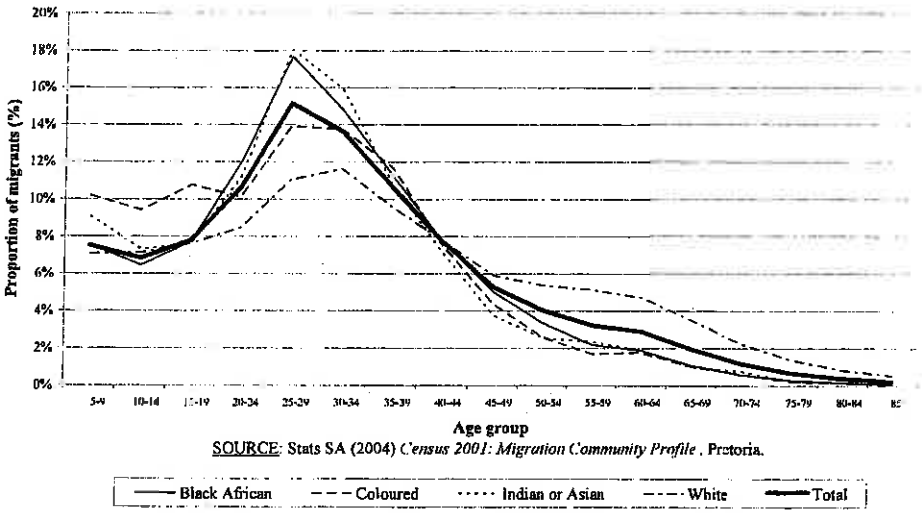
[7] The Excel files with the data on which the graphs presented here are based, can be made available upon request. Please contact Pieter Kok in this regard.

Graph 1
Age distribution (in 2001) of *in-migrants* to Johannesburg during the period 1996-2001, by population group



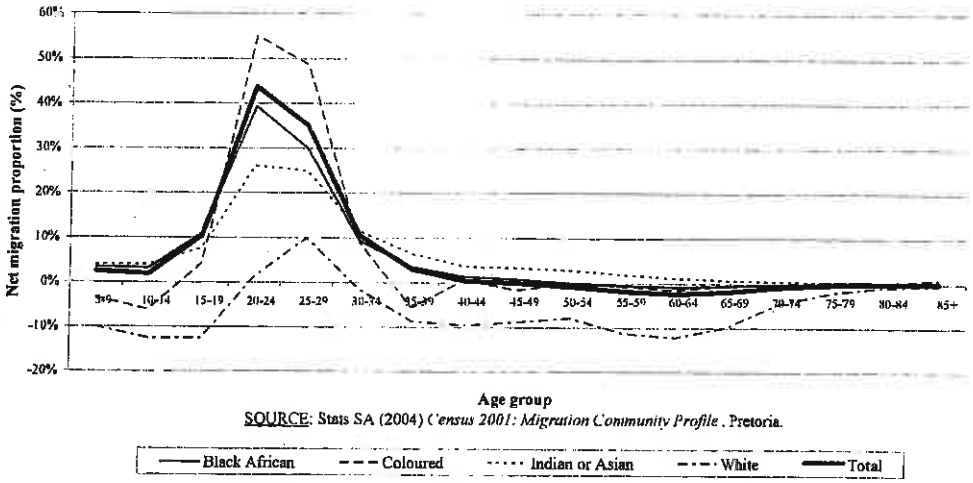
SOURCE: Stats SA (2004) *Census 2001: Migration Community Profile*. Pretoria.

Graph 2
Age distribution (in 2001) of *out-migrants* from Johannesburg during the period 1996-2001, by population group



SOURCE: Stats SA (2004) *Census 2001: Migration Community Profile*. Pretoria.

Graph 3
Age distribution (in 2001) of Johannesburg *net migration* during the period 1996-2001, by population group



SOURCE: Stats SA (2004) *Census 2001: Migration Community Profile*. Pretoria.

In Section 3.5 the implications of these patterns for population projections will be discussed in more detail.

3.2.2 Migration data from large, multi-purpose surveys

Included in this category are the large-scale socio-economic surveys conducted by Stats SA on a fairly regular basis. These include the South African (a) October Household Survey (OHS), conducted between 1994 and 1999, and the (b) Labour Force Survey (LFS), undertaken at least once a year in February/March and/or September since 2000.[8]

(a) October Household Surveys

All the OHSs generated some migration data. In 1994 information was collected on (a) country/district of birth, (b) year of last move, (c) country/district of previous residence, and (d) type of (i) locality, (ii) dwelling and (iii) homeownership in the previous place of residence. In the OHS of 1995 the same questions were asked, but workers were also asked their province and district of work.

During the 1996 OHS persons interviewed had to indicate the following for *each member of the household* (a) country of birth, (b) year moved to the current dwelling where the person usually lives, (c) country/district from which the move had been made, and (d) previous dwelling type. *Workers* were also asked their province and district of work. At the same time a great deal more than in previous OHSs were asked in respect of *migrant workers*, namely (a) status in the household; (b) occupation of the migrant worker; (c) highest education level completed; (d) money given to the household; (e) country/district in which the migrant worked; (f) industry (main activity of the firm, institution, etc.); (g) frequency of home visits, and (h) urban/rural locality type.

[8] In 2000 an Income and Expenditure Survey was undertaken by Stats SA, but it contained no migration data. The General Household Survey (GHS), which has so far been carried out in 2002 and 2003, also did not contain migration data, but they elicited potentially very useful responses on issues of life satisfaction. As with the OHS and most versions of the LFS, it seems that it will not be possible to obtain any information pertaining specifically to the City of Johannesburg.

In the OHSs of 1997 and 1998 the following information was collected for *each migrant* in the household: (a) status in the household; (b) gender; (c) occupation; (d)(i) education, (ii) certificate, diploma or degree, (iii) highest qualification and (iv) field of study; (e) money given to the household; (f) country/province/district of work; (g) industry; (h) frequency of home visits, and (i) rural/ urban locality type. The following migration data in respect of the *head of the household* was generated for his/her (a) place (country/province, magisterial district and place name) of birth, (b) place (country/province, magisterial district and place name) of current residence (c) place (country/province, magisterial district and place name) of previous residence and (d) place (country/province, magisterial district and place name) of residence before the previous place: (i) type of place, (ii) date of arrival and (iii) reason for leaving previous residence.

The OHS of 1999 covered only the following information in respect of migrant workers: (a) gender, (b) age, (c) occupation, (d) industry, (e) frequency of home visits, and (f) frequency of remittances.

It seems though that it will not be possible to obtain information pertaining specifically to the City of Johannesburg, since the primary sampling units (EAs or groups of EAs) were based on magisterial districts and not municipalities. To the extent that the EAs can be located within the new municipal areas it might be possible to draw some conclusions for the City of Johannesburg. However, since the sample was not stratified in terms of district/metropolitan local government it is highly unlikely that any reliable conclusions can be drawn in respect of Johannesburg itself.

(b) Labour Force Surveys

Between February 2000 and March 2004 the sample was explicitly stratified by province and area type (urban/rural), based on a sampling frame of Census 1996 enumerator areas (EAs). A master sample of up to 3 000 EAs were used in these Labour Force Surveys. The LFS of September 2004 was based on a new master sample that was benchmarked to Census 2001. In the new master sample the explicit strata were the 53 district/metropolitan municipalities (of which the City of Johannesburg is one).

Before September 2002 *no* LFS generated any migration data. In the LFS of September 2002, September 2003 and again in September 2004 the following information was collected in respect of the entire household: (a) identification of any persons who were "usually regarded as members of this household, but who are usually away for a month or more because they are migrant workers?" and (b) the number of such migrant workers. For every migrant worker in the household the following information was collected: (a) whether or not the migrant was the head of the household; (b) gender of the migrant; (c) the migrant's present marital status; (d) whether or not the migrant's spouse/partner lived in the household; (e) Whether or not the migrant had children aged 15 years or younger who stayed in this household; (f) the number of such children (i.e. 15 years or younger who stayed in this household, if any); (g) highest level of education that the migrant had completed; (h) province or country where the migrant worked; (i) how long the migrant had been a migrant worker; (j) how often the migrant came home to visit; (k) the amount of money that the migrant had given to this household in the preceding *12 months*; (l) the value of goods that the migrant had given to this household in the preceding *12 months*, and (m) the value of both goods and money that the migrant had given to this household in the preceding *month*.

The LFSs conducted between September 2000 and March 2004 did not provide spatial information that could reliably be linked to the City of Johannesburg, since the primary sampling units (EAs or groups of EAs) were based on magisterial districts and not the new

municipalities, which had come into existence during 2000. Therefore, *only* the Labour Force Survey undertaken in September 2004 provided information pertaining specifically to the City of Johannesburg.[9] Of the total national sample of 28 594 selected dwelling units, 909 were in the City of Johannesburg. However, the problem for Johannesburg is that of the 8 245 migrants covered countrywide in the September 2004 LFS *only nine (9) migrant workers* were enumerated within the City of Johannesburg itself.

Before September 2004 the large, multi-purpose surveys conducted by Statistics South Africa were clearly not suitable to analyse in-migration into sub-provincial spatial entities such as Johannesburg.[10] Since September 2004 the situation has changed, but other data sources, including the censuses and some purpose-made migration surveys, are still needed. The next section deals with the latter survey type.

3.2.3 Purpose-made migration surveys

There are very few examples of purpose-made surveys on internal migration in South Africa, most of which were undertaken by the Human Sciences Research Council (HSRC). The two most recent HSRC migration surveys[11] have so far been described in two unpublished technical reports by Kok (2001) and by Kok & Pietersen (2003). Other examples of purpose-made migration surveys in South Africa were those described by Møller (1986), Crankshaw and Hart (1990)[12], Seekings, Graaff and Joubert (1990) and by Cross, Bekker & Eva (1999).

In Sections 3.3 and 3.4 below the findings from the most recent (2001–02) HSRC Migration Survey are reported in respect of the City of Johannesburg.[13] The survey covered 3 618 households/respondents nationally, and was aimed specifically at the analysis of migration intentions among the South African population.[14]

3.3 People's perceptions of Johannesburg

In the 2001–02 HSRC Migration Survey all respondents living outside Gauteng were asked about their perceptions of Johannesburg as a place in which to live, work, retire, die and be buried. The details of these findings are presented in Appendix 1.

Only a small proportion of the respondents living outside Gauteng at the time of the survey had ever lived in Johannesburg and a vast majority knew "nothing whatsoever" or "too little" about the city. The contacts that households living outside Gauteng have with their Johannesburg social networks are mainly in the form of mutual visits or telephone conversations rather than aimed specifically at influencing the members of households outside Gauteng to move to Johannesburg by proving work-related information or actually providing people with jobs in Johannesburg. While the City of

[9] The data from the September 2004 LFS are also available from SADA at: http://www.nrf.ac.za/sada/ahdetails.asp?catalognumber=0141

[10] It was not attempted to evaluate the extent to which they may be suitable for analysing out-migration from the city to other parts of the country.

[11] Kok (1984, 1988 & 1990) and Kok, Hofmeyr and Gelderblom (1985) describe four earlier purpose-made HSRC surveys on internal migration.

[12] See also Crankshaw, Heron and Hart (1992) for another description of the survey.

[13] The data generated by this survey are available at the South African Data Archive (http://www.nrf.ac.za/sada/ahdetails.asp?catalognumber=0138).

[14] The survey was preceded by an initial survey (conducted in 2000 among 911 households/respondents) that aimed to provide the basis for evaluating the items that would be used in the main (2001–02) main survey (see Kok 2001 and Kok & Pietersen 2003). Another objective of the initial survey was to cast some light on the respondents' migration histories (during their adulthood).

Johannesburg provides work and other opportunities not equalled elsewhere in South Africa, very few people living elsewhere in the country are willing to spend their last years in Johannesburg (but these sentiments may in many cases be at an emotional rather than rational level).

3.4 Migrants' intentions

The perceptions about Johannesburg as a place in which to live and work are to some extent also reflected by the migration intentions of the population living outside the boundaries of the city. The overall distribution of responses to the implied question as to whether they planned to migrate to Johannesburg during the five years following the survey (i.e. 2001/02–2006/07) is as follows: (a) no: 93%; (b) yes, permanently: 6%, and (c) yes, temporarily: 2%. A considerable proportion (8%) of the ***total SA*** **adult** population (aged 18–69 years) outside Johannesburg therefore intended to move to Johannesburg between 2001/02 and 2006/07.

The out-migration intentions of Johannesburg respondents (to the implied question as to whether they planned to migrate away from Johannesburg during the period 2001/02–2006/07) is as follows: (a) no: 73%, (b) yes, permanently: 17%, and (c) yes, temporarily: 5%. Therefore, only a small proportion of Johannesburg's population (27%) intended to move away between 2001/02 and 2006/07.

Johannesburg can expect continued net in-migration because, translated into numbers (and based on the Census 2001 population figures *for persons aged 18–69 years* – as were the respondents), the above proportions indicate the following possible (South African internal) migration figures for Johannesburg:

- In-migration: 1 899 685 (8% of 23 746 065) [76%]
- Out-migration: 611 149 (27% of 2 263 515) [24%]
- Gross (in- plus out-) migration: 2 510 834 [100%]
- Net (in- minus out-) migration: 1 288 536

Of course not all these intentions will be converted into actual migration, but the relative numbers (proportions) may well be within the ball park.

The survey data should preferably also be used in a model to determine the factors that affect South Africans' migration/non-migration intentions. This is the subject of the next two sub-sections.

It is difficult to identify and correctly order the determinants of migration without appropriate statistical modelling. The 2001-02 HSRC Migration Survey generated a wealth of potentially useful information, and this can be utilised effectively to determine migration differentials and causes, and for predicting migration intentions.

Use can be made of the HSRC migration-survey data to describe, analyse and interpret (aa) the micro-level causes of migration to Johannesburg, (bb) which and how many family members join the adult migrants during their moves to and from Johannesburg, and (cc) the interrelationships among the micro-, meso- and macro-level variables that have been identified internationally in theoretical and/or empirical studies as determinants of migration intentions and behaviour (see, for example, De Jong & Fawcett 1981, Massey et al. 1993, and De Jong 2000).

3.5 Theoretical and methodological considerations

Despite important progress in recent decades,[15] various theoretical and methodological obstacles still plague migration research. The *theoretical* problems start with the issue of finding appropriate definitions for migration and urbanisation. There is no universally acceptable definition of migration; a problem that has created many dilemmas for migration scholars.[16] At a different level, migration scholars from 'structuralist' schools are often not accepting the contributions by those emphasising the individual and family (the 'behaviourists'), and vice versa.

The *methodological* issues range from problems around the coding of previous places of residence to the need to deal with unreliable migration data often caused by a fear of persecution among some respondents – also in South Africa with its strong current xenophobic and historical racist sentiments. These difficulties are experienced not only by those responsible for censuses. Researchers conducting migration studies are equally subjected to the problems mentioned.

One of the methodological problems that migration researchers have to deal with is the issue of the micro-level causes of migration. All too often researchers rely solely on the reasons given by survey respondents for why they have moved or intend to move. The migration literature shows that the reasons given by respondents are frequently rationalisations (see, for example, De Jong and Fawcett 1981:43–44), and they often reflect the respondent's inability to verbalise the true reasons for moving or the interviewer's inability to correctly record complex responses usually resulting in oversimplified reporting of the reasons why people move. Also important, not only from a research perspective but also for policy and planning purposes, is a study of why people do *not* move. All these considerations require that an alternative way must be found to elicit the real motives behind migration. A viable (but very complex) expectancy-based approach was devised by De Jong and Fawcett (1981) and has since been applied very successfully in various parts of the world, including South Africa.[17]

There are thus many conceptual and theoretical issues to grapple with in migration research and modelling. Six of the most complex variable-related issues will briefly be discussed here, namely those relating to expectations, migrant networks, family influences, information, spatial context and migration selectivity.

(a) Expectations

Sell and De Jong (1978:322) define expectancy as "the decision maker's subjective evaluation of the likelihood of goal attainment", and De Jong and Fawcett (1981) refer to expectancies as "subjective probabilities" that migration will lead to the desired outcome. In their (1981) view, expectations act as the linkage "between migration behaviour and the attainment of goals in alternative locations" (p. 47). De Jong (2000:307) describes expectations as "...the act of looking forward in

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[15] Migration theory has really only come of age during recent decades, starting with the seminal work by Peter Rossi in the mid-1950s. This was built upon by the particularly influential theoretical contributions by Everett Lee and Michael Todaro in the 1960s, followed by those of Gordon De Jong (since the early 1980s) and Douglas Massey (since the mid-1990s).

[16] In this study I use, wherever possible, the definition that was proposed by Kok (1999), namely *the crossing of the boundary of a predefined spatial unit by persons involved in a change of residence.*

[17] The application of the model in the **Philippines** was reported, among others, by Arnold (1987), De Jong (1985), De Jong *et al.* (1983, 1986), Gardner *et al.* (1986), and SyCip and Fawcett (1988). See Sandu and De Jong (1996) for a discussion of the model's application in **Romania**. De Jong, Johnson and Richter (1996) reported on the application of the model in **Thailand**. The application of the model in **South Africa** among the white population was reported by Kok (1988, 1990) and Kok and Badenhorst (1990), and among the black population in the squatter settlements of the Hottentots Holland Basin by Kok and Motloch (1992).

anticipation of the future...", and suggests that expectations represent "...a dynamic research focus because they capture the process of evaluating future outcomes of alternative decisions" (p. 307).

As De Jong and Fawcett (1981) also indicate, such descriptions of expectations clearly imply a level of "rationality" in decision-making processes that may not always exist. Gelderblom (2003a) has the following to say in this regard: "If a rational person is likely to leave, what does it say about the motives of those who stay put? It seems to me that 'not migrating' is, in principle, much more difficult to understand on the motivational level than migrating." He continues by making the important point that "...while moving is generally the result of a conscious decision, not moving doesn't have to be. Just continuing with one's daily routines over time is enough to produce the result of 'not migrating'. Migration is a rupture of everyday life, which presupposes decision-making. Staying behind is not. In summary, one can say that there is a basic asymmetry between 'moving' and 'not moving'. 'Not moving' is not just the flip side of 'moving', but something completely different." Special attention should thus be given to the choices (or perhaps the absence of choices) made by migrants and non-migrants.

Also needed is an approach whereby both micro-level and macro-level data are used in the same explanatory analysis of migration. Greater recognition of the effect of contextual factors is therefore needed. This confirms the need for an approach whereby structural/contextual and behavioural factors can be linked. Any approach that leaves no room for individual decision making would be as far off the mark as one that ignores the importance of contextual factors. A balanced approach is thus required. According to De Haan (1999), such an approach should incorporate an analysis of motivational factors and the way people understand the structures within which they operate, and should stress that the constraints often do provide some manoeuvring space (p. 12). In the research proposed here, expectations are regarded as the key decision-making concept that links macro-level, meso-level and micro-level factors with migration intentions – and probably also subsequent migration behaviour, as De Jong (2000) indicates.

In the 2001–02 HSRC Migration Survey the following three questions were asked in this regard:

(i) "How important is this item to you personally *now*, and with the *future* in mind?" (See the variable labelled V_i for Item *i*, described below.)
(ii) "To what extent is this area (where you live now) likely to meet this need?" (See the variable labelled E_{1i} for Item *i*, described below.)
(iii) "To what extent can ..... ['AREA'] be expected to do better or worse in meeting this need than the area where you live now?" (See the variable labelled E_{2i} for Item *i*, described below.)

The variable used here to describe this expected primary predictor (value-expectancy) has been constructed largely on the basis of the formula suggested by De Jong and Fawcett (1981:47):

$$MI = \sum_{i=1}^{k} V_i \bullet E_i$$

where: MI = the strength of the intention to migrate (and in this case the likelihood of a future migratory move)
V_i = value attached to a particular goal item (*i*)
E_i = expectation in respect of the possible destination, denoting the extent to which the particular goal item (*i*) is likely to be achieved in the current area of residence
OR
the comparative expectation in respect of the possible destination, denoting the extent to which the particular goal item (*i*) is likely to be

better or worse achieved in the possible area of destination than in the current area of residence

k = number of goal items included in the analysis

However, the De Jong and Fawcett (1981) formula was also extended for the purposes of this study to include the two expectancy components (in respect of both the possible destination and the origin, i.e. the current area of residence) in the same formula instead of only one as suggested by De Jong and Fawcett (that relates to the expectation in respect of the possible destination):

$$MI = \sum_{i=1}^{k} V_i \frac{E_{2i}}{E_{1i}}$$

where: MI = the strength of the intention to migrate (and in this case the likelihood of a future migratory move)

V_i = value attached to a particular goal item (i)

E_{1i} = expectation for the current area of residence, denoting the extent to which the particular goal item (i) is likely to be achieved in the current area of residence

E_{2i} = comparative expectation in respect of the possible destination, denoting the extent to which the particular goal item (i) is likely to be better or worse achieved in the possible area of destination than in the current area of residence

k = number of goal items included in the analysis

The value-expectancy framework should thus be understood as making provision for the expectancy in respect of a particular area (for a specific item or dimension) to be *weighted* by the *value* attached to the said item/dimension.

(b) Migrant networks

Social networks should be seen as including "migrant networks" as a subset. Gelderblom (2001) concludes that a network is essentially a set of interconnected nodes, and in the case of social networks the nodes represent actors, be they individuals or organisations, and the connections are the social bonds between actors. To him (2001) this conception of social networks is more formalistic than the definitions typically used in the migration literature, such as the one by Massey et al. (1993), whereby "migrant networks are sets of interpersonal ties that connect migrants, former migrants, and nonmigrants [sic] in origin and destination areas through ties of kinship, friendship, and shared community origin" (p. 448). Gelderblom (2003b) points out that the first conclusion flowing from this definition is that migrant networks are spatially based, thereby connecting two or more areas. In a migrant network the spatial distribution of the individuals (nodes) in the network is important, which is different from the tradition of network analysis in sociology, where the distribution of individuals in social space is considered but their arrangement in geographical space is ignored. The second conclusion drawn by Gelderblom is that migrant networks are based on social relationships that predate the first migrant's move from the area of origin.

It should be clear from the above that the concept "social network" is complex, and should not be regarded simplistically as facilitating migration in all circumstances. It should also be evident that it is more appropriate to use the term "migrant networks" when dealing with social networks in a migration context.

The existence of *social networks* has been described as not only a notable cause of migration (cf. De Jong 2000) but also as an important reason why migration is perpetuated (cf. Massey et al. 1993). The variable used here (SOC_NET) has been constructed from the responses to the following two questions in the survey: (i) "Do you have any immediate relatives or close friends who live in

'AREA'?", and (ii) "Have you or other members of this household had contact with any of these relatives or friends living in 'AREA' during the past 12 months?" If the answers to both questions were affirmative the variable MIG_NET was coded as 1, otherwise it was coded zero. This also applied to those respondents who did not indicate that they had ever considered migrating, and in such cases the "possible destination" was Johannesburg (for those living outside Gauteng) or Cape Town (for those living in Gauteng).

(c) Family influences

Family influences are almost universally recognised as important factors in migration. However, as pointed out by Harbison (1981), it may be "...precisely the pervasiveness of the influence of the family that makes the specification of its influence on the migration decision-making process so difficult" (p. 228). Defining the concepts "household", "family structure" and "family function" is difficult in all situations, but perhaps even more so when people live in severe poverty or in high mortality circumstances, where the household size or its composition changes according to need or disaster (see, for example, Spiegel 1986, 1987; Kotze 1993; Gelderblom & Kok 1994; Gelderblom 2001).[18] What is clear, though, is that although its structure and function may vary widely from one society to the next, "the family is the context of the migration decision for most individuals" (Harbison 1981:229).

The variable OWN_INT that is used here denotes whether the respondent indicated that s/he would act in his/her *own interest* (value: 1), or in the interest of the household in general or for the benefit of others (value: 0), in response to the following question: 'In thinking about whether you intend to move or stay here, on which of the following, if any, will you base your decision (to move or stay)?' The multiple response options were: (a) 'on what would be best for *your own* future'; (b) 'on this *household's* need for a *higher income*'; (c) 'on *reducing the risk of bad things* happening to this household'; and (d) 'on what is best for *family members* who are *not* currently part of this household' (italics in original). If the respondent answered positively to the first option (a), and negatively to *all* the rest, i.e. (b)–(d), the dichotomous variable OWN_INT was coded 1; otherwise its coded value was 0.

(d) Information flows

According to Goodman (1981) there are several forms of information that enter the migration decision-making process; some information can be "bought with money" as it were, while other kinds of information can be acquired only "with time". The former kind "...refers exclusively to the current time period and the past, and it pertains primarily to the characteristics of alternative locations...", which are closely related to the concepts "mental maps" and "awareness space" (Goodman 1981:136). Regarding the latter form of information, Goodman (1981), quoting James March, points out that "...rational choice involves two kinds of guesses: guesses about future consequences of current actions and guesses about future preferences for those consequences" (p. 135).

Information about possible migration destinations is often incomplete and imperfect. Therefore potential migrants tend to attach higher credibility to information from trusted friends and relatives.

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[18] Gelderblom (2001) refers to the work by Andrew Spiegel in the mid-1980s in South Africa that showed how "extreme poverty and violent urban conflict can prevent household consolidation, with the result that households keep breaking up and reforming. Household catastrophes such as the death or unemployment of a breadwinner, for example, may necessitate the transferral of household members to other households. Household fission and fusion is not restricted to South Africa – elsewhere in Africa (and increasingly in South Africa itself) the death of caregivers in the household, caused by the Aids epidemic, often leads to the fragmentation and then reconstitution of households. When subjected to so much instability, households cannot be vehicles for long-term projects such as capital accumulation."

"Migrants therefore minimize the uncertainty regarding the destination by acting upon information from personal contacts rather than market or government sources, even if the opportunities provided through these sources appear comparable" (Goodman 1981:138). That may explain why migrants (even in developed contexts such as the United States) typically consider very few, if any, alternative destinations before moving (Goodman 1981, referring to studies by various researchers in the USA), and why the "selection of 'beaten path' migration routes" continues (p. 142).

Lucas (1997) refers to the ambiguity in the treatment of information in micro-economic models. In the human capital model everything concerning alternatives is regarded as known and certain, and the Harris-Todaro model introduces the element of uncertainty, "...but retains complete information about wages and the chances of employment. Not surprisingly, given this ambiguity and the difficulty in disentangling the role of information from other factors, the evidence in this sphere is difficult to interpret" (p. 743).

The conclusion that information is often incomplete and imperfect also highlights the difference in uncertainty regarding the current location and potential destinations, thereby inhibiting migration, especially to far-off places, with only those having a risk-taking ability being comfortable detaching themselves from their area of origin (Goodman 1981:139). Goodman (1981:140) suggests that risk aversion typifies decision-making strategies of most individuals, with the result that imperfect information leads to a lower mobility rate than would have existed otherwise, and a greater "concentration" of moves ("...both among people who move repeatedly and in places that receive disproportionate shares of the in- and out-migration activity"). *Risk-taking ability* has also been suggested by various other scholars – such as Lee (1969), Todaro (1969), De Jong and Fawcett (1981) and DaVanzo (1981) – as an important personality trait that may facilitate migration.

(e) Spatial context

The importance of the spatial context is emphasised almost invariably in the migration literature. In the early 1940s the gravity model, which highlights the characteristics (notably sizes) of the places of origin and destination and the distances separating them, became popular following the contributions of Zipf (1946) and others, and led to numerous modifications that have since become known as the family of "spatial interaction models". In 1966 Everett Lee described the positive, negative and neutral factors that operate in the places of origin and destination, and since then many migration studies have made use of the so-called push-pull framework (albeit sometimes in highly simplistic terms). But whatever the underlying paradigm, there seems to be consensus among migration researchers that the spatial context is very important.

It is suggested that, in South Africa, the spatial context relates primarily to the meso-level factor "type of locality", i.e. whether or not the area (a) forms part of a metropolitan conurbation (which would have been receiving most private and public sector investments and the majority of migrants) or (b) is an urban settlement (which, compared to rural areas, received a great proportion of government investment, leading to accusations of a perpetuation of the 'urban bias').

A meso-level variable denoting the *type of locality* in which the respondent was living at the time of the survey (URBN_CUR) is used in these analyses. If it was an urban area, URBN_CUR has been given the value 1 and if a rural area the value given is zero.

Other factors that relate spatial context to migration behaviour are the micro-level variables "expectations" (discussed earlier) and "residential satisfaction". The importance of dissatisfaction in spatial mobility was first analysed by Peter Rossi in 1955 and served to incorporate the role of the life-cycle stage into migration studies. In 1974 Alden Speare further contributed to the collective understanding of migration by showing that "residential satisfaction" (which was closely related to

the concept of "place utility" that had been introduced by Julian Wolpert in 1965) was an intervening variable in residential mobility.[19]

Although *satisfaction with life on the whole* (GEN_SAT) may be notably different from the variable "*residential* satisfaction", which was found to be an important predictor of out-migration and residential mobility in other studies (see, for example, Rossi 1955, Speare 1974, and Speare, Kobrin & Kingkade 1982),[20] it is expected that *dis*satisfaction with life in general might cause people to consider moving away from the areas where they currently find themselves.

(f) Migration selectivity

In the migration literature descriptions of selectivity factors are almost invariably centred on demographic characteristics (such as age, sex and life-cycle stage) and economic-related variables (such as education, employment status and income). Reference is sometimes also made in passing to the potential importance of personal traits (notably risk-taking ability and efficacy, as in De Jong and Fawcett 1981) as another set of selectivity factors, but hardly ever is it indicated what exactly these are or how they could be measured (see, for example, Lee 1966; Mabogunje 1970; Goodman 1981; Haberkorn 1981), and even then the underlying relationships are not clear. De Jong and Fawcett (1981) refer for example to the mixed support in Sally Findley's review for the hypothesis that risk takers are more likely to migrate than their risk-averse counterparts. This points us to the need for more research on the true effect of personal traits and other selectivity factors on migration. It is necessary, also, to be specific about what exactly these selectivity factors are, how they should be measured, and how they interact with other migration determinants to affect mobility outcomes.

Furthermore, as De Jong and Fawcett (1981) correctly point out, research on risk taking and similar personal traits is often flawed by the use of education or some other proxy measures for personal traits. "Because of the paucity of studies that measure traits directly, the strength of personal traits as determinants of migration decision making is unclear. Our working hypothesis is that individuals whose perception of themselves include personal efficacy, adaptability to change, and the ability to take risks are more likely than others to express values and expectancies favouring spatial mobility" (De Jong & Fawcett 1981:55).

A superficial treatment of the set of selectivity variables called "personal traits" must therefore be avoided. Here we need to focus our attention on three of these variables, namely social desirability (which is used to distinguish between survey respondents who are more assertive, i.e. not caring too much what the interviewer/researcher may think of them and therefore having lower scores on the social desirability scale, and more compliant, i.e. often trying to make a good impression and thus having higher social desirability scores), the ability to cope with risks (i.e. being tolerant of risk), and efficacy (i.e. the ability to 'get things done'), with the latter two having been identified as potentially important determinants of migration (albeit perhaps indirectly via expectancy, as suggested by De Jong and Fawcett 1981). Yet not one of the publications quoted earlier indicates what exactly these variables are or how they should be constructed. In the recent HSRC migration surveys and research a concerted effort was made to deal appropriately with these factors (see Kok 2004b, for a brief description of how these selectivity variables were developed and dealt with in the research).

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[19] In 1982 Speare, Kobrin and Kingkade confirmed that the residential-satisfaction model also holds for migration between different states in the USA.

[20] The problem with GEN_SAT (as is also the case with "*residential* satisfaction") is that it does not incorporate any reference to circumstances at the possible destination. In that sense it is not a suitable predictor of the likely migration *direction* per se, but it was expected to at least increase the predictive power of the model.

Following the analyses of the initial (preliminary) migration survey, an evaluation of the data from the main migration survey was also undertaken. Confirmatory factor analysis (CFA) was used for the purpose of confirming the findings reported earlier. The findings from these analyses have been reported in detail by Kok and Pietersen (2003) and are therefore merely summarised here.

Since the two personality dimensions "risk-taking ability" and "efficacy" have been identified in the literature as important for migration research, they warrant a full investigation. A number of possible items that had been hypothesised to contribute significantly to the measurement of these two dimensions (partly borrowed from the "risk-taking scale" by Jackson 1976, and the "self-efficacy scale" by Schwarzer & Jerusalem 1993 respectively[21]) were included in the questionnaire for the HSRC's initial (2000) survey. A reduced number of these items, based on the analyses on the data from the initial survey, was used in the main (2001–02) HSRC Migration Survey.[22] Factor and item analyses were conducted on these items following each survey, and the findings are presented in Appendix 2.

A number of other selectivity variables were also used in the analyses reported here. They are given below in alphabetical order of the variable labels.

(a) The *age* variable (AGE) denotes the age of the respondent (in single years, 18–69).

(b) The variable *currently married* (CUR_MAR) has a value of 1 if the respondent was married at the time of the survey and zero otherwise (never married, divorced or separated).

(c) *Level of education* (EDUCAT), a variable measured on an ordinal scale, was constructed as follows: To respondents with no formal education the value zero was allocated. Those with no tertiary (post-school) education, i.e. having completed only the school grades 1 to 12 were allocated the grade level (i.e. a value between 1 and 12). Respondents with tertiary education were allocated values as follows: (i) for a college/technikon/university diploma/ certificate, the value 13, and (ii) for a technikon/university degree (or higher), the values 14–17.

(d) Score on the *efficacy* scale (EFFICACY), expressed as a percentage of the maximum possible score.

(e) Whether or not the respondent is a *former migrant* (MIGRANT), with the value 1 if "yes" and zero if "no".

(f) The poverty index for the local government concerned in 2001. The index of poverty used here not only includes purely economic factors but also covers access to services. The index is based on the following 10 of the 12 poverty indicators identified for the Gauteng Intersectoral Development Unit (GIDU) by Jennings, Ntsime & Everatt (2003). These are:

> (a) *dwelling type* (proportion of households in dwellings classified informal or traditional); (b) *electricity* (proportion of households that do not have electricity for lighting purposes); (c) *female-headed households* (proportion of households headed by women); (d) *household income* (proportion of households with an annual income of R9 600 or less); (e) *illiteracy* (proportion of population (15+) who have not completed Std 5/Grade 7); (f) *refuse removal* (proportion of households whose refuse is not removed by local authority); (g) *sanitation* (proportion of households

[21] It should be understood that the diversity of the South African population makes it very difficult to find items appropriate for all our cultural and socio-economic contexts. This highlights the need for a detailed testing of questionnaire items of this nature.

[22] It should be made clear from the outset that the two suggested scales were not meant to be used here as psychometric tests in the usual sense. *Neither the risk-taking nor the efficacy scale is intended for individual psychological assessment.*

that do not have a flush or chemical toilet); (h) *unemployment rate* (proportion of the 'economically available' population, i.e. all persons aged 15–65 years, that is unemployed); (i) *crowding* (proportion of households sharing a room with at least one other household), and (j) *water* (proportion of households that have no tap water inside dwelling or on site).

An 11th indicator, *telephone services* (proportion of households with no access to a telephone), has been added to reflect the degree of isolation among very poor households who either cannot afford a cellular or telephone in the dwelling and have no access to a distant telephone facility or who live in areas not serviced by cellular phone networks or by Telkom. From these 11 indicators an overall poverty index, being the average indicator value, has been constructed, assuming equal weights for the individual indicators.

(g) The control variable, *social desirability*, is included here to eliminate differences in respondents' need to "look good" in the eyes of the interviewer/researcher when responding to questions that are critical to the analysis, such as migration intentions, attitudinal items to determine risk-taking ability and efficacy, and items related to values and expectations. The variable used here (SOC_DES) denotes the respondent's score on the (shortened) social desirability scale, expressed as a percentage of the maximum possible score. By including a respondent's score for social desirability in a multivariate analysis it is possible to remove most of the social desirability effects on the other variables in that particular analysis or model. Being a control variable, social desirability does not warrant any interpretation in the analyses where it appears.

(h) Another dichotomous variable, denoting whether or not the respondent was *working* (for pay, profit or family gain) at the time of the survey has been included in these analyses. The variable, WORKING, received the value 1 if the respondent was working, and the value zero if not.

3.6 Proposed structural framework

Confirming the suggested structure depicted in Figure 1 is central to our understanding of the behaviour of migrants (including those moving to or from Johannesburg) *and* non-migrants. The modelling to be discussed next should provide more insight into these expected interrelationships. The first step was therefore to confirm or reject the suggested framework (shown in Figure 1) as a basis for the next step, which is to construct a graphical chain model that should not only reflect the confirmed structural framework but also provide the most appropriate means to analyse the components of that framework.

It was decided to use as dependent variable the intention to migrate permanently (MIG_PERM) over the next five years. The findings from the path analysis are provided in Appendix 3, which clearly confirmed the structural framework depicted in Figure 1.

FIGURE 1 SUGGESTED FRAMEWORK FOR AN EXPECTANCY-BASED MODEL OF MIGRATION DECISION MAKING

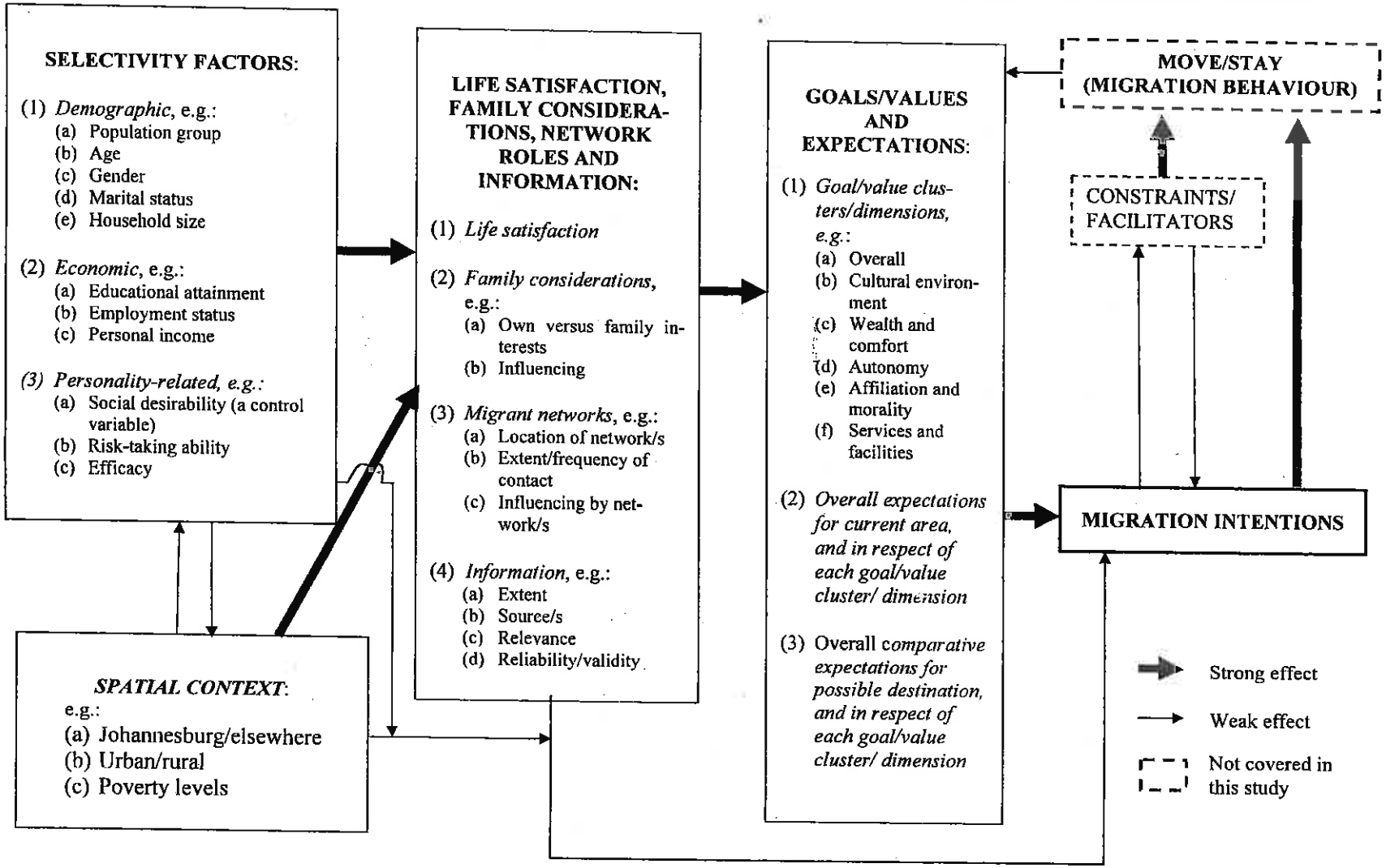
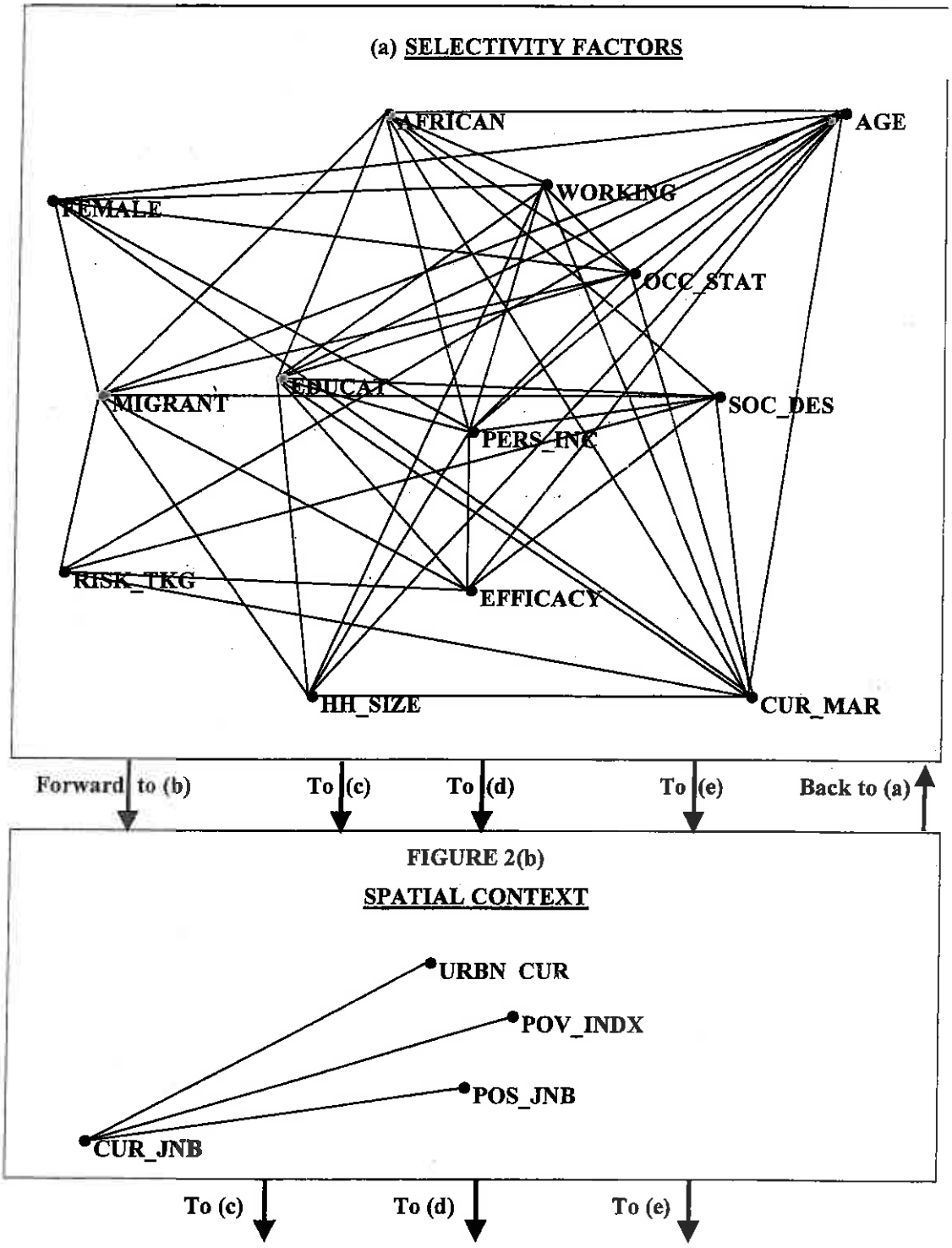


FIGURE 2 BASIC ILLUSTRATION OF THE GRAPHICAL CHAIN MODELLING THAT IS NEEDED TO REFLECT THE CONFIRMED FRAMEWORK



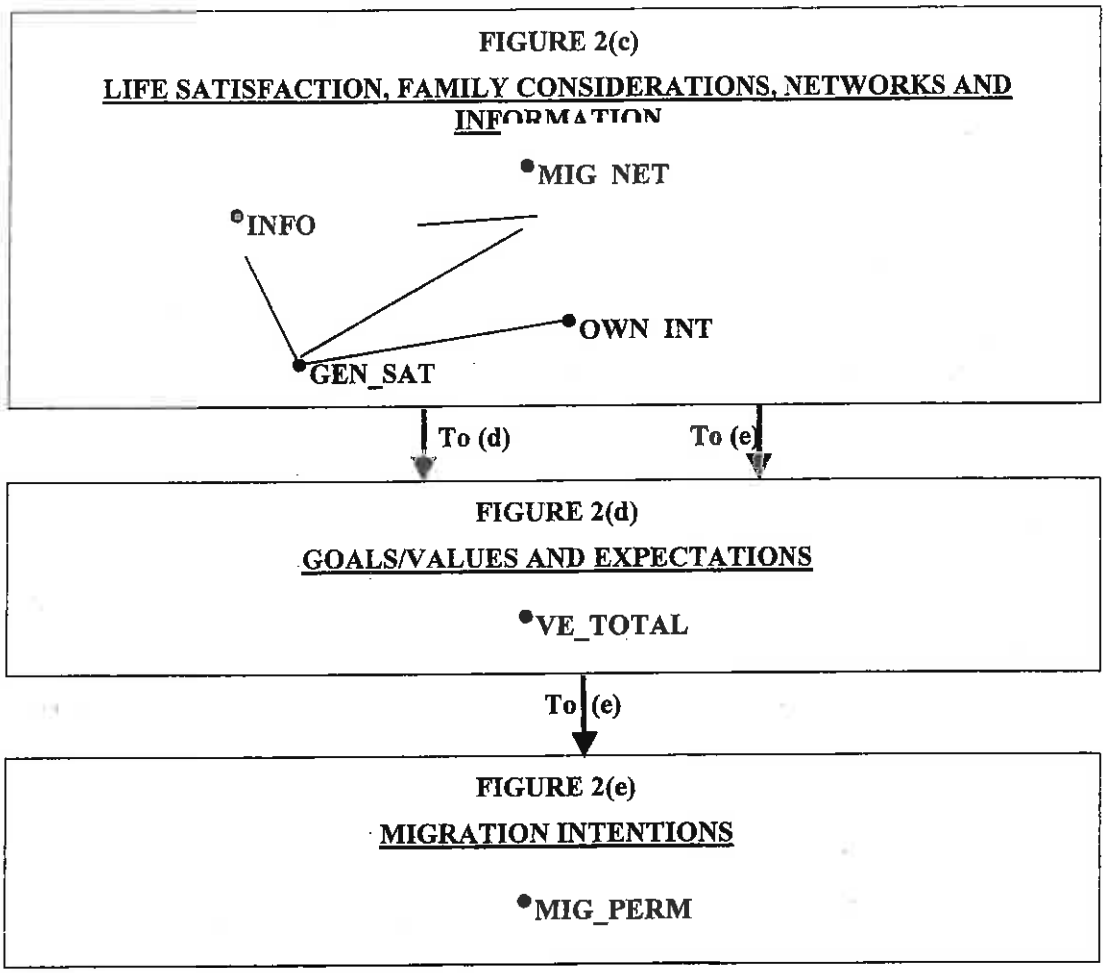


Figure 2(a) shows the independence among the variables denoting the selectivity factors in the analysis. For example, the vertex AGE (upper right-hand corner) has no undirected edges (lines) leading to (and is therefore independent of) WORKING, SOC_DES, and MIGRANT. Similarly, FEMALE (in the upper left part) is independent of AFRICAN, SOC_DES, EFFICACY, RISK_TKG, CUR_MAR, EDUCAT, PERS_INC, HH_SIZE, and MIGRANT.

Figure 2(b), which provides the spatial context for the analysis, shows that URBN_CUR has only one undirected edge (line) that connects it with CUR_JNB, while CUR_JNB is also connected to POS_JNB and POV_INDX.

Figure 2(c) contains four vertices (OWN_INT, GEN_SAT, MIG_NET and INFO) and the undirected edges (lines) show that MIG_NET and INFO are *not* independent, but OWN_INT is independent of MIG_NET and INFO. GEN_SAT is connected to all three the other vertices in Figure 2(c). Figure 2(d) has the single vertex, overall value-expectancy (VE_TOTAL). MIG_PERM, the ultimate consequent (dependent) variable, is also the only vertex in Figure 2(e).

The arrows between adjacent blocks in Figure 2 indicate the underlying causal assumptions that causally link the elements of one block with those of another. There are directed edges (arrows) from (a) to (b), (c), (d) and (e). It should be noted that there are not only forward-directed edges (arrows) from (b) to (c), (d) and (e) but also a backward-directed edge back from (b) to (a), indicating that some variables in (b) are response variables for predictors in (a) and *vice versa*.

To simplify interpretation the directed edges that link the individual variables in different blocks are not indicated in Figure 2, but the details of these interrelationships are provided in the individual structural equations. The solution of the different structural equations is provided in Appendix 4 (obtained from the various regression analyses to comply with the framework depicted in Figures 1 and 2).

From the equations presented in Appendix 4 it should be clear that the suggested framework, provisionally confirmed by the path analysis is valid for South African circumstances, and that it is consequently highly appropriate for a study of intentions to migrate to and from Johannesburg.

3.7 Discussion

The graphical chain modelling has confirmed beyond doubt that the framework depicted in Figures 1 and 2 applies to migration intentions among the South African population and specifically also for intentions to migrate to and from Johannesburg (in view of the two variables referring specifically to Johannesburg having been included). It is a pity that the study could not also include an analysis of the extent to and circumstances under which these intentions are converted into actual migration behaviour, and what role is played by (largely unanticipated) constraints and facilitators. The data required for that purpose can only be obtained from a longitudinal study, for which the HSRC study was designed from the outset, but would be undertaken only if sufficient external funding could be obtained. Nevertheless, it is clear that migration intentions are determined to a significant extent by goals/values and expectations (as a primary set of predictors), network roles and information,[24] the spatial context and selectivity factors.

It has been shown in Appendices 3 and 4 (see Equation 19 in Appendix 4) that people **intend to migrate** (MIG_PERM) (a) when their expectations for the current area become lower than those in respect of an alternative place of residence, (b) which are often influenced by the information received about the alternative place of abode from relatives and friends living there, (c) if they have reason to believe that these networks at the possible destination will provide assistance and support during and after the move, and (d) when they become sufficiently *dis*satisfied with their lives in the current area of residence. (e) A significant proportion of respondents actually preferred to move to Johannesburg instead of another possible destination. (f) High poverty levels in the (local government) area where people reside are an inhibiting factor in the decision to move away permanently, indicating that a significant proportion of people in very poor areas may be trapped there. (g) People with a higher score on the scale for risk-taking ability are more likely to plan a migratory move than their more risk-averse counterparts. (h) Younger, unmarried adults will be

[24] The role of family influences could, unfortunately, not be empirically confirmed here, but based on other studies (e.g. De Jong 2000) the model should hold for this subset of factors as well.

more inclined to migrate than their older, married counterparts. (i) Persons who have migrated before are more likely to consider migrating again. Other factors associated with an intention to migrate are: (j) a higher educational attainment and (k) a lower occupational status, (l) a higher personal income, and (m) a lower score on the social desirability scale.

The model presented here is primarily an analytical/explanatory model. It was **not** meant to be a predictive model, but it can be applied in scenario-type experiments with a view to seeing the possible migration-intention outcomes of different scenarios for any of the 23 antecedents (explanatory variables). However, such experiments for the data pertaining to Johannesburg have not been undertaken so far and therefore cannot be reported at this stage.

3.8 Implications for migration projections

The rationale for discussing (at some length) the factors associated with migration intentions is that migration intentions are the best predictors of migration behaviour that we have. In fact, they are more than that. In a longitudinal study in Thailand, De Jong (2000) found that migration intentions are in fact a proximate determinant of permanent migration behaviour, as anticipated, but not for temporary migration.[25] An analysis of the data from the 2001–02 HSRC Migration Survey shows that there is a small ($r = 0.053$) but statistically highly significant ($p < 0.01$), positive correlation between the micro-level variable "intending to migrate permanently" and the meso-level variable "the probability of out-migration among the adult population of the district concerned (based on the 1992–96 migration data from Census 1996)".[26]

A similar analysis of the link with 1996–2001 migration data from Census 2001 has also been undertaken and the association between *overall* migration intentions (i.e. whether permanent or temporary) is small but positive and statistically significant for actual out-migration during the period 1996–2001 ($r = 0.06$; $p < 0.01$), and also for the mean out-migration rate for the two periods ($r = 0.07$; $p < 0.01$).[27]

It is important to reiterate, though, that a longitudinal study is needed to determine at least the extent to which migration intentions are converted into actual migration behaviour. Should the necessary funding be obtained, that study will hopefully be undertaken in the next two years. Only then will it be possible to predict future migration rates to the City of Johannesburg by directly linking the migration intentions with actual migration for the purposes of general population projections for the city.

As mentioned in the introduction, it is necessary to know what migration data are available and what the possible future migration trends might be before any migration projections can be undertaken. It is also useful to have an idea of the relative impact

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[25] An earlier longitudinal study in the Philippines regarding migration intentions and behaviour was reported by, among others, Arnold (1987), De Jong (1985), De Jong *et al.* (1983, 1986), Gardner *et al.* (1986), and SyCip and Fawcett (1988).

[26] For a detailed discussion of this relationship, see Kok (2003).

[27] The corresponding relationship (i.e. between *overall* migration intentions and the actual out-migration rates) for the period 1992–1996 is also significant ($r = 0.11$; $p < 0.01$).

of the factors contributing to migration so as to determine the likely changes to the projected migration numbers under shifting conditions. More work clearly needs to be done, however, and it will be necessary to conduct local-area surveys from time to time, inter alia with a view to determining the nature of the changing circumstances (e.g. in household formation dynamics or people's often unpredictable settlement priorities) that may affect the available population projections.

4 CHANGE DRIVERS AND HOUSEHOLD FORMATION: USING THE PILOT STUDY TO DEVELOP THE INDICATOR SET

Poverty, and the kinds of activities and behaviours that it forces on those who are poor, appear to be major potential disruptors of the kinds of economic growth planning the City wants to advance. Based on research using Census 2001 figures, the City of Johannesburg estimates that more than half of the metro population should be classed as poor, with incomes below R 1600 per month (*Joburg Human Development Strategy*, 2004).

This city strategy document for poverty, which postdates the *Joburg 2030* economic policy report of 2002, notes that the shack settlements are growing, and identifies the household as the level at which the city interacts with the poor through its programmes and structures. It could be added that the household is also the level at which many of the interactions take place that determine how the poor respond to city initiatives, and whether they will line up with city policies or seek to evade them. To a great extent, it is also the household and its structure and endowments that determine what capacity the poor have when they act for themselves to mediate the factors that cause poverty.

4.1 Households and marriage rates

Both the *Joburg 2030* document and the HDS report also note the proliferation of household numbers in the last ten years, a demographic development which probably connects to urban migration and to cultural factors as well as to housing. The Department of Social Development summarizes findings from the 1996 and 2001 Census results as follows:

> The province with the highest percentage growth between 1996 and 2001 was Gauteng (20 percent), followed by the Western Cape (14 percent). The [national] urbanization rate has increased sharply by 7.3 percent, to 61 percent between 1996 and 2001. 2001 Census data shows that in the major metropolitan areas... more than 20 percent of the population is new migrants. The nature and magnitude of migration and urbanization processes have had a major impact on planning for sustainable development...
> The average households size has decreased to 3.8 persons in 2001, down from 4.48 five years earlier. This is partly a consequence of the government's housing programme, i e households unbundled in smaller units in view of the larger availability of accommodation.
> This trend translated into a 30 percent increase in the number of households in the country, which in turn places pressure on services that are rendered to households...

- DSD, 2004

The DSD publication further observes that these demographic changes have gone along with a striking and discouraging rise in youth unemployment, commenting:

> Between 1996 and 2001 the percentage of youth that were unemployed increased... from 26.8 percent to 33.39 percent... The gap between the level of unemployment among youth and the population as a whole also widened...

It is clear here that youth are particularly at risk of exclusion, and that this kind of exclusion from earned income acts to cut off young people from buying housing on the market. At the same time, and perhaps more seriously, high youth unemployment also works directly against establishing legal married relations and against normal household formation according to the usual routes: it is difficult or impossible for unemployed male youth to marry formally. Recent HSRC research has found that formal marriage rates in South Africa as a whole have been declining steeply, and that legal marriage for the African population is tending to occur late in life when it occurs at all (Amoateng 2005).

For Johannesburg as well as for other cities, increasing household numbers and falling rates of employment for youth act to put a serious squeeze on both delivery programmes and anti-poverty interventions.

4.1.1 *Johannesburg's plans for poverty reduction*

The HDS report lays down a three-part programme for assisting the poor. The main elements of this programme are helping people to claim rights and opportunities, promoting social inclusion, and supporting poor and vulnerable households. Probably the key elements of this programme are the *social package* of housing and service benefits, aimed at reducing the living costs of the city's poor, together with the effort to promote sustainable human settlements, which aligns with the new thrust of national housing policy (*Breaking New Ground,* 2004).

However, it is not possible to avoid the consequences of better delivery: that providing cheaper and better housing, services, and settlements will also attract increased levels of migration. That is, implementing the social package sucessfully will bring more and more of South Africa's poor and hopeful households into Johannesburg, on a rising curve.

It is not impossible that reducing living costs in poor areas will also lower the perceived threshold for entry, and could result in greater numbers of less-educated migrants and more of the unemployed deciding to attempt moving to Johannesburg. This would mean an increased share of migrants with lower capacities from the standpoint of the city economy, who are flagged in the research brief to HSRC as a key category for identification and understanding, with a view to urgent assistance.

4.1.2 Strategizing the urban transition

For the City of Johannesburg, the strategy adopted to cope with this paradox relies on promoting the *urban transition,* the demographic and economic shift which puts in-migrating rural households into full urban citizenship, with complete economic participation and full integration into the city's civic and cultural life. Crossing the urban transition means successfully accumulating the core of assets that urban households need to deal with the earning economy, as well as mastering the legal and cultural forms. Households which do not succeed in making the urban transition remain on the outside, economically, socially and physically, trapped in forlorn semi-rural colonies which never fully join the urban life.

The purpose of the city's package of social and economic assistance measures is to bring all households across the rural/urban divide and fully into the city, insofar as policy intervention and spending can achieve this result. To the extent that these efforts fail, the city will have to continue to address less-functional residents who cannot fully support themselves in the city, and will continue to need welfare services over a broad range, at very high cost.

Should the social package which delivers housing and services fail to bring its recipients inside into full participant status, the worst-case scenario could be to increase in-migration while leaving the in-migrants unable to support themselves. Should this happen, the City's future planning project, based on its demographic projections alongside its economic priorities, would be severely disrupted: the spreading of shacks would accelerate, and growth of the economy would be likely to suffer badly.

Against this background, the discussion which follows looks at the question of contemporary households and how they work in the light of the principle of the urban transition. In particular, it looks at the extent to which arriving households of the poor are moving across the urban/rural economic and cultural divide and becoming productive citizens – that is, that city, provincial and government delivery of housing and services is successfully providing new in-migrant households with a *platform for accumulation,* so that they can develop the asset base they need to sustain urban participation.

Equally important, this section also tries to address how far these households contain the capabilities and the necessary internal organization to make use of this platform once it is obtained. This is a question which raises the social assumptions around household formation and household functioning, and the contemporary rules of sharing and mutuality.

However, these questions are not the entire issue around household dynamics in the context of Johannesburg's future. It is also important to consider the dark side of the question – what if the urban transition does not take place as expected in response to delivery interventions? Is the city's rural-origin population now in formal housing safe from the risk of falling back into shack housing, or are there household dynamics that can push new urban-born households back into the shacks, and exclude them again from the developed city?

In this light, and in relation to the city's planning needs, some of the research topics which inform this sub-study include:

- Livelihoods strategies in the face of poverty;
- Lifestyle choices and consumption patterns;
- Defining households in relation to service delivery;
- Women-headed and orphan-headed households;
- Social grants and subsidized services.

The mini-survey approach adopted for this initial phase of inquiry has yielded some information on nearly all these topics, though it has not disposed of any of them.

4.2 Approach and methods

The Johannesburg HDS report notes the vital importance of tracking data on hard planning parameters such as household size, because of their influence on economic and demographic processes. This Phase 1 rapid study of household factors accepts and confirms the importance of these quantitative parameters, but has adopted a mainly qualitative approach to its preliminary task. This has been done partly to emphasize dynamics so far as possible at this exploratory stage, but also in response to limitations on time and resources.

Within these limits, the study is based mainly on the results of a pilot qualitative survey of 70 cases collected in three areas of Johannesburg with a high representation of the poor, and particularly the in-migrant poor. Interviews were conducted, in local languages or alternatively in English, by two young interviewers (Jonathan Mafukidze and Joseph Makola) using a qualitative, open-ended questionnaire schedule that was not pre-coded.

Since a quota sample approach was adopted in the interests of speed and cost – resulting in a non-equal probability sample – there has been no attempt made to code the interviews for formal statistical analysis. Instead, they have been developed into short household case histories which reflect household dynamics, some of which appear in the text below. In addition, some rough tabulations have been made, breaking down the total interview sample into categories. Based on the quota sample, these tabulations make no pretension to exact representation of the target population, nor do they claim any statistical accuracy. Some of these tabulated figures are also mentioned in the discussion.

4.3 Areas

In consultation with the sponsors, it was decided to carry out the qualitative pilot interviews in three areas:

- Diepkloof, an old formal township which is also Johannesburg's largest;
- Yeoville, a cosmopolitan, relatively well-off and racially mixed residential area with a large foreign population;
- Diepsloot, a large, very poor and relatively recent concentration of shack settlement.

Diepkloof:

Located in Soweto, many of this township's present inhabitants were born in Sophiatown and were reportedly moved into Diepkloof while still young. The township now includes large crowded areas of old formal housing, as well as the new Mandela Section township which is drawing rapid in-migration, leading to fairly disorderly conditions. Otherwise, the township is very stable. Housing sites are very expensive, and very hard to obtain, so that many of the children of old residents are unable or unwilling to move out of their parents' households and look for their own accommodation.

Interviews were carried out in the vicinity of the Moroka police station and Baragwanath Hospital, and in Protea Glen, an area with many civil servants located in relatively small houses.

Yeoville:

The Yeoville area is centrally located and draws in population from all over Johannesburg and South Africa, and includes a large migrant population from across South Africa's borders. It lies between Berea and Houghton and the reservoir adjacent to Ellis Park, with a busy township section. The population encompasses wide income differentials and a range of age groups. Though the area includes a mix of South African and cross-border residents, it is widely believed that the cross-border in-migrant population is in the majority.

Most accommodation in Yeoville is rental of a reasonably good quality, including flats and rooms in houses. Many residents are government employees. There is reportedly no RDP housing, and some residents expressed contempt for RDP housing stock, saying it was for the poor and elderly only.

Interviews were carried out from the west side along Berea over to Rocky Street and Dunbar Street, where there is a strong Nigerian and Zimbabwean presence. Though Yeoville's safety and security is generally regarded as better than security in the Diepsloot shack areas, foreigners often move around on the streets in groups of six or seven to avoid harassment. However, many were patient with the interviews, and some described business ventures including selling cars and African clothing and running restaurants and estate agencies: one group outlined an enterprise which buys, renovates and re-sells older township houses in the area, and is considering expanding to Tshwane.

The cross-border in-migrant community is thoroughly networked, exchanging information over wide distances. Interviewees reported that since 2004 most migrants

coming to South Africa from the rest of Africa are able to move in directly, travelling straight from the source countries to a range of known destinations in the Johannesburg area. In this light, conditions appear to be in place for a rise in in-migration to Johannesburg from Africa to the north.

Diepsloot:

The large shack community between Tshwane and Johannesburg on the north reportedly experienced very rapid in-migration in the late 90s, when there was excitement around RDP housing delivery for the poor. Some families that are said to have registered in 1996-97 did receive RDP housing, but since that time lists have been extended but there has apparently been little delivery. For people who are working and want to live in Diepsloot some private shacks are also available for sale, and it is widely understood that for people who have no money for accommodation the shack option is the only practical way to live. At the same time, it seems to be generally believed that available public housing can only be obtained through influential connections, or by buying a house illegally from corrupt officials.

Most of the land available for shack building is said to be controlled by landlords, who favor members of their own language group. The landlords provide a site for building with some level of water and electricity delivery for about R 180 per month rental. These stands are small, and the landlords reportedly threaten eviction if the rental is not paid. However, there is still land available in Extension 1 for people to build if they want to own their shacks, though the electricity connections in this section are illegal. One respondent reported that she was able to get permission to build by paying R 200 to the Community Policing Forum, which is charged with resolving housing problems and which seems to serve as a general-purpose representative institution in the area.

The area is well known for crime and violence, as well as for grime, rubbish and general bad health conditions. Specific complaints include the prevalence of rape, and children in the schools carrying guns. At the time of the interviews one of the Diepsloot clinics was closed, and the other was said to be seeing only 25 patients daily before stopping for the day. The state of services is generally poor, and there are reportedly not enough water tanks for the area population.

Policing services are said to be ineffectual – police responding to urgent callouts arrive days late, and police staff are thought to blame the community for harboring criminals, and to see themselves as victims of the high crime rate. The nearest police station for many residents is located in the city limits of Pretoria, very far from the Diepsloot areas needing police protection.

Interviews began at the community centre during a function on Child Protection Day, and went from there to Section 2. Some difficulty was experienced by the interviewers due to suspicion, distrust and interview fatigue, as residents reported they were tired of people coming to interview them without any visible results. One woman warned the interview team not to talk to any people who gave them an off feeling.

The majority of the Diepsloot residents are said to be women, who are more exposed to crime-related risks than the relatively few men. There is no employment in the area, and women in particular are said to support their families mainly on child support grants, in combination with informal retail selling of fruit and vegetables. According to residents, young women who have children and no ID documents have no alternative to going to stay with employed men who have shacks of their own. At the same time, there is reported to be a risk for young women living with partners of being dumped by the men, and left homeless.

4.4.1 Sample

In all three areas the interviewers obtained the quota sample by approaching respondents on an opportunistic basic, trying to obtain a mix of ages and of women and men within the areas. In addition, they also held conversations with well-disposed community members, in an effort to hear about conditions in the sample areas and among the residents.

Major issues which came up included dissatisfaction with the availability of RDP housing in Diepkloof and Diepsloot, which came with repeated allegations of corruption on the part of officials, and with water provision in Diepsloot. Local issues in Yeoville revolved around outside in-migration. Uncontrolled crime and violence were general concerns, and residents discussed relative security in different areas.

4.4.2 Household parameters in the sample area

All three areas of study reflected very small households, smaller than the reported national average computed by DSD, and on the same order of size as calculated in the Johannesburg HDS report of 2004. Diepsloot and Yeoville both averaged household size of 2.8, with about 25 percent singles. Diepkloof had a larger average size at 3.2, with few singles. Results are compatible with a fairly transient working-age population in Diepsloot and Yeoville, where there were relatively few older children reflected: it is possible that some parents were reluctant to have their children recorded. The population in Diepkloof appears to be more stable, and there were more elderly people recorded.

Most of the Yeoville households were small nuclear families or split/stretched families, and singles were concentrated among the cross-border migrants. Most Yeoville households were sending money to families in the home area. Households in Diepsloot and Diepkloof were more variable, and remittances were not as common.

4.4 Findings: toward indicator household types for change factors

Households in society exist as a mechanism for sharing and allocating resources within small groups of people living together and raising children, and are based on marriages or partnership arrangements. Depending on social usages and customary understandings, households can be of any size up to 20 or 50 people, and may or may not be based on strong hierarchical authority relations.

However, all households have internal rules for behavior, which also establish roles and role relations, and all are based on some degree of mutualism, with sharing and pooling of resources for collective support. The recent steep fall in household size in South Africa, reflected above in the average figures for the Johannesburg quota samples, has profound implications for social practice around pooling and mutual support. These changes therefore impact strongly on the household's capacity to share resources and to mediate poverty without outside help.

Across all societies, the basic household type is the conjugal or nuclear family of parents living together with sub-adult children, based on a marriage relation which assigns child care mainly to the woman, and support and protection activities mainly to the man. However, many other types of household arrangement are possible, and are found under different circumstances. The basic minimum type appears to be a household unit of a woman with her children, living together without a male partner.

Contemporary households in South African black communities trace their household understandings back to rural pre-colonial prototypes that were highly patriarchal. Under contemporary conditions, and especially in cities, African family households are changing rapidly as household size has fallen. Changes here can best be understood in context, against the unbending restrictions of the classical rural society, which denied easy access to housing through stiff rules and layers of community consent.

4.4.1 Classical rural households

Early rural households in South Africa were not influenced by Christianity, and understood polygynous marriages as normal and expected. Rigid rules around obligations and support between men and women, and between the generations, allowed complex households the size of small villages to exist as residential units under the authority of one man as head.

These households adapted to the migrant labour economy based on the head's control over the labour of his numerous sons. The accumulation of household property in livestock depended on a succession of sons going out to work, each returning wages to the father during the period of employment, before marrying and moving out of the family homestead and being replaced by the next in line.

Women did not have decision authority, and were kept at home under the father's authority until arrangements were made for them to leave the family and marry. Marriage transferred women to the authority of new husband with no intervening period of independence.

Women's conditional standing was similar to that of unmarried male youth, and under strictly enforced community rules neither category had a right to a housing site, or to live on their own. Women in general, and unmarried people in general, were and still often are considered light-minded, prone to frivolous or immoral behaviour, and unable to treat the obligations around establishing a house with the necessary serious purpose. Up to the present day, many or most communities have stood strongly

against youth and women being allowed to own housing in their own right, and maintained pressure for them to remain within larger patriarchal households.

This classical household structure was somewhat modified by the arrival of Christianity and the option of education. The rural Christian household remained patriarchal, but followed industrial-world models in emphasizing the enduring tie between the husband and his one wife. Households became much smaller. Husbands had an obligation to continue working for the family until they were old, and married couples had an obligation to their sons to provide education and a start toward an educated career path. Sons had an overlapping obligation to work and provide for the education of the next brother before marrying and leaving the parents' household, but the restrictions on housing for women and unmarried youth remained.

As households gradually became smaller, it may not be accidental that legal marriage formalities seem to have become more stringent and expensive, so that actual marriage and the setting up of the new household was extensively delayed. During these long-extended process marriages while bridewealth was being paid, female partners remained with their parents, contributed household labour and had their children at home. Men lived with and helped to support their parents, and often did not claim their wives until they were middle-aged; otherwise, the relationship might break apart before actual marriage took place.

Together with rising rates of bridewealth payments, these delayed marriages figure in Amoateng's (2005) report on falling marriage rates in the South African black community. Underneath may be some long-running generational conflict over control of the labour and earning power of the youth generation.

These conservative role perceptions and mutual obligations persisted with only slow change until recently. Processes at work in the new South Africa have fairly suddenly dissolved many of the role restrictions which had been gradually weakening, leaving women and youth suddenly free to occupy their own housing and establish their own households.

This demographic big bang event has had consequences which are far from clear, and which are still working through and settling down. In this almost catastrophic reorganization of the South African household, City of Johannesburg is probably the leading laboratory of social change and government response.

4.4.2 Urban households today: looking for dynamics

Since 1994, availability of housing stock has increased very significantly, and the possibility of obtaining government housing has been put forward as perhaps the main reason for the free-fall drop in household size (cf DSD above, *Households and marriage rates*). There is undoubtedly truth in this principle, which will explain a significant share of cases, and help to explain others. At the same time, the case data from the Johannesburg settlements reflects no direct relation between RDP housing – not available to any of the respondent households, though many wanted it – and the prevalence of very small households in the urban sector.

That is. none of these households had split away from parents with the direct aim of obtaining government housing, though some had hoped for it at some point in the future. Most had fissioned off from their previous household for immediate reasons, and had gone directly into the shack settlements: others had gone into rental housing.

From there, some looked to government houses as a way to stabilize their lives and escape unhealthful living conditions – others said they would not touch RDP housing under any circumstances. Nor were all the households in the quota sample very small – particular categories foreshadowed in the case data may have an average size of five or more.

As household size declines, the Johannesburg qualitative data can be read to suggest different cross-cutting dynamics in the contemporary urban family, and from here it may be possible to outline some key types. These indicator households can then be monitored for their effect on projected population figures in relation to the turbulent future demographic of Johannesburg.

4.5 Toward indicator types

Three of the household types which can be identified as occurring relatively frequently in the data seem to have characteristics which make them likely to have differing demands for housing and services, and different potential birthrates and death rates which could affect population estimates. Others may emerge at later stages of the research, and will need consideration at that point. From these types in relation to others, some estimation can be made of the change factors that are driving down household size, and changing the assumptions around the nature of the cooperating household.

The following discussion looks at the structure of these key household types, and reflects on some of their principles, rules and dynamics as suggested in the qualitative case data. The final section looks at how indicators can be developed in relation to these household types, and how these indicators can be used in monitoring exercises in terms keeping population projections on track for future planning.

Indicator household types identified so far include the following:

1. Youth generational lifestyle singles households, and the pre-conjugal savers households that sometimes develop from these;
2. Youth elite working households;
3. Over-filled or inflated households and the trapped consanguine households that develop from these.

In addition, female-headed households as usually understood, and various types of damaged or broken households can also be identified, and have important dynamics of their own. Perhaps regrettably, nuclear conjugal households with children were not an extremely common type in the areas visited.

4.5.1 Youth generational lifestyle singles

These households seem to comprise young women living on their own, or with a small roommate grouping of like-minded female youth who may have met by chance. Young men also follow this route (see Lucas F, below), sometimes breaking away from the parents' home at a relatively early age to take up independent residence. However, young men still seem to need jobs to exit the parent household, while young women can often count on being helped by young employed men.

These youth households come into existence when young unmarried women or men take the step of rejecting all role obligations to their parents to leave home on their own, taking on their own support even before they have jobs. These female youth especially often seem to follow a very free lifestyle aimed at enjoying the benefits of the urban youth culture and social life, which until recently would have been reserved for men. Accordingly, and in the light of perceptions of immorality, the break with the parent household sometimes seems to reflect defiance and strain. The parent generation may or may not see the youth as out of control.

An important factor here is likely to be the pervasive ethic of what could be called youth pooling, or generational sharing of resources. As South Africa's generation gap has widened, with enduring tensions between parents and children and perceptions of opposed interests, urban youth are said to have formed a value pact around mutual support. This understanding is based on their perceived common identity as a generation, and not on any specific family relationships. That is, youth as youth often feel bound to help each other, sometimes with substantial transfers and over a long period, on a basis of generalized reciprocity, without definite expectations of repayment.

In addition, young women who could once have claimed customary small gifts from suitors now have the customary privilege of asking young men with whom they have a relationship – or the option of one – for substantial gifts of money. These gifts can run up to R 1000 or more, with or without a definite quid pro quo, and some young women have several such relations. The young men feel some pressure to make these gifts, to acknowledge a flattering request and to show off their earning power, and to contribute to generational support.

The young women are often unemployed, and as childless women many or most do not receive grants. Some refused to discuss their means of self-support, though relations with young men seem to be implied. Amanda R remarked,

> I decided to move out by myself, I just told my parents I was going. I get money by going around, I just do this and that. But I live well.

Samantha Q told a similar story in greater detail (see below). She left her mother's house and moved to Tshwane, where she shared a flat with two other young women she met by chance. She remarks that they were able to afford social drinking on an almost daily basis, though none of them were employed. The singles lifestyle she describes resembles that of university students to a considerable extent, but also had elements of the clubbing world (see Beatrice K's story), and even possible hints of petty crime.

However, she pursued this lifestyle only for four years. After that time she moved out to stay with a steady working boyfriend in Diepsloot, where they seized their chance to build their own shack and save money. She began a form of informal trading that she declines to describe. As a couple with a very adequate double income and a new baby, they were then able to buy their household goods immediately and put away money for bridewealth, with a target of marriage by the end of 2006.

Her story, and that of Joanie B, who also broke away from a respectable home to help save for marriage by living in a shack, raise issues about the further trajectory of young independent women. Female youth who establish temporary households based on their search for generational lifestyle may later on voluntarily go to live in a shack settlement, intending to set up a married conjugal household quickly, and thereby unequivocally demonstrate both their independence and their respect for marriage.

There seem to be grounds for understanding this kind of transitional youth household, which is actively preparing for its next developmental stage, as the second step on a pathway leading from a youth lifestyle-driven break with the parents to a new wage-supported conjugal family household. If so, it seems the parents may be excluded from the decisions and the arrangements as the youth generation struggles to defend its autonomy.

These new married households will probably occupy rental or owned formal housing of a decent standard, and will have ordinary demands on services. So far as the young women treat their singles interval as an opportunity to meet potential partners with jobs, the likelihood of later consolidation is probably high, and the overall pattern matches fairly closely with prevailing international youth norms.

It is not clear in the case data how common this pattern is, but both Joanie B and Samantha Q had established shack-housed pre-conjugal households with an income level over R 5000 per month. James W, a young taxi driver, left his parents to join his girlfriend in her shack, and is likewise saving for marriage from a comfortable income base. All three are currently sitting at the bottom of the housing distribution and tolerating shack conditions because they plan to move up the housing ladder very soon.

However, below the level of these young people who have been able to use lifestyle connections to establish favourable conditions for later marriage, the shack areas also contain numbers of single unemployed youth, who are separated from any parent household on much less favourable terms. Lucas F is a possible case in point: he has left home on strained terms, and is about 23 years old, uneducated and unemployed. He appears to be involved in fringe criminality, but his income is probably as low as R 500 per month, and he has few prospects of finding a steady partner or ever getting a substantial house. The shack areas act as an economic sponge, soaking up people whose life plans have derailed. They only offer cheap accommodation: they rarely offer new opportunities.

These younger people are probably less likely to have broken from their parents to assert independence than to have come to Johannesburg in a failed search for work. How many of these youth will be able to consolidate into viable households with

mutual support and resource pooling, or to aspire to formal marriage at any point in their lives, is an open question. Supply of government housing is probably a very critical factor for these impoverished singles, given that such housing is provided at points in the space economy where the poor have access to earning options. However, their main shortfall is money to live on.

Youth households aspiring to either earnings or lifestyle appear to be one of the potentially important categories of new household, and may be a major factor in relation to falling household size. This is now particularly true for female youth, who even fifteen years ago would probably still have had difficulty finding housing or establishing households on their own. The growing stock of decent private rental accommodation – which in social terms is hidden housing, not subject to community strictures or consent – will also have played a role here in opening up lifestyle options to young women.

While these breakaway youth households may have a limited lifespan in their initial form as singles, these empowered young women probably now have enough negotiating power to ensure that a later married or consensual union will not produce more than two or three children; some of them may not have children at all. Questions emerge here in demographic terms around how long such singles or quasi-singles households continue in time, and what relation they may have to delays in child-bearing which are likely to result in reduced total fertility.

4.5.2 Youth elite working households

Compared to the other categories, the households in this grouping appear to be relatively unproblematic for city planning purposes. These households were caught in the survey net after separating from the parent household and making one or more wage-related moves. The category of elite working households is largely made up of well-educated professional workers, both men and women, and people on the lower fringe of that category, aged below 35 and mostly in their 20s.

Most are young civil servants, who have come to Yeoville to work in Johannesburg, and taken up relatively expensive rental accommodation. Most but not all are unmarried, and if there are children in the household they are very young. Their initial move to separate from the parents' household usually appears to be consensual, and very well-agreed with the middle-class parents.

Since these are in effect long-planned life-cycle separations for which the children have been trained and educated, the parents have a stake in their success. The split witnesses to the success of the parents' strategy of educating and preparing their children to join the civil service or business elite. Unlike the exit strategies of youth who are not working, it raises the social standing of the whole family and marks a successful life cycle occasion. Accordingly, parents seem to take an active and supportive role in looking for suitable accommodation, especially in the case of young women leaving home for the first time, and moving into flats on their own.

In this kind of case, residual pooling and sharing arrangements probably continue to connect working youth with the parent household, and provide a backstop for any

unexpected events or financial reverses. That is, these households will probably not functionally complete their fission from the parent family until they marry and set up family housekeeping on their own, if then, so that some level of pooling resources may extend outside the boundaries of the residential household itself.

However, not much is known from the data about ongoing financial exchanges, though there are hints that the new single household is likely to be fully self-supporting, and is expected to be retaining its earnings to save for the future. These young pre-marriage households make the same demands on services as other professionals living alone, and they report that they routinely do pay service accounts, though usually through the landlord.

The same category also includes several better-off cross-border migrants, who appear to be putting down roots and preparing for a long stay in South Africa, with close involvement in its commercial economy. Most but not all are singles households. Like the civil servants, they occupy good quality rental accommodation, often shared with a relative, but they do usually send money home to the parent household abroad. People in this category seem to be very well-educated. They are traders as well as professionals, and include one estate agent.

Help in locating suitable accommodation seems to be provided by local networks of other migrants from the home country or home area, rather than by family members in the first instance. However, there are several cases in which connections with family members are active, because older brothers or other relatives migrated to South Africa first and are living in the same area and able to help the arriving younger sibling. In these cases, the cross-border families seem to be well on the way to establishing a social foothold which shares most of its characteristics with the South African elite and middle class grouping, but which also maintains back linkages with the home country.

4.5.3 Inflated three-generation households and trapped consanguine households

The cases of people born in Gauteng, in formal township housing – but now living in the shacks – draw attention to the question of unviable households in the townships, an issue that may need policy attention. It looks likely that the townships themselves are contributing a significant poor or destitute population back into the shacks, even while most policy attention goes to housing waves of arriving in-migrants. The underlying issue is income, and whether the housed family is viable enough to underwrite all its members remaining formally housed.

These households represent several sequentially-connected stages in the developmental cycle of families which are well-established in township housing but facing high unemployment rates. Households in trouble can start to fill up with jobless adult children supported by the earnings or pensions of the parents.

In these cases, the adult children are usually unable to marry, and cannot move out of the household to establish their own conjugal families. Either daughters or sons in this unmarried and unemployed situation are socially still categorized as sub-adult youth or children, even if they are in their later 30s or 40s. As long as they remain in

this classification, they can in principle – and often in practice – claim support from their now elderly parents.

The parents in turn often but not always expect a pooling contribution from any adult children still living with them who do have access to an income stream. This kind of income is often from domestic service, occasional piece jobs or informal business, too precarious to easily support an independent household.

That is, these households can remain viable and continue supporting their members with reasonable success as long as income levels remain adequate: for instance, if two or more of the unmarried children are working and contributing on top of the parents' wages or pensions. If so, these are large but successful family units, well integrated into the city through their economic contribution. However, if unemployment has cut off all but grant income, these large households become a poverty problem, with potential to sow poverty more widely and to increase the population in shack housing.

While some parents take the strict modernist view that adult children have to go out of the household and make their own way even if they cannot find jobs, many or most parents are willing to keep jobless children at home, and to accommodate the grandchildren in an extended family context. Since the families of the 1960s-80s were larger than families in the 2000s, three to five unmarried adult children in an old township household is not unusual. These households are referred to here as over-filled or *inflated* families.

These households face two kinds of risk. First, if the dependency ratio for the number of unsupported adults and their children begins to overwhelm the parents' earnings or their retirement resources, then per capita income drops so low that the family as a whole declines into severe poverty. Second, if the parents die and their pension income stops, the group of siblings that inherits the house is left with little if any income on which to support itself, and often with no effective support alternatives if none of them qualify for a government grant.

These very precarious households are described here as *trapped consanguine* families – groupings of brothers and sisters living together with no way to escape poverty. In effect, they are the people who remain behind as a household once the extended family ceases to exist with the death of the parents.

In many cases they seem to be left with no means of support, and may exist on what one or two of the siblings can earn from selling fruit or second-hand clothes from a table in the street in front of the house. However, these households also occur in the shacks, and the case of Themba X and his sisters after the death of their mother illustrates how severe poverty can lead to a sense of paralysis.

The internal organization of these very marginal families can differ considerably – some have fairly strong internal leadership if the oldest sibling takes over the authority role of the father. If so, their internal pooling and sharing of whatever income they can obtain can be effective, and they may be able to make concerted efforts to put someone into the job market.

Where viability is marginal for older township households that lose parental support or have to spread it too thin, mutualist family conventions of pooling and sharing stretch to breaking point, and economic pressure is exerted to break up these big poorly supported households. This kind of pressure against inflated households occurs because of the high rates of unemployment that work to cut formal marriage rates and also to fill parental households with unemployed adult children unable to support themselves in the job market.

These cases reflect the children of what were originally viable parent households dropping back into poverty, because they haven't moved into jobs needed to maintain township lifestyle – the few cases recorded suggest these tend to be less educated male township descendants, and women without husbands or regular partners who are badly off in job market anyway.

From the standpoint of city planning, a high share of overinflated households reflects a failure to bring the poor across the urban transition on a sustainable basis. When this happens, it is not primarily the outcome of a failure to provide housing and services – instead, it is an artifact of extremely high national rates of unemployment, which undercut the efforts of the city to stabilize the arriving poor.

At the same time, the existence of these households makes the point that simply providing the in-migrating poor with a platform for accumulation is not enough in a cold and risky economy. What is needed is access to the means of accumulation as well.

Government welfare and poverty grants are aimed into this need, and have gone a long way to cushion the most drastic effects of unemployment. However, by their nature welfare grants cannot bring jobless households up to the consumption level of a wage-supported family.

The unexpected outcome has seemingly been to allow very large numbers of extremely marginal households to split off and take up an independent existence. These third-generation poverty households are one of the biggest problems facing future economic and demographic planning for the City of Johannesburg.

In this light, one of the main reasons for the decline in household size since the inception of the new democratic government has been the functional context of a high-unemployment economy, alongside the availability of government grants. At household level, the combination can be surprisingly negative in many cases. When household pooling and sharing conventions come under strain because of inadequate total household income, households under strain can now split apart and resolve themselves into two or more very small and very poor households, each alone responsible for its own household support.

That is, the existence of grant incomes allows stressed households to fall apart into smaller households that may be even more severely stressed, and have less flexibility in responding to poverty. Most of these new poverty households appear to be female-headed, or comprise male or female singles.

These new and very brittle households often rely on government grant support entirely, in the absence of other income. Others combine government grants with very low-yielding survivalist informal business income. This subsistence pattern is reported repeatedly from Diepsloot, but also appears in the townships.

The tendency for poor inflated and consanguine households to shed members into the shacks on very unfavourable terms takes its place in this context. If the household is weakly organized, as most consanguine households seem to be, then any household member with even a marginal income may come under heavy pressure to turn over the entire amount to the household as a whole.

Income earners, and their own children if they have any, can find themselves effectively poorer in consumption and savings terms than they would be on their own. At this point, many individuals who have some access to income take the decision that they are better off leaving the household.

In other cases, individual earners who insist on keeping their income find themselves in a permanently contested situation, and may be expelled. Tensions and contestation over scarce incomes is one of the main reasons for household fission, and reaches its peak at times of high unemployment.

Household fission that takes place under these circumstances normally seems to lead into the shacks. It is possible that some of these new household units find government housing, but RDP delivery is currently acknowledged to be running far below levels of demand. The shack areas, offering flexible and very cheap accommodation, are currently the only effective alternative.

That is, to the extent that the old townships are filling up with descendants for whom there is no housing, and that many of these households are now poor and marginal due to unemployment, there may be significant demographic potential for wide-scale decompression. Much of this decompression will feed the shack settlements.

While many of the inflated households are still supported on wage income and are economically viable, able to carry the costs of decent new accommodation, there seems to be no information currently available on the scale of outflows from now-impoverished inflated households, or where they are going.

Reports from the research team refer to the characteristic extreme reluctance of second generation Diepkloof residents to leave their parents' households, because of the difficulty of finding new housing or housing sites in the township. If so, it appears that the largest township in Johannesburg probably contains very significant numbers of inflated households.

What is not clear at this stage is what share of these at-risk households are now poor and marginal, and what the present rate of outflow into the shacks may be. However, there clearly appears to be potential for a very large contribution to the shack population coming from the settled townships. This kind of context signals a failure of the planned urban transition, as settled families with all the advantages of formal housing move back into the shacks. Policy attention would appear to be needed.

4.6 Summary of dynamics : households as fission products

To a great extent, the significant of household types can't be determined unless the circumstances of their origins are taken into account. The list given here flags important aspects of the origin process for key household types identified, and summarizes the characteristics of the household members who make up the new household.

Household fission: inflated households and trapped consanguine households. The category of new households that form out of inflated three-generation households – or from the consanguine households that result when the parents of a large inflated household die – seems to centre on township-born adults who are not competitive in the job market. Most had levels of education below grade 8 in cases reporting, and either held a domestic service job, relied on temporary work, or were living on child support grants. These people were not young, and had already missed out in the job market or only found very low-paid jobs, at too low a salary to support a large household with a very high dependency ratio.

When these decisions to leave the parents' home have the effect of withdrawing an important component of household support from the inflated household as a whole, they often seem to be unconsultative sole decisions, and are potentially tense and acrimonious.

Because of the marginal earnings involved, this route seems to lead to the shack settlements unless the household member leaving has an unusually well-paid job. While some of the people decompressing out of older township housing have been able to obtain sites and build privately owned shacks, most appear to be renting from landlords in the vicinity of R 150-200 per month, including water and electricity.

Household fission: working elite youth. The singles households that fission from wage-supported middle-class households in employment-related moves seem to centre on reasonably well educated youth, who are starting elite jobs or are actively working at job search. These people are in their 20s and early 30s, and expect an income level that will let them aspire to own a car and house in the short to medium term, and which will make independent living sustainable at a relatively young age.

These seem to be relatively well-resourced, comfortable and consultative moves by either young women or young men, that often have active parental support and involvement in finding accommodation.

Moves recorded in the sample that fall into this category went from other townships to Yeoville, and involved rented rooms or flats in the price range of R 1500-1700 per month.

Household fission: youth generational lifestyle search. The category of singles and couples households that fission for generational lifestyle reasons from wage-supported families often comprises non-working young women. Most of these appear to be female youth leaving the parent household either for independent self-

sufficiency, or directly to join a potential male partner who can provide enough support for a pre-conjugal household.

The first grouping appears to spend a period in enjoying urban youth lifestyle with no clear lines of earning other than youth pooling support. Later, these female singles may join a chosen male partner to start a household and establish marriage relations in the same way as the other grouping. Otherwise, young men can follow a similar path, but may or may not be working at the time they leave the parental home, or may be involved in petty crime.

These fissions seem from the case material to be usually non-consultative personal decisions, taken for reasons that are popular with youth but not generally accepted in society. Because they have a controversial self-assertive aspect and imply defiance of norms, they may involve submerged or overt disputes between parents and children when the decision to leave is announced.

However, the fragmentary evidence so far suggests that these singles-household moves tend to lead toward marriage in the medium term. Further, they may allow the partners to form a legal household significantly faster than older rural-derived forms of process marriage, where bridewealth is paid over many years and the household is not established till the partners are middle-aged. If so, then households of quite young and still childless couples may come to take up a much larger share of the household totality than has been the case in the past.

In the cases reporting, these lifestyle moves went into rented rooms or flats in different townships, often with a group of tenants splitting the rent. Rents cited ranged around R 800-1000 per month. However, once into the household-establishment phase, several young households in this grouping had moved to the shacks on a short-term basis to save money, occupying either ownership or rental arrangements at the usual cost level.

4.7 Key findings

This section reviews results of the study in relation to the research questions for the household pilot. Key issues in relation to the list of research questions include:

- *Trends in household structure and size*
- *Livelihoods strategies in the face of poverty*
- *Lifestyle choices and consumption patterns*
- *Social grants and subsidized services*
- *Women-headed and orphan-headed households*
- *Defining households in relation to service delivery.*

4.7.1 Change drivers - shrinking household size

Since the question of household size is central to the household pilot analysis, it is important to review the factors which have helped to drive down household size for the entire country. Here government delivery is the usual hypothesis.

However, RDP housing delivery has declined in the past few years, and more than the government housing delivery programme and the expansion of housing stock are probably involved in the question of household size. A wide range of interlocking legal, economic and social processes have also had an effect on households across the board since 1994. This list includes:

- Human rights in the Constitution, and children's rights campaigns promoting youth equal rights to social protections under the law;
- Consequent lowering of rigid customary and social prohibitions on housing access for women and unmarried youth, resulting in greatly increased access to housing for single young people;
- Expansion of private rental housing options not subject to community approval;
- Women's greater economic and social independence, tending toward women's greater control of reproductive health decisions and fewer births;
- Women's increasing penetration of the the job market, resulting in more women with adequate wage levels and ability to pay a bond or rent;
- Prolonged high unemployment and unemployed men's loss of economic control over households, converging with rising costs of raising children;
- Men's increasing acceptance of women's right to earn and to participate in household decision-making;
- Greater acceptance of low-end informal trading in public urban spaces;
- Youth lifestyle choices in combination with greater access to contraception in delaying childbearing;
- Emergence of youth pooling conventions and youth generation mutual support;
- Increasing social acceptance of unmarried couples;
- Declining rates of formal marriage, and prevalence of late marriages;
- Relatively easy access to shack housing for women or men at point of need.

Most of these factors are socioeconomic. They have to do with greater legal protection and social acceptance of youth and women claiming rights to housing, the emergence of a powerful youth culture driving aspirations, and with the cumulative effects of high unemployment and women's earning power in eroding patriarchal values and changing the nature of marriage. With a wide array of powerful drivers spread across society, cumulative change has moved quickly. Operating on scale, these sweeping social processes are not easy to arrest or mediate.

4.7.2 Change drivers – livelihoods in the face of poverty

However, government delivery has undoubtedly been a powerful driver, and has not been limited to housing stock. Dovetailing with housing delivery, another factor which has profoundly affected household size on a nationwide basis is the wide uptake of new forms of government grant, as government struggles to reduce the disastrous poverty effects of extreme unemployment.

It is clear that smaller households require an increased total number of incomes to support them: at the same time, smaller households have limited scope for pooling

and cross-subsidizing to spread the benefits of existing income streams. Government grants have a major and immediate role here.

An unknown but large share of poor women's households would not be able to exist independently if not for the old age pension, child support grant and disability grants. The existence of the child grant in particular allows unemployed women to avoid relying entirely on extremely marginal businesses at the low end of the informal sector. The introduction of subsidized services in terms of the social package would work in the same way – that is, by reducing the total cost of living on a poverty income and make the available income go further, it would act to increase the probability of new households fissioning off on their own, as well as helping the survival of the small households that have already separated off.

Likewise, government housing clearly plays a significant role even when it is not easily accessible: for people considering household fission, government housing delivery offers hope they will eventually have another house, obtained as a free asset and not requiring diversion of scarce income from livelihoods. Such reduction of perceived subsistence risk may increase the likelihood that these splits will take place.

All of these factors together would tend toward a more mobile population and a larger total number of smaller households, and would affect the viability of women's more marginal households particularly. But while the effect of existing grants on income and livelihoods is massive and transformative, it is not clear from available qualitative data whether the possible prospect of the obtaining the city's social package will have a similar effect until it is well in place; or, alternatively, whether the more remote prospect of obtaining government housing in the indefinite future has a strong and measurable influence over household fission.

In this light, it appears that shacks are going to be impossible and inadvisable to eradicate as long as unemployment remains extremely high and unpredictable, and city planning may need to show flexibility in this regard. In the case material, moving into a shack appears again and again as the one effective and immediate fallback option for people who lose jobs and suddenly have no means to pay for any other kind of housing. Similarly, shacks seem to represent a highly efficient way to save money for young couples trying to set up their households without facing years of debt and wage insufficiency. In this way, shack areas take up both the demographic and the employment-related slack which formal housing cannot accommodate, and shack areas will probably be needed into the future as part of empowering the poor to cope with an unstable job economy. This view suggests that the shack settlements are among the city's most useful tools for mediating poverty, and need to be reconsidered in that light.

4.7.3 Change drivers – increased household size

However, these trends are not simple or unidirectional. Household size and structure is genuinely becoming smaller overall, but the pilot study – and particularly the field reports of the research team – seem to confirm that the older townships can often contain significant numbers of artificially enlarged households. The researchers'

report from Diepkloof paints the whole township in this light, suggesting a major demographic thunderstorm building up to rain people into the shack areas.

Subject to further research, it is more than possible that many of the older townships now hold significant numbers of households filling up with unemployed and therefore unmarried adult children. These older children may not be able to support themselves if they move out, and will eventually become trapped consanguine households if the parents die and their pensions stop.

The demographic compression factor in similar old townships may represent a risk to City planning, and would probably repay further research. Adult families in small houses do not need to be very large to be overinflated, and it seems to be the common experience of the metro cities that delivery of expansion housing for the second township generation does not keep pace with the need.

4.7.4 Change drivers - independence of women

Without confirmation from a demographic analysis of recent data, it appears that women's households make up an increasing share of the shack population in Johannesburg. Before 1994, it was unusual in most metro cities to record a woman living in a shack alone with her children: in Diepsloot now, it is reported as the majority practice. It would seem a plausible generalization that female-headed households – households run by women – are not an anomaly any more, but have become institutionally part of the normal urban context. The corollary of accepting women-headed households is acceptance that women do not need to be under the authority of a man to be respectable citizens.

Male unemployment is probably the major driver here. Unemployed men are not able to control women without the option of withholding economic support. Men no longer have the kind of highly asymmetrical access to the job market that once obtained, and well-educated women can compete effectively for top-level jobs. However, the skew still remaining in the market mainly affects less educated workers, and women below the highly educated category still earn less than men and compete in fewer job categories

At the same time, unemployment has a paradoxical effect, and probably contributes both toward women's independence and toward smaller-sized households. When incomes that could formerly support the number of households in the country become scarcer, strain over pooling conventions becomes general. As in the case of inflated households with too many adults and children trying to share any surviving income stream, pressure grows on the income earner to eliminate friction and conserve resources by escaping and going out on his or her own. Both employed sons and employed women are likely to leave if contestation becomes too sharp, or if the earning member suspects other members are not doing as much as they could to help with support.

The implication is that the increase in numbers of independent women running their own households does not necessarily imply equality of gender access is emerging, although it means a partial escape from patriarchal norms. Many women, especially

older and less educated women, having to take the independence route on very unfavourable terms, and many would probably prefer a reliable male partner to a households of their own with full responsibility for household support.

As is seen in many rural areas but here in an aggravated form, many of the urban women in tge case sample are obtaining the responsibility and freedom of action without receiving the equal earning power needed to make this situation sustainable. This may be particular true of women splitting off from impoverished inflated or consanguine households, who are likely to be mature mothers without senior certificate, and therefore likely to be relatively uncompetitive as well as too old for the job market.

In this light, the HDS report is right to target women's households as the most marginal of the city's poor. The research team reports the popular perception in the shack settlements that child support grants are the only option the households of women have for support. Even in combination with informal selling, the resulting income is still likely to come out under R 1000 per month for a household including young children, and sometimes grandchildren. Per capita income may run to less than R 200 per month, reflecting severe poverty.

Although the picture is different for the youth category, whether the young women are moving into elite jobs or in search of lifestyle, it is not clear how many of the young women in the lifestyle category particularly will follow their independent journey to a successful and adequately supported household outcome. There is no indication of how long the economic window stays open for young women to meet employed partners, or what happens to those who do not. Some at least probably fail to find partners or jobs, and may find themselves in the shacks supporting themselves as best they can.

4.8 Toward indicators: operationalizing the household aspects

Operationalizing the indicators will require breaking out the key household types and getting their frequency in relation to gender of head and income levels, and then comparing these against all households of any structure that report no income. Once frequencies are obtained, change over time can be tracked with rotating surveys at key sites, and the results fed into the demographic predictions.

A preliminary list of indicators to operationalize would run as follows:

- Change in percent **nuclear family households with children**, with and without employment income – estimate to be developed for grant income from eligibility on demographic grounds, assuming that in Johannesburg the poor who are eligible are probably receiving the grant

- Change in percent **three-generation households**, with and without employment income

- Change in **percent inflated households**, with and without employment income: especially in shedding phase, which will be difficult to identify

except by survey, in that new households that have been shed from inflated households are often either female-headed units or male singles with no distinguishing signs of origin

- Change in percent **female-headed**, partial nuclear households
- Change in percent **youth singles and older singles**, for male and female and for income levels
- Change in percent actual **consanguine households** and where found – see spatial trend and trend for shacks as against formal housing and as against rental accommodation
- Change in percent of **childless couples,** by age
- Change in percent of **households reporting no income**, broken down by key types and other types
- Change in percent of various types of **divorced or broken household** not covered above
- **Household size** for key household types by type of settlement
- **Birth rate and death rate** for key household types by type of settlement
- **Employment rates** for key household types by type of settlement
- Appropriate GIS maps

Developing indicators for the key household types, and applying them in modelling so as to help keep demographic predictions on track, requires base datasets that can sustain a household-based inquiry. The only really appropriate body of government data for this kind of exercise is the 1996 and 2001 Census data, accessible through the 10 % Sample. Although they contain better questions for this purpose, it appears that the Labour Force Survey (LFS) and the new General Household Survey (GHS) do not offer large enough samples to make them viable in connection with the Johannesburg demographic projections.

However, it appears likely that the Census data will be useful only up to a point. The Census has few useful questions in relation to household data, though it records the basic demographic information around age and gender as well as employment. The 10 % Census datasets also may contain basic information on the relations of household members to the head of household, which may allow a preliminary assessment of household structure. However, it is not clear at this stage if this household-structure data is accessible.

Likewise, at this stage it is not fully clear whether the 10 % Sample data includes the unique identifiers necessary to link household demographic data to needed data of other kinds. In particular, it is not possible to link a new household which has fissioned from a parent household back to the parent unit, which for inflated households would be the central issue.

Although the Census in principle would be the best dataset to use in trying to check and monitor how key household types are increasing or diminishing over time, and to correct for their demographic parameters once their frequencies and trends are established, it is not certain how well the Census information will support this kind of monitoring exercise in practice. To determine this, it would be necessary to try dummy runs with actual data to see whether key types can be adequately identified and tracked with the minimal Census indicators available. It appears likely that this can only be done on a crude basis.

In order to develop an adequate body of data for monitoring the demographic behaviour of indicator household types, it will be important to make use of local surveys in a sample of representative localities. If the Census data is to play a role in revised population estimates, appropriately designed surveys can be matched with Census data to give a better approximation. Local survey work can also allow for workable interpolation and estimation procedures which could otherwise only be done by working in the dark.

5 CONCLUDING REMARKS: REQUIREMENTS FOR MODELLING AND POLICY REMARKS

The questions of migration and household formation need to be seen in their full context, in relation to the national and global flow of forces acting on South Africa and affecting the national capacity to generate employment. Johannesburg's migration flows are overwhelmingly work-related, as shown in Sections 2 and 3, and in the last ten years the City has become increasingly the destination of last resort for work seekers. Their needs will play out in the context of trends in government support for the poor and unemployed, and in relation to changes in social perceptions around access to housing and around lifestyle aspirations.

Given the wide focus of forces involved, modelling and tracking change through the use of the national Census alone will not be possible: the Census provides national coverage in depth, but does not carry all the necessary indicators.

The central issues for the research brief are in relation to the chances for constructing adequate population models from Census data alone, and in relation to migration and household formation and the associated factors which can destabilize the models which are developed. Based on the research, the following apply:

5.1 Modelling and the Census

Results given in 2, *Reviewing the data and preparing methods,* notes that the Census provides both breadth and depth of coverage, but from the standpoint of modelling it does not deal adequately with either vital statistics or migration. While the Census produces information in massive numbers, the questions it asks are very limited, and the validity of the information it provides is often in question on the critical modelling issues.

5.1.1 Census recording accuracy

O'Donovan and van Zyl note that the 1996 and 2001 Censuses would provide the base population for the modelling exercise. However, they also note that the information provided in these two census enumerations is not consistent in what it covers, and not reliable in critical aspects. Under-enumeration is a particular problem.

Enumeration of informal areas has always been problematic, and in 1996 the previously white suburbs were very seriously under-enumerated. The same may hold for 2001, though this is not clear as yet. Cross-border migrants, an important category in Johannesburg, are also normally under-enumerated because they are normally unwilling to be counted.

Van Zyl argues that the present true population of Johannesburg may actually be higher than the Stats SA figure quoted in the terms of reference for the research. If so, the implications are very serious, and in the modelling a correction factor would need to be applied, based on information obtained outside the Census itself.

O'Donovan notes that Census data on emigration from anywhere in South Africa is normally poor because individuals who have left cannot be directly enumerated. He also argues that Census data on orphaning is also unreliable because of the difficulty of dealing in interviews with events around HIV/AIDS.

5.1.2 Census data on fertility and mortality

The heart of the working models to be developed would be fertility and mortality data, considered in relation to migration. Household formation, and the question of households unbundling, splitting and proliferating, would be considered as it affects the basic demographic parameters. For fertility, data sources are relatively complete and reliable, and include the two Census exercises, the 1998 and 2002 Demographic Health Survey, and reported births and deaths as recorded by the Johannesburg Health Department. However, the same is not as true for death statistics.

The authors show that until relatively recently the resident population of Johannesburg was well launched on the demographic transition, the shift from the rural or pre-industrial pattern of high birth rates and high death rates, to the post-industrial pattern of low birth and death rates. Van Zyl notes that life expectancy had risen and infant mortality fallen from about 1900 up to the early 1990s, making mortality rates the most stable component of any population model. The advent of AIDS destabilized this progression: mortality rates began to rise again, and life expectancy to fall.

At present, different government and university models reflect different death rates, and projections are not stable. Because of the sensitivities around the epidemic, the Census does not record AIDS data well, and specialist surveys are needed. Van Zyl notes that the recent large-scale SABSM surveys by HSRC funded by Nelson Mandela Foundation offer the most reliable South African quantitative data on death rates in the new era of high HIV/AIDS prevalence.

Recent changes in household structure also affect the accuracy of Census recording of death rates in the Johannesburg population. O'Donovan points out that under-representation in the Census death rate is particularly critical for the workforce in the City: Johannesburg's birth rate is below the national average at 18.3 per thousand population as calculated by Unicef (2003), in spite of the unusually large share of people of reproductive age in the City population. At the same time, Unicef calculates the Johannesburg death rate at 18.1 per thousand, very close to the birth rate.

As the authors note, the natural increase of the resident City population will not be a cause of excessive population growth in the medium term: in addition, the City's future workforce may be in danger if natural increase is as low as Unicef calculates from Census data. Any risk here would be compounded if the death rate is actually underestimated, as may be the case.

O'Donovan argues that the City death rate is actually seriously under-represented in the Census, in that the Census enumeration is based on household interviews that cover deaths in the household during the past year. With the recent proliferation of single-person households to over 25 percent of all households, and the increase in deaths from AIDS, large numbers of single-person households are disappearing without trace with the death of the sole household member.

O'Donovan then suggests that the Census misses out these deaths because of its interview approach, and has not been able to compensate from using other information. Unicef (2003) in its calculations based on death notifications found about a third more deaths in South Africa as a whole than had been estimated by the Census. Since natural increase is computed from the birth rate minus the death rate, an error of this size in the Census death estimates would invalidate across the board any population projections based on Census data that do not incorporate independent sources of accurate information.

Accordingly, the official death rate in the City is likely to be under-counted by an unknown margin: it would appear that the true death rate may approach or even exceed the birthrate, but by an unknown margin. If so, it would follow that the City's future workforce might be derived mainly from in-migration, but it would not be possible to make any definitive statement on this possibility from the Census data.

5.1.3 Census data on migration

Section 3, *Potential migration to and from Johannesburg* shows a large migration inflow for black people entering Johannesburg, of 1.46 million from 1996 to 2001. In contrast, whites reflected a small net outflow in the same period, of 6 730 people. That is, in-migration is dominated by large volumes of mostly unskilled or low-resource work-seekers, and outflows are likely to comprise much smaller numbers of highly skilled and well-resourced individuals.

Section 2 notes that Johannesburg is seen from outside as a work-related destination. In the HSRC survey work, relatively few South Africans were attracted to Johannesburg as a place to raise children, retire from work, or be buried.

The migration and population estimates given in Section 2 were developed by working HSRC survey data against Census 2001 figures, in order to compensate for shortfalls in the accuracy of the Census results. Using this approach to compile a profile of prospective Johannesburg in-migrants, Kok is able to estimate that 1.9 million South African adults hold an intention of migrating to Johannesburg, and that 0.6 million intend to leave Johannesburg and migrate to other destinations, leaving net intended migration at 1.3 million over the five-year period between the Census enumerations.

The Section 2 discussion questions the use of Census data on its own because of its fluctuating coverage of important migration topics, as well as in relation to the usual problems with accurate recording and under-enumeration. The questions asked on the Census from one enumeration year to another vary significantly, and tend to represent migration inconsistently. Birthplace is not recorded, and last place of residence is not always part of the dataset. Total migration flows cannot be calculated, because children under age 5 are not recorded in relation to migration flows.

In order to make accurate projections of migration, both data on in-migration/ immigration and out-migration/ emigration are needed, at a high level of accuracy. Accurate recording of migration data for the poor is also hindered by recording errors related to widespread fears on the part of in-migrants, of being excluded or expelled from the metro cities if they admit to being born outside the city or province (see Cross 2005 in press for a similar situation in the Western Cape). Significant levels of misrepresentation of migrant origins due to anxiety seem to result.

Other official datasets are of limited use for the most part in supplementing the information given on the Census, or in cross-checking and filling in for inaccurate recording and misinformation. The October Household Survey provided relatively good data on migration between 1996 and 1998, but quality trailed off in 1999 and the survey was then stopped. However, existing OHS data was recorded at magisterial district level, and does not discriminate among areas within the cities.

The Labour Force Survey is still continuing, and has fairly good data after 2000 aimed at migrant workers. However, like the OHS the size of the survey sample available for Johannesburg on its own is too small to be valid, and could not serve as a basis for modelling.

Much the same applies to separate, non-government surveys which deal with migration. These datasets tend to be too old and too small, as well as not comprehensive enough to assist with modelling of Johannesburg migration trends.

Together with van Zyl and O'Donovan, Kok takes the view that Census data is essential to base any computations relating to migration, but that this can only be done accurately by incorporating up to date independent survey figures. The SABSM surveys and the Demographic Health Survey provide essential data in areas where the

Census is weak, and these surveys are not generally accessible, though the HSRC has access to both for the development of modelling.

The approach recommended is one of *imputation,* in which Census data provides the basic indicators for the Johannesburg population structure and characteristics, and data from local surveys is then brought in by statistical procedures to project more detailed demographic estimates onto the Census-derived base information which covers the entire City.

It is also important that this kind of work be carried out by qualified demographic staff. While some useful software is available to assist with demographic modelling, a highly complex modelling exercise of kind required by City of Johannesburg goes beyond what programs offer, requiring technically sophisticated and qualified analytic demographers with experience covering the implications of the base data and survey data in relation to the change drivers or disturbance factors. Few people qualified in this field are available in South Africa.

5.1.4 Household formation and disturbance factors

The fourth section by Cross, *Change drivers and household formation,* considers the factors that can put population modelling out of alignment with actual trends, and makes no direct use of Census data. Unlike the other sections which make basic use of official datasets, the brief pilot survey exercise carried out for the household data is not at this stage related to Census or other government data, and is a forerunner of the more narrowly quantitative local surveys which would be brought on line in Phase Two to support the modelling.

Using a semi-qualitative approach with open-ended questions, it has been possible to develop the list of quantitative indicators of disturbance factors or change drivers, which will be refined and confirmed in Phase Two before being incorporated into the model. However, results at this stage pertain to the three survey communities only: Diepsloot, Diepkloof and Yeoville, which together make up a very large share of the total City population. No observations can be read off to other types of area, and there is at this stage no data for the formerly-white suburban areas, nor have we probably identified all the types of household which need to be incorporated into the modelling of change drivers. Factors such as formal divorce rates should be available from official datasets, but others will need to be identified through the use of local surveys projected to take place in Phase Two, as the modelling is developed.

Findings in Section 4 are derived from the analysis of the open-ended interview questions in conjunction with tabulation of the household and migration data obtained directly from the survey. Based as it is on a quota sample for reasons of limited time and resources, the household study data does not claim formal statistical representivity. However, given suitable resources, a similar formal survey could be carried out, using an equal probability sample, and then worked against Census data by using imputation procedures, as outlined above.

Census data alone is able to provide a basis for imputing household formation trends, but does not provide accurate enough information on households to be of direct use in

developing an analytic breakdown of household formation. Census interviews give a general idea of the relations of individuals making up the household, but the categories provided are not detailed enough to be of use in estimating the change drivers or disturbance factors likely to destabilize population modelling for Johannesburg.

In addition, both Cross and O'Donovan note that in using Census data it is not possible to link origin households with the second-generation households that result from the original households splitting or unbundling. Because nothing can be learned from the Census about the circumstances under which new households form, Census data on its own is not of much direct help in modelling change drivers at household level: it is not possible to discriminate, for instance, between the household of a young AIDS widow with two children, and that of an adventurous or frustrated daughter who has deliberately taken her two children to move out on her own.

However, it is the element of deliberate choice in the second case of new household formation that makes it potentially destabilizing to population models. The new household in this case is not generated either by marriage or by the death rate, and cannot be read off or accounted for by ordinary population statistics. Population information at this level can only be obtained from specific survey data tailored to the objective.

5.2 The modelling exercise

Against this background concerning data sources, the model itself can be seen taking shape. As with any standard demographic model, it will model the working of fertility, mortality and migration under Johannesburg conditions: these are the standard components of any population projection. In addition, it will incorporate statistical provision for changes in household demographics which will affect household formation, or otherwise change the vital rates reflected in mortality, fertility and migration.

The base population projections will be standard techniques based on Census data, using the standard cohort-component projection method. The model can represent the number of deaths as a result of HIV/AIDS by employing the EPP software package, developed by the Futures Group.

Household projections will have to be handled with care since the techniques involved are changing, but it is felt that the ratio method will give good results. Final decisions on the type of household projection method will be taken during Phase Two, in collaboration with the sponsors.

In addition to household-level change drivers, which will relate to social trends and to the effects of unemployment for the most part and which can be tracked through the indicator set developed in Phase One, a number of other factors and processes will be brought into the modelling. These include:

- Local unemployment levels;
- Alternative income sources;

- Labour migration;
- Cost of living;
- Transport access and cost of transport;
- Housing subsidies and the property market;
- Initial household access to entry level housing;
- Subsequent household access to the housing ladder;
- Infrastructure delivery;
- Free basic services and the City social package;
- Access to social grants;
- Rates of divorce and of non-marriage for women;
- Household developmental cycle;
- Processes around single-person households.

It is intended that all these factors be brought into the structure of the modelling in order to address the risk of economic, social and policy changes putting the population projections out of line with reality on the ground. Indicators derived for these factors from the initial local surveys will need to be continually updated from the findings of on-going survey work.

5.3 Summary and policy observations

In addition to addressing the question of data needs for the Phase Two modelling exercise, the report also offers observations relating to the issues raised in the brief (see 1, *Introduction,* above). Some of these are listed here:

5.3.1 Access to housing and free services

These factors probably do not play the main role in determining new household formation, as it appears that people rarely decide to take the major step of splitting off from their families in order to capture putative policy benefits, and in practice these benefits are not often accessed quickly. Rather, households split for their own internal reasons, which may often involve inter-personal tension or tension over income and resources at home.

At the same time, any factors which provide better accommodation or lower the costs of living will clearly exercise an important influence once household members are actively entertaining the option of leaving the current home. In this situation, possible access to housing or to cheaper services will shape moves in the direction of the cheapest known options in the case of the poor.

In this respect, shack settlements are the most frequent solution, involving neither government housing nor provision of free services. The critical factor here is ease and speed of access – both government housing and free services are slow to arrive in most cases: respondents in some of the case histories have been on RDP waiting lists for years. In contrast, either shacks or rental housing of better quality supply effectively instant housing options available to household members who are often leaving home under tense conditions and need immediate accommodation. At the

same time, service charges in shack settlements are generally low by comparison with formal housing.

That is, government housing and the social package will exercise greater influence over household formation only when they become easier and above all faster to access. At present, shacks and rentals are not only the fastest solution, but in most cases also the cheapest from the standpoint of the poor and of new in-migrants.

In addition, any formal housing in itself carries social assumptions and demands that are likely to ensure that it remains more expensive in practice for the very poor than the shack option, and it is not clear how the social package can easily be made available to people living in shacks. At present, rentals charged by shacklords are likely to include services provided at very cheap rates, which may be competitive with the social package. How these factors will play out in future is uncertain, making the need for continuing monitoring imperative.

5.3.2 Lifestyle changes, livelihoods and household formation

It appears that sweeping changes are taking place in urban lifestyles for youth and women, which are having major effects on rates of household formation as well as on the composition of households. Independent living has become a real option for many unmarried people, sometimes with very deleterious consequences in terms of becoming trapped in poverty.

Under the influence of the Constitution's human rights guarantees, within the last ten years it has become socially acceptable for black single women and unmarried youth to take up housing options in their own right. In consequence, informal accommodation is now reported to be occupied by large numbers of single-person households often representing unmarried men, as well as by numbers of women-headed households comprising single mothers and children. In the poorest levels of society, these households are taking up shack accommodation for its low cost and ease of access, while educated and better-off youth, both men and women, are able to afford better quality rental accommodation. This trend to smaller households appears to have gone along with an associated trend for households to become increasingly unstable.

Obtaining independent accommodation requires being able to control an income. For poor women, this change has often involved reliance on the child support grant for most or all of the household income. The case data suggests that many women now living in shacks would not be able to form new households of their own without access to government grants covering their own and/or their daughters' children, often supplemented as possible with very low-end informal retail selling.

One implication would appear to be that women may indeed be having more children to obtain higher levels of grant support, with probable consequences for population trends. That is, the possible trend of government child grant support appears to be to fight back against the demographic transition to lower birthrates, at least in regard of the poor; HIV/AIDS simultaneously forces back the demographic transition by raising death rates. At the same time, the impact of women and youth seeking to live

independently with little access to wage income will affect already low rates of formal marriage in the City. Knock-on effects will be felt demographically, and will also increase the precariousness of household support for the unemployed.

For better off young women wanting an independent lifestyle before marriage, the corresponding practice appears to be reliance on youth pooling – the social commitment of members of the youth generation to support each other at need, sharing around the incomes of employed individuals among a network of friends and casual companionship relations. The case data record young women with no formal work maintaining a comfortable lifestyle in rental accommodation for a period of years, and there are comparable cases of unemployed young men surviving on their own with the help of networks, and in some cases of fringe criminality.

The risk of these new lifestyles with precarious livelihoods support provisions appears to be one of becoming trapped, and unable to move to better accommodation and more secure support. Women and youth in shacks aspire to formal housing in the future and often to formal marriage as well, but if they do not find jobs these outcomes become unlikely unless government housing delivery intervenes.

Most women living with children in shacks appear to be at a serious disadvantage in job search, and even unencumbered male youth struggle with weak qualifications struggle against the unemployment rate and may fall into crime. When households are very small and incomes are marginal, children are often unable to attend school, and may grow to adulthood without education or any real chance of employment. For better off youth, and especially for young women without work, the risk of adopting singles living is that they will not ever find a job or an employed permanent partner, and may when they become older find themselves permanently on their own in shacks or other marginal housing. In addition to the discouraging implications for the poor and marginal households involved, small and poor unstable households may not fit in easily with the definitions of 'household' followed by the City administration in relation to delivery and charges for services.

Case data and other indications in the literature suggest that many of these singles households are economically brittle and vulnerable, lacking income security and having little resilience in the face of shocks. They risk becoming trapped in easily accessible settlements of the poor, and once in place will often have little chance of finding formal housing or moving to better areas inside the City. Government and municipality welfare measures are becoming increasingly indispensable to the poor as these demographic and economic changes move ahead.

Data presented in Section 2 above suggests that very small households rarely move, and that migration is most common among members of large households. The trend to smaller households therefore appears to relate to changing social conventions as much as to economic determinants, but it may also tend strongly toward entrenching poverty and reducing internal migration among people already in the cities.

5.3.3 City carrying capacity

In the light of the above, it would appear that the City probably does perhaps face a limit on its carrying capacity for the scale of population growth and in-migration it can support. In terms of all the sections of this report, it would seem that there is a risky implicit balance between the following:

- Birthrate and death rate in the resident population, where the true current figure is not known
- The total size of the unskilled labour force which can be accommodated in the city's more labour-intensive industry and commerce
- The scale of in-migration for which employment in the City can be realistically anticipated once both the resident and in-migrant work forces are taken into account.

In that the arriving in-migrant labour force has limited skills for entering the higher-value City industries, the unemployment rate remains a serious risk for the households now unbundling across the City's poorer areas: many of today's very small households may well be unviable without ongoing government grant support, and have little hope of moving into decent formal accommodation without welfare provision and housing delivery. Nor, once they have split, are they always able to move on from wherever they have located in their search for cheap accommodation.

The scale of spending needed to support these kinds of poverty relief seems set to continue to rise steeply if current demographic trends continue. In addition to the kinds of measure contemplated in Johannesburg's *Human Development Report*, it would seem advisable for the City to consider increased active measures to address the problems of poverty directly.

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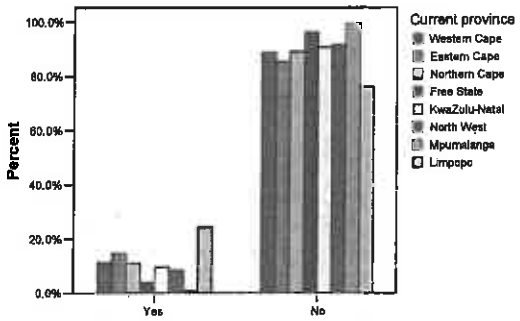
APPENDIX 1

SOUTH AFRICANS' PERCEPTIONS OF JOHANNESBURG

In the questionnaire that was used in the 2001–02 HSRC Migration Survey provision was made for all respondents (except those living in Gauteng) to give their impressions about Johannesburg in response to the battery of questions shown in Box 1. In Graphs 4 to 12 the responses to most of the questions in Box 1 are shown by province of residence at the time of the survey.

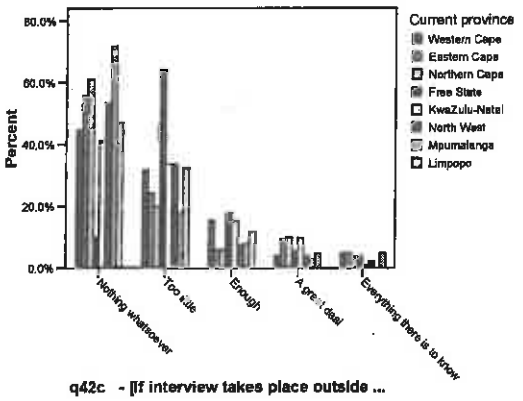
Graph 4. Have you ever lived in Johannesburg for a period of at least six months since becoming 18 years of age?



q42a - [If interview takes place outside Gauteng]: have you ever lived in Johannesburg for a period of at least six months since becoming 18 years of age?

Cases weighted by Weight scaled to sample size (Final)

Graph 5. How much do you know about Johannesburg as a place in which to live and work?



q42c - [If interview takes place outside ...

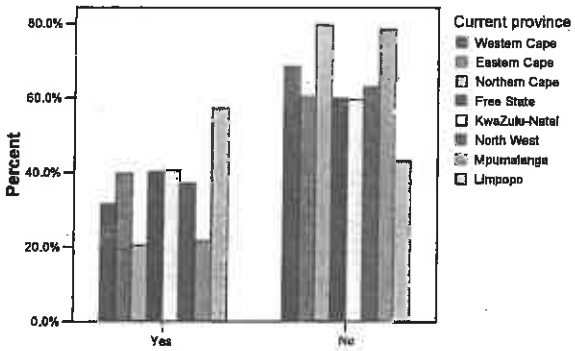
Cases weighted by Weight scaled to sample size (Final)

Graph 4 confirms the expectation that only a small proportion of the population outside Gauteng has ever lived in Johannesburg and a vast majority of respondents knew "nothing whatsoever" or "too little" about the city (Graph 5). The comparatively slightly higher proportion for Limpopo respondents is interesting, indicating that Limpopo residents should have more first-hand knowledge of

Johannesburg than persons interviewed in other provinces. To some extent – although clearly not quite convincingly – this expectation is confirmed by the proportions indicated in Graph 5.

Graph 6 shows that while only a minority of respondents outside Gauteng had social networks (close friends or relatives) in Johannesburg, a majority of Limpopo respondents had such networks at the time of the survey. As is clear from Graph 7, there had been some contact with these friends or relatives in the 12 months preceding the survey among more than three-quarters of the Limpopo households covered in the survey. The nature of these recent contacts with Johannesburg networks is illustrated in Graphs 8(a)–(h).

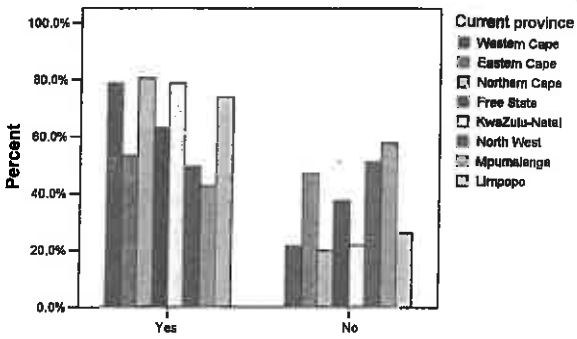
Graph 6. Do you have any immediate relatives or close friends who live in Johannesburg?



q42e - [If interview takes place outside Gauteng]: do you have any immediate relatives or close friends who live in Johannesburg?

Cases weighted by Weight scaled to sample size (Final)

Graph 7. Have you or other members of this household had contact with any of these relatives or friends living in Johannesburg during the past 12 months?



q42f - [If "yes" to (e)]: have you or other members of this household had contact with any of these relatives or friends living in Johannesburg during the past 12 months?

Cases weighted by Weight scaled to sample size (Final)

BOX 1

2001–02 HSRC MIGRATION SURVEY:

QUESTIONS REGARDING PERCEPTIONS OF JOHANNESBURG
[IF THE INTERVIEW TOOK PLACE *OUTSIDE* GAUTENG]

4.2a Have you ever lived in Johannesburg for a period of at least six months since becoming 18 years of age? [THIS EXCLUDES *HOLIDAYS* SPENT IN JOHANNESBURG.]

Yes	1	
No [SKIP TO (c)]	2	39

4.2b **[IF "YES" TO (a)]:** How long did you live in Johannesburg (in total since age 18 years)? [THIS EXCLUDES *HOLIDAYS* SPENT IN JOHANNESBURG.]

Years			**40-41**
Months			**42-43**

4.2c How much do you know about Johannesburg as a place in which to live and work?

Everything there is to know	5	
A great deal	4	
Enough	3	
Too little	2	
Nothing whatsoever	1	44

4.2d From where did you get most of your information about Johannesburg?

Know nothing whatsoever	0		
Lived in Gauteng before, and therefore you know it	1		
Visited Gauteng, and therefore you know something about it from observation	2		
Relatives / friends / acquaintances who lived in Johannesburg before	3		
Relatives / friends / acquaintances currently living in Johannesburg	4		
Radio / television / advertisements in the electronic media	5		
Newspapers / magazines / advertisements in the print media	6		
Other source(s) (specify):	7		45
.....			**46-47**
.....			

4.2e Do you have any immediate relatives or close friends who live in Johannesburg?

Yes	1	
No [SKIP TO (h)]	2	48

4.2f **[IF "YES" TO (e)]:** Have you or other members of this household had contact with any of these relatives or friends living in Johannesburg during the past 12 months?

Yes	1	
No [SKIP TO (h)]	2	49

4.2g **[IF "YES" TO (f)]:** What was the nature of the contact you or other members of this household had with the relatives or friends living in Johannesburg during the past 12 months?

	Yes	No	
We / I visited them in Johannesburg	1	2	50
They visited us / me	1	2	51
We / I talked to them on the phone	1	2	52
We exchanged personal letters	1	2	53
They offered one of us a job in Johannesburg	1	2	54
They provided information about jobs/work in Johannesburg	1	2	55
They offered us/me money or gifts	1	2	56
They gave us/me money or gifts	1	2	57

BOX 1 (continued)

4.2h Do you think the **overall living conditions** are better in Johannesburg than in "this area" [DISTRICT/ TOWN/CITY], would they be better in "this area", or would there not be much of a difference? [ASK RESPONDENT FOR OPINION AND THEN PROBE FOR STRENGTH OF OPINION.]

Much better in Johannesburg	5	
Better in the Johannesburg	4	
About the same	3	
Better in "this area"	2	
Much better in "this area"	1	
Don't know	0	**58**

4.2i **[IF INTERVIEW TAKES PLACE *OUTSIDE* GAUTENG]:** To what extent would you like your children or grandchildren to be raised in Johannesburg?

Not at all	1	
Not really	2	
To some extent	3	
To a large extent	4	
Very much	5	
Don't know / Uncertain	0	59

4.2j **[IF INTERVIEW TAKES PLACE *OUTSIDE* GAUTENG]:** To what extent would you like to live in Johannesburg when you retire?*

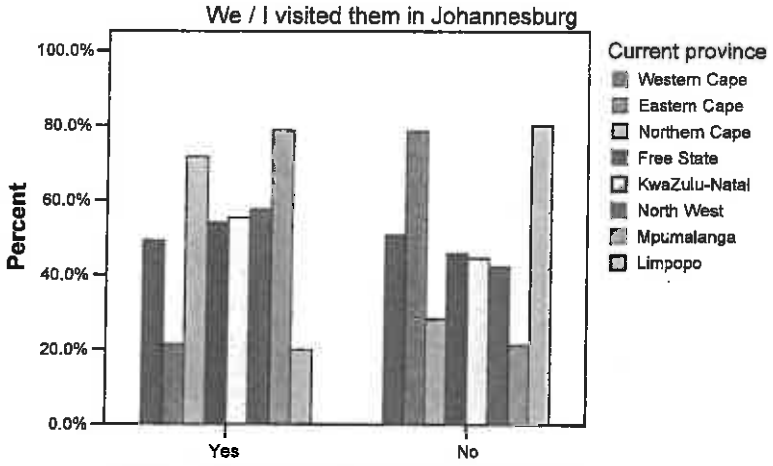
Not at all	1	
Not really	2	
To some extent	3	
To a large extent	4	
Very much	5	
Don't know / Uncertain	0	60

4.2k **[IF INTERVIEW TAKES PLACE *OUTSIDE* GAUTENG]:** To what extent would you like to be buried in Johannesburg one day?*

Not at all	1	
Not really	2	
To some extent	3	
To a large extent	4	
Very much	5	
Don't know / Uncertain	0	61

* The idea of these questions was borrowed from the Southern African Migration Project (SAMP) – see McDonald (2000).

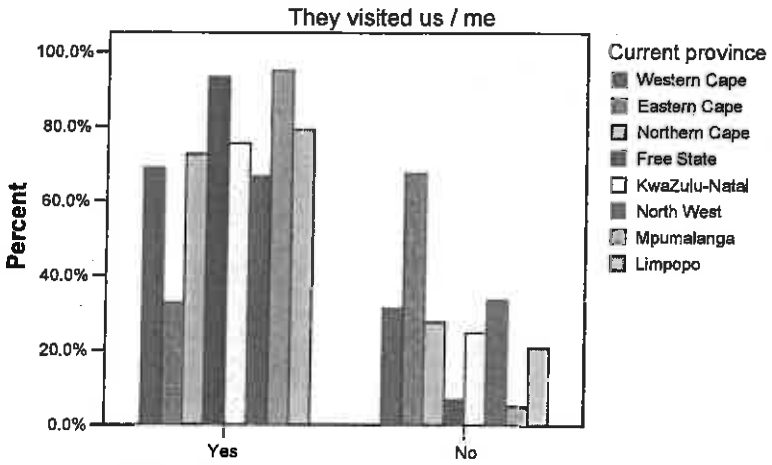
Graph 8a. What was the nature of the contact you or other members of this household had with the relatives or friends living in Johannesburg during the past 12 months?



q42g1 - The nature of the contact you had with the relatives living in Johannesburg during the past 12 months? - We / I visited them in Johannesburg

Cases weighted by Weight scaled to sample size (Final)

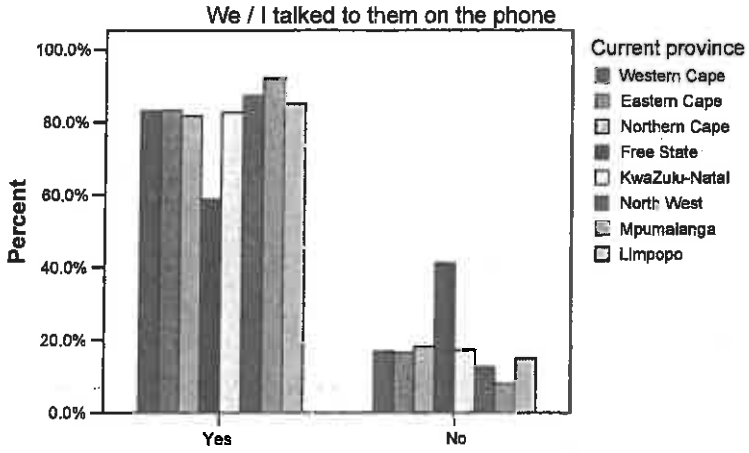
Graph 8b. What was the nature of the contact you or other members of this household had with the relatives or friends living in Johannesburg during the past 12 months?



q42g2 - The nature of the contact you had with the relatives living in Johannesburg during the past 12 months? - They visited us / me

Cases weighted by Weight scaled to sample size (Final)

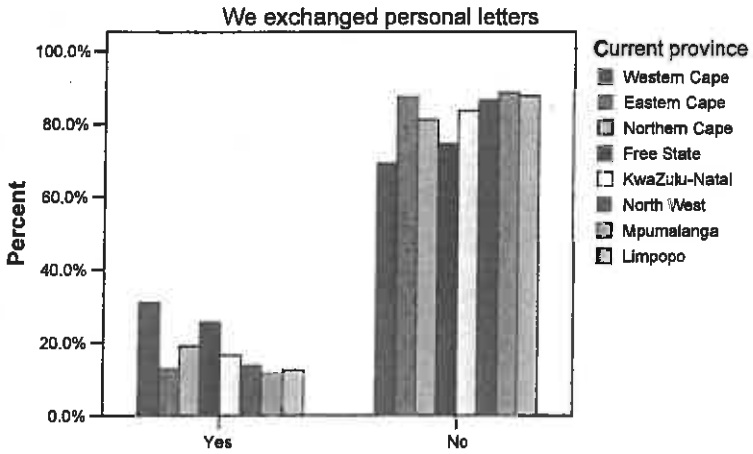
Graph 8c. What was the nature of the contact you or other members of this household had with the relatives or friends living in Johannesburg during the past 12 months?



q42g3 - The nature of the contact you had with the relatives living in Johannesburg during the past 12 months? - We / I talked to them on the phone

Cases weighted by Weight scaled to sample size (Final)

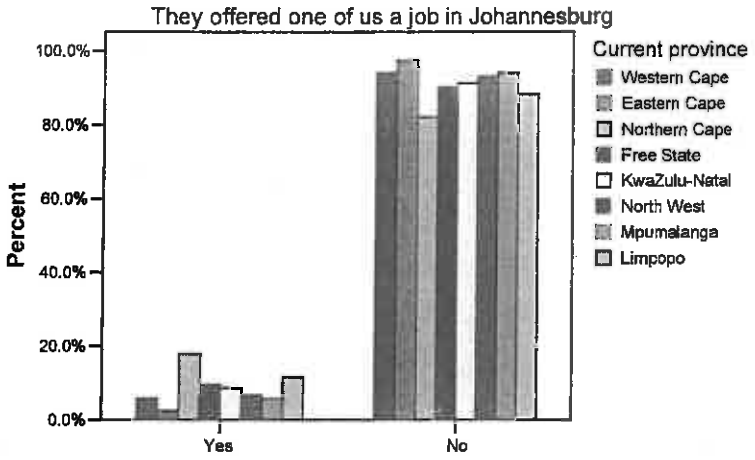
Graph 8d. What was the nature of the contact you or other members of this household had with the relatives or friends living in Johannesburg during the past 12 months?



q42g4 - The nature of the contact you had with the relatives living in Johannesburg during the past 12 months? - We exchanged personal letters

Cases weighted by Weight scaled to sample size (Final)

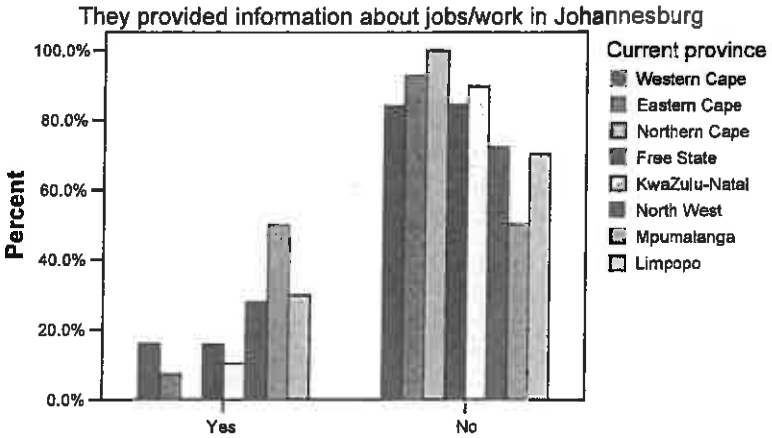
Graph 8e. What was the nature of the contact you or other members of this household had with the relatives or friends living in Johannesburg during the past 12 months?



q42g5 - The nature of the contact you had with the relatives living in Johannesburg during the past 12 months? - They offered one of us a job in Johannesburg

Cases weighted by Weight scaled to sample size (Final)

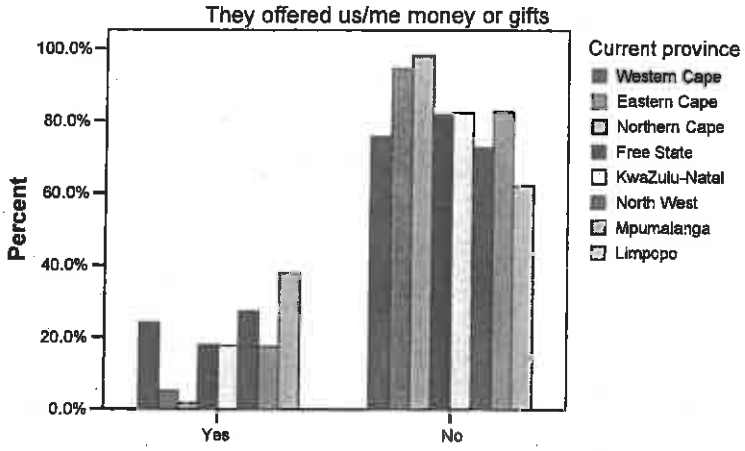
Graph 8f. What was the nature of the contact you or other members of this household had with the relatives or friends living in Johannesburg during the past 12 months?



q42g6 - The nature of the contact you had with the relatives living in Johannesburg during the past 12 months? - They provided information about jobs/work in Johannesburg

Cases weighted by Weight scaled to sample size (Final)

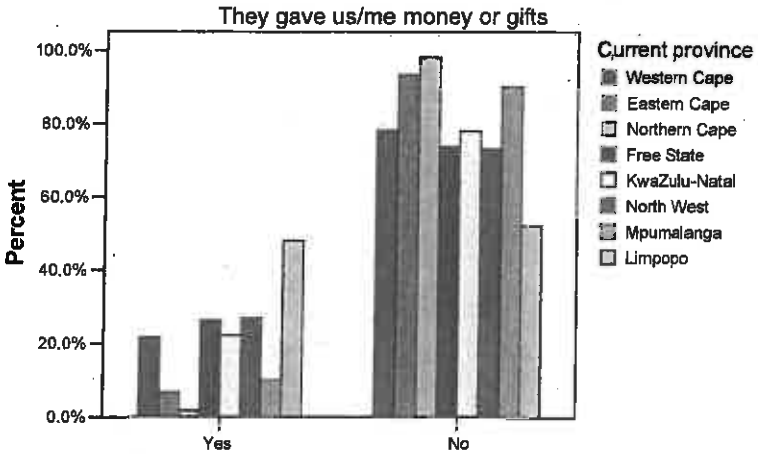
Graph 8g. What was the nature of the contact you or other members of this household had with the relatives or friends living in Johannesburg during the past 12 months?



q42g7 - The nature of the contact you had with the relatives living in Johannesburg during the past 12 months? - They offered us/me money or gifts

Cases weighted by Weight scaled to sample size (Final)

Graph 8h. What was the nature of the contact you or other members of this household had with the relatives or friends living in Johannesburg during the past 12 months?



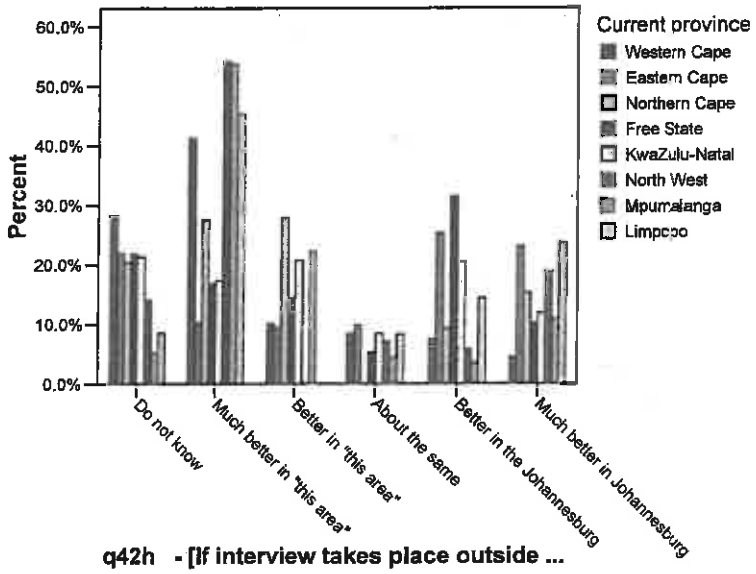
q42g8 - The nature of the contact you had with the relatives living in Johannesburg during the past 12 months? - They gave us/me money or gifts

Cases weighted by Weight scaled to sample size (Final)

Graph 8 shows that the contacts with Johannesburg networks are mainly in the form of mutual visits or telephone conversations (a)–(d) rather than aimed specifically at influencing the members of households outside Gauteng to move to Johannesburg by proving work-related information (f)[28] or actually offering people jobs in Johannesburg (e). The fact that some of the people in these Johannesburg networks offered or gave money or gifts to the respondent households outside Gauteng probably indicates that a small proportion of the people forming these Johannesburg networks are in fact migrant workers remitting (money or goods) at least once a year. This seems to be particularly true for the Limpopo households in the survey.[29]

Having established that persons outside Gauteng do not know much about Johannesburg, it would be interesting to see how Johannesburg is perceived as a place in which to live and work. In Graphs 9–11 these perceptions are reflected.

Graph 9. Do you think the overall living conditions are better in Johannesburg than in this area, would they be better in this area, or would there not be much of a difference?



Cases weighted by Weight scaled to sample size (Final)

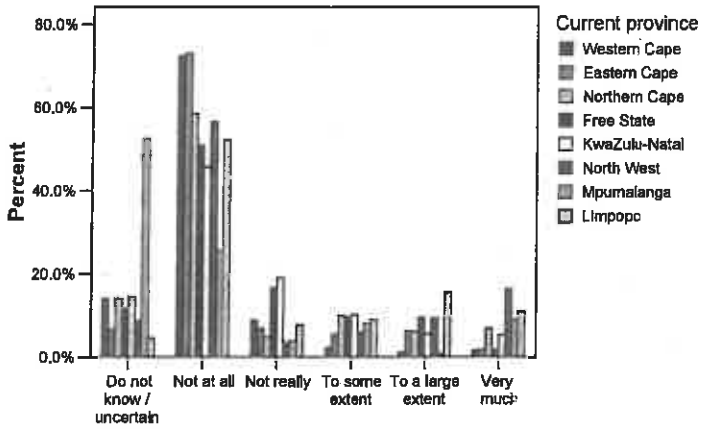
Graph 9 shows that most respondents perceive the living conditions in their current areas of residence to be better than those in Johannesburg, and this applies specifically to respondents in North West, Mpumalanga and Limpopo. A notable proportion of respondents in the Eastern Cape, Free State and KwaZulu-Natal did, however, regard Johannesburg as "better" or "much better" than their current areas of residence.

[28] A slight majority of Mpumalanga respondents did indicate, however, that they had been given information about jobs in Johannesburg by their social networks in the city.

[29] Unfortunately data were not collected regarding the precise nature of the relationships between respondents and their networks (e.g. the respondent's mother or daughter) or the occupations of the latter (e.g. domestic worker).

In Graphs 10–12 the responses to questions about the desirability of raising one's children, retiring or be buried in Johannesburg among individuals living outside Gauteng are illustrated. A majority of respondents (except for those in Mpumalanga) indicated that they would "not at all" like to raise their children in Johannesburg Graph 10).

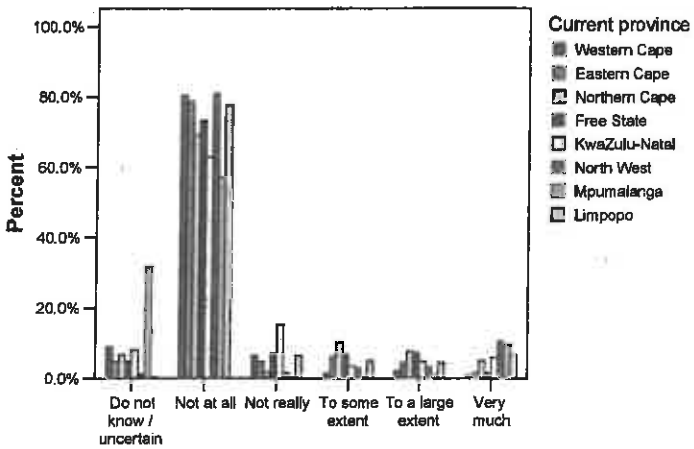
Graph 10. To what extent would you like your children or grandchildren to be raised in Johannesburg?



q42i - [If interview takes place outside Gauteng]: to what extent would you like your children or grandchildren to be raised in Johannesburg?

Cases weighted by Weight scaled to sample size (Final)

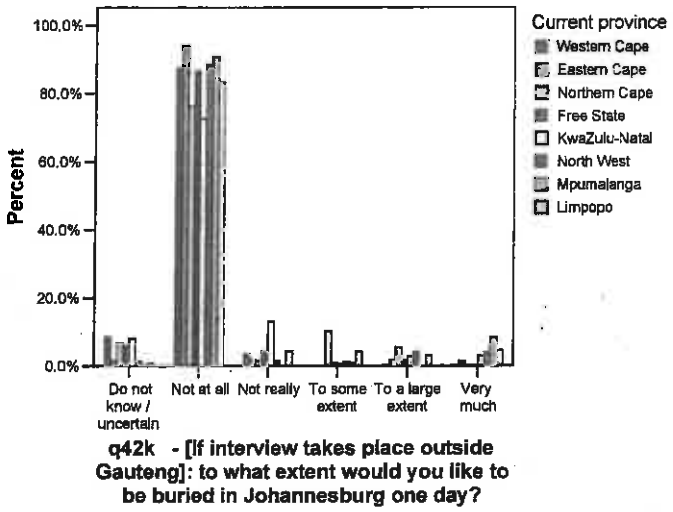
Graph 11. To what extent would you like to live in Johannesburg when you retire?



q42j - [If interview takes place outside Gauteng]: to what extent would you like to live in Johannesburg when you retire?

Cases weighted by Weight scaled to sample size (Final)

Graph 12. To what extent would you like to be buried in Johannesburg one day?



Cases weighted by Weight scaled to sample size (Final)

Even clearer majorities indicated that they would "not at all" like to retire or be buried in Johannesburg (Graphs 11–12), and these sentiments are reflected most clearly in Graph 12. The implications are clear: while the City of Johannesburg may provide work and other opportunities not equalled elsewhere in South Africa, very few people living elsewhere in the country are willing to spend their last years in Johannesburg (but in many cases these responses probably reflect emotional rather than rational preferences).

APPENDIX 2

THE SELECTIVITY FACTORS SOCIAL DESIRABILITY, RISK-TAKING ABILITY AND EFFICACY: FINDINGS FROM THE ITEM ANALYSES

The question that dealt with the attitude items read as follows in both surveys: "I shall now read you a number of statements. These statements reflect certain people's attitudes to specific matters. Please tell me to what extent you agree or disagree with each particular statement." The items used in this battery of questions were measured on a Likert-type, five-point scale with the following response options: (a) "strongly disagree" (with a value of 1), (b) "disagree" (value = 2), (c) "neither agree nor disagree / uncertain" (3), (d) "agree" (4), and (e) "strongly agree" (5).

There was also an option for the respondent to indicate that s/he did not understand the particular item. Such responses were treated as missing values in the analyses. The "don't understand" option was included to identify those items that may be less suitable for the purposes of the study if a significant proportion of respondents would not understand the meaning of the item. No single item included below had a notable proportion (1% or more) of "don't understand" responses.

Reliability is not the only criterion for a good scale. Although reliability (i.e. the ability of a measuring tool to produce the expected outcome repeatedly) is a necessary condition, it is not sufficient for assuming *validity* (i.e. the requirement that a tool must measure what it is supposed to measure). Consequently, it is possible for a test to be reliable without being valid (i.e., a test can give the same result time after time but not be measuring what it was intended to measure). Validity should therefore be determined as well. A series of validity tests is needed to determine whether a particular tool (scale) is valid or not. There are essentially three types of validity: (a) internal validity (covering both "face validity" and "content validity"), (b) external validity (which covers both forms of "criterion-related validity"), and (c) construct validity. The reader is referred to Kok and Pietersen (2003) for a discussion of these tests.

However, before discussing the two suggested scales for risk-taking ability and efficacy, it is necessary to refer to the application of the (shortened) scale for social desirability in this study, which is used to distinguish between assertive and compliant respondents. This scale did not come out particularly well in the confirmatory factor analyses, but had been applied and tested in various settings in South Africa and should therefore be regarded as sufficiently valid even if not entirely reliable. The six items constituting this scale were measured by means of the same Likert-type five-point scale indicated above.

1. Social desirability

(a) "I sometimes try to take revenge, rather than to forgive and forget"* [Adjusted discrimination value (DV) = 0.31; Alpha value *if this item were to have been deleted*, based on the *weighted* data (α)[30] = 0.24]

(b) "I have sometimes profited unfairly from someone else"* (DV = 0.23; α = 0.28)

(c) "I am always willing to admit that I have made a mistake" (DV = 0.16; α = 0.31)

(d) "It does not matter whom I speak to, I am always a good listener" (DV = 0.23; α = 0.29)

(e) "I am always courteous, even to unpleasant people" (DV = 0.22; α = 0.30)

(f) "I sometimes feel resentful when I cannot have my own way"* (DV = 0.10; α = 0:43)

Number of cases on which the item analyses were based: 2 872

The reliability coefficients (obtained from the item analysis) for these six items are as follows:

(a) KR-20 Reliability: 0.42
(b) KR-8 Reliability: 0.63
(c) CCA Reliability[31] (on the weighted data): 0.35

It should be noted that the item "I sometimes feel resentful when I cannot have my own way"* (DV = 0,10; α = 0,43) performed poorly. (This item must therefore preferably be removed from the social desirability scale during application of the scale in the migration study.) The remaining five items are expected to be sufficient for the purpose of measuring "social desirability" in the study. The variable used in these analyses (SOC_DES) denotes the respondent's score on the social desirability scale, expressed as a percentage of the maximum possible score.

2. Risk-taking ability

(a) "If the possible reward was very high, I would not hesitate putting my money into a new business, even though it could fail" [Factor loading (FL) = 0.61; DV = 0.44; α = 0.41]

(b) "I enjoy the challenge of a project irrespective of whether it means a good promotion or the loss of my job" (FL = 0.53; DV = 0.40; α = 0.49)

(c) "I am the kind of person who likes to take risks" (FL = 0.52; DV = 0.53; α = 0.49)

Number of cases: 2 728

---

* This item was reverse-coded as follows: N = 6 – O; where N = new code (value), and O = original code (as it appeared on the questionnaire and the original data set).

[30] The value of the Cronbach Coefficient Alpha *if the particular item were to have been deleted*, using the CORR procedure in SAS with the *weighted* data. (Please note: The higher the value of α, the *less* appropriate the particular item is for that dimension. If α is greater than the overall CCA reliability coefficient it is indicative of a major problem.)

* This item was also reverse-coded.

[31] The overall Cronbach Coefficient Alpha (CCA) for the entire dimension, as an index of internal consistency, using the raw (unstandardised) variables.

KR-20 Reliability: 0.59
KR-8 Reliability: 0.74
CCA Reliability (on the weighted data): 0.56

These three items performed sufficiently well to warrant their use for measuring "risk-taking ability" in the study. The variable used in these analyses (RISK_TKG) denotes the respondent's score on the scale for risk-taking ability, expressed as a percentage of the maximum possible score.

3. Efficacy

> General perceived self-efficacy pertains to optimistic beliefs about being able to cope with a large variety of stressors. In contrast to other constructs of optimism, perceived self-efficacy explicitly refers to one's competence to deal with challenging encounters (Schwarzer 1998:1).

The "Generalised Self-Efficacy Scale" was originally developed in German by Matthias Jerusalem and Ralf Schwarzer in 1981 and has since been used in many studies with a large number of participants (see http://userpage.fu-berlin.de/~health/-world14.htm). It consists of a 10-item psychometric scale that was designed to assess optimistic self-beliefs to cope with a variety of difficult demands in life. However, "in contrast to other scales that were designed to assess optimism, this one explicitly refers to personal agency, i.e., the belief that one's actions are responsible for successful outcomes" (Schwarzer 1998).

Only the following five of the original 10 items withstood the strict testing for South African circumstances:

(a) "When I am confronted with a problem, I can usually find several solutions" (FL = 0.45; DV = 0.51; $\alpha = 0.63$)

(b) "If I am in trouble, I can usually think of a solution" (FL = 0.55; DV = 0.53; $\alpha = 0.60$)

(c) "I am confident that I could deal efficiently with unexpected events" (FL = 0.63; DV = 0.52; $\alpha = 0.57$)

(d) "I remain calm when facing difficulties, because I can rely on my coping abilities" (FL = 0.52; DV = 0.46; $\alpha = 0.60$)

(e) "I can solve most problems if I invest the necessary effort" (FL = 0.46; DV = 0.51; $\alpha = 0.62$)

Number of cases: 2 808
KR-20 Reliability: 0.71
KR-8 Reliability: 0.78
CCA Reliability (on the weighted data): 0.66

These five items performed well enough to warrant their use for measuring "efficacy". The variable used in these analyses (EFFICACY) denotes the respondent's score on the self-efficacy scale, expressed as a percentage of the maximum possible score.

APPENDIX 3

FINDINGS FROM THE PATH ANALYSIS UNDERTAKEN TO CONFIRM OR REJECT THE SUGGESTED STRUCTURAL FRAMEWORK

The basic statistical characteristics of the 23 variables used in the model are described in Table 1. It would also be appropriate to reflect on the manner in which this path analysis conforms to the suggested framework in Figure 1, by considering which variables have been included to represent what part of the framework, and which variables were not included and for what reason:

TABLE 1 VARIABLES USED IN THE PATH ANALYSIS

Variable description and label	Mean/ Proportion	Standard deviation
Intending to migrate permanently in next 5 years?: 1/0 (MIG_PERM)	0.23574	0.42751
Overall value-expectancy: destination / current area: % (VE_TOTAL)	18.32401	9.55760
Level of information about the possible destination: 5-point scale (INFO)	2.13870	1.21590
Satisfaction with life on the whole: 5-point scale (GEN_SAT)	3.12155	1.38844
Migrant network at the possible destination?: 1/0 (MIG_NET)	0.34638	0.47923
Is Johannesburg the preferred destination?: 1/0 (POS_JNB)	0.06977	0.25659
Respondent's personal monthly income: 14-point ordinal scale (PERS_INC)	3.25153	2.69709
Respondent's occupational status: 10-point ordinal scale (OCC_STAT)	2.36101	2.71489
Migration decisions taken in own interest (i.e. not family's)?: 1/0 (OWN_INT)	0.66250	0.47625
Has respondent migrated before (i.e. a former migrant)?: 1/0 (MIGRANT)	0.4420	0.50019
Is respondent working for pay, profit or family gain?: 1/0 (WORKING)	0.32826	0.47295
Respondent's score on the risk-taking ability scale: % (RISK_TKG)	48.45644	24.46960
Respondent's score on the (self-) efficacy scale: % (EFFICACY)	73.77130	13.85240
Respondent's score on the social desirability scale: % (SOC_DES)	58.57317	13.53456
Household size: number of persons in household (HH_SIZE)	2.81671	1.20975
Is the respondent currently married?: 1/0 (CUR_MAR)	0.43675	0.49954
Highest educational attainment: 17-point ordinal scale (EDUCAT)	8.19208	4.13517
Poverty index for the local government concerned (2001): fraction. (POV_INDX)	0.34858	0.13501
Currently living in an urban area?: 1/0 (URBN_CUR)	0.59936	0.49354
Respondent's age at the time of the survey: single years (AGE)	36.23469	13.80758
Is the respondent a female person?: 1/0 (FEMALE)	0.54431	0.50160
Is the respondent a black African person?: 1/0 (AFRICAN)	0.79338	0.40778
Currently living in Johannesburg?: 1/0 (CUR_JNB)	0.07914	0.27189

(a) The following **selectivity factors** have been included in the path analysis: (1) racial group (AFRICAN), (2) age (AGE), (3) gender (FEMALE), (4) education (EDUCAT), (5) employment status (WORKING), (6) income (PERS_INC), (7) social desirability (SOC_DES), (8) risk-taking ability (RISK_TKG), (9) efficacy (EFFICACY), (10) marital status, for which being currently married (CUR_MAR) is used, and (b) life-cycle stage, for which household size (HH_SIZE) is used as proxy.

(b) The **spatial context** has been provided by the following variables: (1) urban/rural locality (URBN_CUR), (2) currently living in Johannesburg? (CUR_JNB), (3) poverty index (POV_INDX) for the local government concerned in 2001, and (5)

whether Johannesburg is the preferred destination for the planned permanent move (POS_JNB).

(c) Four variable are used to denote **family influences, network roles and information**, namely (1) life satisfaction (GEN_SAT), (2) whether the respondent would migrate in his/her own interest, i.e. not necessarily in the interest of the family (OWN_INT), (3) the existence of a migrant network at the possible destination (MIG_NET), and (4) the level of information about the possible destination (INFO).[32]

(d) All the variables suggested for **goals/values and expectations** have been included, but the six goal/value dimensions have not been analysed separately.

(e) **Migration intentions** have been represented here by a variable denoting the intention to move permanently over the next five years (MIG_PERM).

The statistical results of the confirmatory path analysis that was undertaken are given in Table 2, which shows that a good model fit has been obtained. Although the model Chi-square is significant at the 5 per cent level (with the p-value of 0.0369 being smaller than 0.05), the relatively large number of observations (2 288) and variables (23) should be taken into account as well as Bentler's (1989) CFI and Bentler and Bonett's (1980) non-normed index and their NFI all being greater than 0.98, which would generally indicate a sufficiently good model fit.

TABLE 2 PATH ANALYSIS: COVARIANCE STRUCTURE ANALYSIS (MAXIMUM LIKELIHOOD ESTIMATION)

Statistical measure	Value
No. of observations	2 288
No. of variables	23
No. of informations (i.e. amount of independent information in the data matrix)	276
Parameters	165
Iterations	24
Fit Function	0.0555
Goodness of Fit Index (GFI)	0.9952
GFI Adjusted for Degrees of Freedom (AGFI)	0.9880
Chi-Square	126.8450
Chi-Square DF	110
Pr > Chi-Square	0.1299
Probability of Close Fit	1.0000
Bentler's (1989) Comparative Fit Index (CFI)	0.9981
Bentler & Bonett's (1980) Non-normed Index	0.9956
Bentler & Bonett's (1980) NFI	0.9861

The standardised residuals are small (≤ 2.09), normally distributed and centred on zero. This indicates a sufficiently appropriate path model. It should also be noted that in path analysis all the structural equations in the entire model are evaluated simultaneously, i.e. not one equation at a time as in regression models. The Lagrange multiplier (a modification index) contained one path/covariance (from EFFICACY to MIGRANT) that could indicate a need to remove it, but since its significance level is only slightly greater than 5 per cent (p = 5.35%) it was decided to retain it in the

[32] One key variable in this block that is not included here is "family influences", because it was discovered that a large number of missing values occurred in the data because of an incorrect skip instruction in one version of the questionnaire, therefore causing a potential bias.

model in order to retain the structure. The structural equations and the details of the standardised coefficients are provided below in four groups that roughly correspond to the various blocks in Figure 1. All these path coefficients, except the one mentioned above, are significant at the 5 per cent level.

Migration intentions

MIG_PERM = 0.0714*VE_TOTAL + -0.2030*GEN_SAT + -0.0797*OCC_STAT + 0.0831*EDUCAT + -0.0658*SOC_DES + 0.0520*RISK_TKG + 0.1854*MIG_NET + -0.0630*CUR_MAR + 0.2435*INFO + 0.0591*MIGRANT + 0.0484*PERS_INC + -0.0699*POV_INDX + 0.2057*POS_JNB + -0.0999*AGE + 0.8061

Goals/values and expectations

VE_TOTAL = -0.0593*GEN_SAT + 0.0804*OCC_STAT + 0.0466*HH_SIZE + -0.0491*SOC_DES + -0.0774*RISK_TKG + 0.1276*EFFICACY + -0.1639*URBN_CUR + 0.0683*INFO + -0.1505*PERS_INC + -0.0408*POV_INDX + 0.0434*POS_JNB + -0.1392*AGE + -0.0706*FEMALE + 0.0931*CUR_JNB + 0.9329

Family influences, network roles and information

INFO = -0.0369*GEN_SAT + 0.0552*OCC_STAT + 0.0773*EDUCAT + -0.0773*HH_SIZE + 0.0520*SOC_DES + -0.0734*RISK_TKG + 0.3220*MIG_NET + 0.1784*MIGRANT + 0.0478*PERS_INC + 0.1157*POS_JNB + -0.0574*AFRICAN + 0.0544*AGE + -0.1311*FEMALE + -0.0441*CUR_JNB + 0.9608

MIG_NET = 0.2857*EDUCAT + -0.0414*SOC_DES + -0.0786*URBN_CUR + 0.0870*MIGRANT + 0.1061*POV_INDX + 0.1209*POS_JNB + -0.0704*CUR_JNB + 0.9365

GEN_SAT = -0.0447*HH_SIZE + -0.0667*WORKING + -0.0482*SOC_DES + -0.0508*MIG_NET + -0.0582*CUR_MAR + -0.1161*MIGRANT + 0.1290*PERS_INC + 0.0537*OWN_INT + 0.1579*POV_INDX + -0.2060*AFRICAN + 0.9452

OWN_INT = -0.0745*OCC_STAT + 0.1821*EDUCAT + -0.0614*EFFICACY + -0.0467*MIGRANT + 0.1418*AFRICAN + 0.9755

Spatial context and selectivity factors

POS_JNB = 0.1032*OCC_STAT + -0.0629*WORKING + -0.0624*SOC_DES + -0.0784*CUR_MAR + 0.1060*MIGRANT + 0.1136*AFRICAN + -0.1735*AGE + 0.0415*CUR_JNB + 0.9623

PERS_INC = 0.2062*OCC_STAT + 0.1515*EDUCAT + 0.0422*HH_SIZE + 0.4526*WORKING + -0.0343*SOC_DES + 0.0376*EFFICACY

+ 0.0358*POV_INDX + -0.1601*AFRICAN + 0.2378*AGE + -0.0486*FEMALE + 0.6811

OCC_STAT = 0.2133*EDUCAT + 0.3417*WORKING + 0.0497*URBN_CUR + 0.0463*CUR_MAR + 0.1105*MIGRANT + -0.1524*AFRICAN + 0.2209*AGE + -0.0900*FEMALE + 0.0382*CUR_JNB + 0.8068

MIGRANT = -0.1822*HH_SIZE + 0.0571*SOC_DES + -0.0766*RISK_TKG + 0.0406*EFFICACY + -0.0817*POV_INDX + -0.0742*AFRICAN + 0.0451*AGE + -0.0684*FEMALE + 0.0917*CUR_JNB + 0.9970

WORKING = 0.0830*EDUCAT + -0.1869*HH_SIZE + 0.0718*URBN_CUR + 0.1161*CUR_MAR + 0.1062*POV_INDX + -0.0579*AFRICAN + -0.1716*FEMALE + 0.1120*CUR_JNB + 0.9260

RISK_TKG = 0.3430*SOC_DES + 0.1000*EFFICACY + 0.0771*URBN_CUR + -0.0423*CUR_MAR + 0.0837*POV_INDX + -0.0854*AGE + -0.0477*CUR_JNB + 0.9156

EFFICACY = 0.2049*EDUCAT + 0.2892*SOC_DES + 0.0825*AGE + 0.9448

SOC_DES = -0.0467*EDUCAT + -0.1143*POV_INDX + 0.1881*AFRICAN + 0.9740

HH_SIZE = -0.1216*EDUCAT + -0.1778*URBN_CUR + -0.1772*CUR_MAR + -0.1020*AGE + 0.9433

CUR_MAR = 0.0547*EDUCAT + -0.1313*AFRICAN + 0.3908*AGE + 0.0476*FEMALE + 0.9105

EDUCAT = 0.2393*URBN_CUR + 0.0658*POV_INDX + -0.2481*AFRICAN + -0.3871*AGE + 0.8365

POV_INDX = 0.1231*AFRICAN + -0.1149*CUR_JNB + 0.9866

URBN_CUR = -0.3921*AFRICAN + 0.0479*CUR_JNB + 0.9199

The structural framework depicted in Figure 1 of the main text has clearly been confirmed by the path analysis presented here, but it should be understood that the presence of dichotomous consequent (internally dependent) variables, including the ultimate consequent variable in the analysis (MIG_PERM), makes it undesirable to draw final conclusions in this regard. The graphical chain modelling (reported in Appendix 4) is therefore needed to confirm or reject, beyond any doubt, the validity of the structural framework shown in Figure 1.

APPENDIX 4

FINDINGS FROM THE GRAPHICAL CHAIN MODELLING

The equations from the graphical chain modelling exercise are presented here. It should be noted that two path coefficients are not statistically significant at the five per cent level, but it was decided not to remove them from the graphical chain modelling so as to retain these as control paths and the structure depicted in Figures 1 and 2. The two non-significant path coefficients are: WORKING→POS_JNB ($p = 0.1576$) and SOC_DES→ MIG_NET ($p = 0.0571$).[33]

Spatial context and selectivity factors

1 *Currently living in an urban area? (URBN-CUR): Logistic Regression*

logit (URBN_CUR)[34] = 3.5688 + 0.3970*CUR_JNB - 3.5950*AFRICAN

Probability modelled is URBN_CUR = 1. Global null hypothesis (beta = 0): Wald $\chi^2 = 162.2755$ ($df = 2$, $p < 0.0001$). Concordant =66.2%, discordant = 3.2%.

2 *Poverty index (POV_INDX): Ordinary Least Squares (OLS) Regression*

POV_INDX = 0.32076 + 0.04076*AFRICAN + -0.05706*CUR_JNB

F Value = 31.21 ($df = 2$; Probability > F < 0.0001). Adjusted $r^2 = 2.57\%$.

3 *Educational attainment (EDUCAT): OLS Regression*

EDUCAT = 12.48094 + 2.01226*POV_INDX + 2.00348*URBN_CUR + -0.11583*AGE + -2.51341*AFRICAN

F Value = 246.34 ($df = 4$; Probability > F < 0.0001). Adjusted $r^2 = 30.03\%$.

4 *Social desirability (SOC-DES): OLS Regression*

SOC_DES = 58.86544 + -0.15284*EDUCAT + -11.45579*POV_INDX + 6.24305*AFRICAN

F Value = 41.27 ($df = 3$; Probability > F < 0.0001). Adjusted $r^2 = 5.02\%$.

5 *Currently married? (CUR_MAR): Logistic Regression*

logit (CUR_MAR) = -2.4654 + 0.0342*EDUCAT + 0.0658*AGE + 0.2360*FEMALE + -0.7582*AFRICAN

Probability modelled is CUR_MAR = 1. Global null hypothesis (beta = 0): Wald $\chi^2 = 338.4440$ ($df = 4$, $p < 0.0001$). Concordant = 70.6%, discordant = 29.1%.

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[33] One control path, namely CUR_JNB→POS_JNB, could not be included in these analyses because the two variables are closely overlapping. In the path analysis this did not seem to create any problems.

[34] The left-hand side of the regression equation, "logit (URBN_CUR)", is the logit transformation of the probability, π, namely $\log [\pi / (1 - \pi)]$. "The logit of the probability is simply the log of the odds of the event of interest" (Der & Everitt 2002:147), in this case "currently living in an *urban* area" – as opposed to "living in a *rural* area".

6 *Household size (HH-SIZE): OLS Regression*

HH_SIZE = 3.88175 + -0.42960*CUR_MAR + -0.03564*EDUCAT + -0.43610*URBN_CUR + -0.00894*AGE

F Value = 69.44 (*df* = 4; Probability > F < 0.0001). Adjusted r^2 = 10.69%.

7 *Self-efficacy (EFFICACY): OLS Regression*

EFFICACY = 47.79909 + 0.29610*SOC_DES + 0.68720*EDUCAT + 0.08277*AGE

F Value = 90.91 (*df* = 3; Probability > F < 0.0001). Adjusted r^2 = 10.55%.

8 *Risk-taking ability (RISK-TKG): OLS Regression*

RISK_TKG = -1.66301 + 0.17631*EFFICACY + 0.61917*SOC_DES + -2.06958*CUR_MAR + 15.14333*POV_INDX + 3.81563*URBN_CUR + -0.15115*AGE + -4.28449*CUR_JNB

F Value = 64.03 (*df* = 7; Probability > F < 0.0001). Adjusted r^2 = 16.17%.

9 *Working (for pay, profit or family gain)? (WORKING): Logistic Regression*

logit (WORKING) = -0.6988 + -0.3898*HH_SIZE + 0.5579*CUR_MAR + 0.0475*EDUCAT + 2.0686*POV_INDX + 0.3682*URBN_CUR + -0.8311*FEMALE + -0.3177*AFRICAN + 0.9969*CUR_JNB

Probability modelled is WORKING = 1. Global null hypothesis (beta = 0): Wald χ^2 = 290.3345 (*df* = 8, p < 0.0001). Concordant = 70.4%, discordant = 29.3%.

10 *Respondent a former migrant? (MIGRANT): Logistic Regression*

logit (MIGRANT) = 0.5787 + -0.00684*RISK_TKG + 0.00658*EFFICACY + 0.00939*SOC_DES + -0.3259*HH_SIZE + -1.3226*POV_INDX + 0.00712*AGE + -0.2964*FEMALE + -0.3892*AFRICAN + 0.7271*CUR_JNB

Probability modelled is MIGRANT = 1. Global null hypothesis (beta = 0): Wald χ^2 = 168.5578 (*df* = 9, p < 0.0001). Concordant = 57.4%, discordant = 41.9%.

11 *Occupational status (OCC-STAT): OLS Regression*

OCC_STAT = -0.49640 + 0.59828*MIGRANT + 1.95771*WORKING + 0.25082*CUR_MAR + 0.13975*EDUCAT + 0.27291*URBN_CUR + 0.04331*AGE + -0.48579*FEMALE + -1.01161*AFRICAN + 0.38021*CUR_JNB

F Value = 137.85 (*df* = 9; Probability > F < 0.0001). Adjusted r^2 = 35.00%.

12 *Personal income (PERS-INC): OLS Regression*

PERS_INC = -0.23352 + 0.20469*OCC_STAT + 2.57399*WORKING + 0.00729*EFFICACY + -0.00681*SOC_DES + 0.09856*EDUCAT + 0.09358*HH_SIZE + 0.71287*POV_INDX + 0.04628*AGE + -0.26029*FEMALE + -1.05502*AFRICAN

F Value = 266.54 (*df* = 10; Probability > F < 0.0001). Adjusted r^2 = 53.73%.

13 Preferring Johannesburg as possible destination? (POS_JNB): Logistic Regression

logit (POS_JNB) = -0.8534 + 0.1553*OCC_STAT + 1.0197*MIGRANT + -0.3126*WORKING• + -0.7222*CUR_MAR + -0.0226*SOC_DES + -0.0796*AGE + 1.6865*AFRICAN + 0.2867*CUR_JNB

Probability modelled is POS_JNB = 1. Global null hypothesis (beta = 0): Wald χ^2 = 139.0383 (*df* = 7, p < 0.0001). Concordant = 70.7%, discordant = 27.5%.

Life satisfaction, family considerations, network roles and information

14 Migration decisions taken in own interest (OWN_INT): Logistic Regression

logit (OWN_INT) = 0.2831 + -0.0619*OCC_STAT + -0.2034*MIGRANT + -0.00997*EFFICACY + 0.0981*EDUCAT + 0.7512*AFRICAN

Probability modelled is OWN_INT = 1. Global null hypothesis (beta = 0): Wald χ^2 = 109.9983 (*df* = 5, p < 0.0001). Concordant = 60.5%, discordant = 38.9%.

15 Migrant network at destination? (MIG-NET): Logistic Regression

logit (MIG_NET) = -2.3818 + 1.0142*POS_JNB + 0.4192*MIGRANT + -0.00677*SOC_DES• + 0.1708*EDUCAT + 1.9282*POV_INDX + -0.3941*URBN_CUR + -0.5761*CUR_JNB

Probability modelled is MIG_NET = 1. Global null hypothesis (beta = 0): Wald χ^2 = 251.9168 (*df* = 7, p < 0.0001). Concordant = 64.5%, discordant = 35.1%.

16 Current life satisfaction (GEN-SAT): OLS Regression

GEN_SAT = 3.55377 + -0.14739*MIG_NET + 0.15662*OWN_INT + 0.06669*PERS_INC + -0.32263*MIGRANT + -0.19603*WORKING + -0.05122*HH_SIZE + -0.16171*CUR_MAR + -0.00495*SOC_DES + 1.62494*POV_INDX + -0.70164*AFRICAN

F Value = 26.96 (*df* = 10; Probability > F < 0.0001). Adjusted r^2 = 10.20%.

17 Level of information about destination (INFO): OLS Regression

INFO = 1.68454 + -0.03233*GEN_SAT + 0.81707*MIG_NET + 0.54832*POS_JNB + 0.02155*PERS_INC + 0.02481*OCC_STAT + 0.43378*MIGRANT + -0.00365*RISK_TKG + -0.07772*HH_SIZE + 0.00467*SOC_DES + 0.02275*EDUCAT + -0.31772*FEMALE + 0.00479*AGE + -0.17114*AFRICAN + -0.19727*CUR_JNB

F Value = 62.25 (*df* = 14; Probability > F < 0.0001). Adjusted r^2 = 27.27%.

• This coefficient is not significant at the 5% level.

Goals/values and expectations

18 *Overall value-expectancy (VE-TOTAL): OLS Regression*

VE_TOTAL = 22.25217 + 0.53709*INFO + 1.61840*POS_JNB + -0.40803*GEN_SAT + -0.53568*PERS_INC + 0.28388*OCC_STAT + -0.03031*RISK_TKG + 0.08809*EFFICACY + -0.03468*SOC_DES + 0.36790*HH_SIZE + -2.89370*POV_INDX + -3.17642*URBN_CUR + -0.09640*AGE + -1.34680*FEMALE + 3.27373*CUR_JNB

F Value = 23.92 (*df* = 14; Probability > F < 0.0001). Adjusted r^2 = 12.31%.

Migration intentions

19 *Intending to migrate permanently? (MIG-PERM): Logistic Regression*

logit (MIG_PERM) = -0.3774 + 0.0245*VE_TOTAL + 0.6359*INFO + -0.5317*GEN_SAT + 1.2048*MIG_NET + 1.7677*POS_JNB + 0.0702*PERS_INC + -0.0641*OCC_STAT + 0.4724*MIGRANT + 0.00687*RISK_TKG + -0.0166*SOC_DES + -0.5108*CUR_MAR + 0.0683*EDUCAT + -2.0835*POV_INDX + -0.0391*AGE

Probability modelled is MIG_PERM = 1. Global null hypothesis (beta = 0): Wald χ^2 = 491.5583 (*df* = 14, p < 0.0001). Concordant = 86.0%, discordant = 13.8%.

Interpretation

The reader is reminded that these individual equations form part of the larger 'causal' structure shown in Figures 1 and 2 and therefore the relative importance of the variables in any individual equation should not be interpreted as any indication of a 'causal order'. However, the fact that the signs of the regression coefficients in the above equations are consistently the same as in the path analysis (in Appendix 3) gives credibility to both sets of analyses.

From Equation 19 it is clear that a particular survey respondent would have been *more* inclined to plan to move 'permanently' to another area during the next five years (MIG_PERM) if s/he fitted the profile that is indicated below for each individual direct effect:

(a) Value-expectancy (VE_TOTAL) is (according to Figures 1 and 2) a primary predictor of migration intentions. It has a *positive* effect on the intention to migrate, as would be expected since the expectation for the possible destination is the enumerator and the expectation for the current area the denominator).[35]

(b) Level of information about the possible destination (INFO) also has a positive effect on migration intentions). *More* information about the possible destination therefore leads to a greater likelihood that migration will be contemplated.

[35] This means that a *higher* value-expectancy (i.e. a *higher* expectation in respect of the possible destination, combined with a *lower* expectancy for the current area, and weighted by a *higher* value being attached to a specific item or dimension) is likely to lead to an intention to migrate to the possible destination.

(c) Life satisfaction (GEN_SAT) has a negative effect, indicating that a *lower* level of life satisfaction (i.e. the person is *dis*satisfied with his/her life on the whole) is likely to lead to intentions to migrate away from the current area.

(d) Having a migrant network exists at the possible destination (MIG_NET) has a positive effect, which means that access to a *migrant network* at the possible destination can lead to migration being considered.

(e) If Johannesburg is the preferred destination (POS_JNB), it has a positive effect on migration intentions, indicating that such a person is *more* likely to actually plan moving there.

(f) A lower occupational status (OCC_STAT) is associated with a higher probability that permanent out-migration will be planned, possibly because those in higher-status positions are more likely to have established themselves career-wise in the areas where they live.

(g) However, at the same time, a higher personal income (PERS_INC) has a positive effect on migration intentions, probably confirming that long-distance migration requires money.

(h) If someone *has migrated* before and therefore has prior migration experience (MIGRANT), it can lead to a further migration being planned (positive effect).

(i) Risk-taking ability (RISK_TKG) has a positive effect, which shows that a *higher* risk-taking ability is likely to lead to an out-migration being planned.

(j) The *control variable* social desirability (SOC_DES)[36] has a negative effect.

(k) Being currently married (CUR_MAR) has a negative effect, which means that *not* being married is likely to be associated with an intention to migrate.

(l) Level of education (EDUCAT) has a positive effect on migration intentions, which shows that a *higher* level of education is more likely to lead to migration being considered.

(m)The poverty index of the 2001 population in the local government concerned (POV_INDX) has a negative effect, which means that if one lived in an area with a *lower* poverty index one might be more likely to consider migration. This confirms the conclusion by Gelderblom (1999) that persons living in the poorest areas may not be able to afford to migrate.

(n) The fact that age (AGE) has a negative effect confirms that people of a *younger* (adult) age are more likely to consider migration.

Equation 19 therefore shows that people **intend to migrate** (MIG_PERM) (a) when their expectations for the current area become lower than those in respect of an alternative place of residence, (b) which are often influenced by the information received about the alternative place of abode from relatives and friends living there, (c) if they have reason to believe that these networks at the possible destination will provide assistance and support during and after the move, and (d) when they become sufficiently *dis*satisfied with their lives in the current area of residence. (e) A significant proportion of respondents actually preferred to move to Johannesburg instead of another possible destination. (f) High poverty levels in the (local

[36] This control variable does not require an explanation in the context of any equation where it is found.

government) area where people reside are an inhibiting factor in the decision to move away permanently, indicating that a significant proportion of people in very poor areas may be trapped there. (g) People with a higher score on the scale for risk-taking ability are more likely to plan a migratory move than their more risk-averse counterparts. (h) Younger, unmarried adults will be more inclined to migrate than their older, married counterparts. (i) Persons who have migrated before are more likely to consider migrating again. Other factors associated with an intention to migrate are: (j) a higher educational attainment and (k) a lower occupational status, and (l) a higher personal income.

Similar conclusions can be drawn in respect of the other equations presented here, but it should be remembered that one deals here with total effects, which contain both direct and indirect effects. Path analysis provides a well-developed mechanism for determining the direct, indirect and total effects, but this is not readily available in graphical chain modelling. It should also be noted that paths leading to or from the control variable, social desirability, need not be interpreted.

It can also be concluded from Equation 18 that people's **expectations for an *alternative* place of residence, compared to their expectations for the current area** (VE_TOTAL), are *higher* on the one hand, (a) if they are part of a larger household, (b) have a high efficacy level, (c) have access to more information about the possible place of residence, and (d) have a higher occupational status. On the other hand, people tend to have *higher* expectations for their *current* place of residence (a) if they have a lower ability to take risks, (b) are satisfied with their lives at present, (c) have a higher personal income, (d) live in an urban area or (e) are females, (f) live in poorer areas, (g) do *not* live in Johannesburg, and (h) do *not* prefer Johannesburg as a possible destination.

Equation 17 shows that the **level of information** (INFO) about the possible destination is determined by whether one (a) has migrated before, (b) has access to a migrant network at the possible destination, (c) has a higher occupational status, (d) has a higher personal income, (e) prefers Johannesburg as a possible destination, (f) has a higher educational level, and (g) is an older adult person. The following other characteristics are, however, associated with a *lower* level of information about an alternative place of residence: (a) being satisfied with one's life, (b) having a higher risk-taking ability, (c) being part of a larger household, (d) being a woman, (e) being a black African person, and (f) currently living in Johannesburg.

It is clear from Equation 16 that having access to a **migrant network** (MIG_NET) at the possible destination is positively associated with (a) a higher educational attainment, (b) preference for Johannesburg as a possible destination, (c) having migrated before, (d) living in areas with higher poverty levels, (e) currently living in a rural area, and (f) not currently living in Johannesburg.

According to Equation 15, **life satisfaction** (GEN_SAT) is positively associated with (a) not having a migrant network at the possible destination, (b) not being a black African person, (c) not currently working for pay, profit or family gain, (d) not having migrated before, (e) not being married, (f) living in a smaller household, (g) pursuing one's own interests (i.e. not necessarily one's family's), (h) having a higher personal income, but (i) living in an area with a high poverty index. The latter two may seem

to be somewhat contradictory, but it has to be remembered that living in a poor area is not equivalent to having a low income. It is possible that if one has a higher income than others in the vicinity it could in some cases lead to a feeling of "gratitude" and thus a higher level of life satisfaction.

Equation 14 shows that persons who tend to **act in their own interests** (OWN_INT) rather than their families' when migration decisions are taken, are characterised by people who (a) have a lower occupational status, (b) have not migrated before, (c) have a lower level of self-efficacy, (d) have a higher education, and (e) are black Africans.

It is clear from Equation 13 that **preference for Johannesburg as a possible destination** (POS_JNB) is associated with (a) a higher occupational status, (b) not currently being employed, (c) having migrated before, (d) not currently being married, (e) being a younger adult person, (f) being a black African person, and (g) currently living in Johannesburg.

The other equations are not discussed here, because they may have somewhat less direct relevance for this particular study. It should be remembered, though, that they form part of a comprehensive structural framework and are therefore no less important from a theoretical and technical point of view.

APPENDIX 5

HOUSEHOLD CASE STUDIES: DIEPSLOOT, DIEPKLOOF AND YEOVILLE

NETTA L: LEAVING THE FAMILY HOUSE TO CONSERVE GRANT INCOME

My family is living in Alexandra, but that household is overcrowded, it's my mother and my sisters and brothers. We had no money coming in, and while I was living there I had to share my child grant money with everyone, the whole family. My income was not enough for that. I got tired of having to share it, so I left home in 1996 with my two kids, and I am living in a shack in Diepsloot now. I am 36 years old, and I have never lived anywhere else.

From Alexandra to Diepsloot was a cheap move. I didn't have to save and I didn't consult anyone about the move, I made the decision on my own and I went. In Diepsloot I was given a piece of land by the Community Policing Forum for R 200. The fee was for locating my shack in Diepsloot. I didn't need any connections to do this, I just asked around.

I wasn't satisfied with the housing situation from the start, I wanted a government house. Nothing has happened yet about government housing, although we were told at the time that RDP housing was coming and we have put down our names. But I'm not thinking of moving, I don't know of any better place that I can afford. Housing provision is very slow here in Johannesburg. People came here in large numbers, hoping to get government housing, but it's all been in vane. The city officials are selling these RDP houses for their own profit.

I don't like this place, because there are no jobs. I'm not working for wages, I'm selling vegetables from home, and besides that I depend on my children's grants. My income is very inadequate, it's about R 700 per month, though now it's only the three of us to share it. But my children are not in school. Water and electricity and health care and transport are all good, but the serious problem is safety – that I don't feel safe here with my kids. Even so, I have nowhere else to go to.

SAMANTHA Q: YOUTH SINGLE GENERATIONAL LIFESTYLE

I moved to Johannesburg in 2003 – before that, I moved from my parents' home in Mpumalanga to Sunnyside to rent a flat. That was in 1999. I felt like I couldn't stay at home, I had my Grade 7, and I wasn't continuing with education, I had to make a life. My mother, sisters and brothers all remained at home while I left to go on my own.

I had no resources, so I couldn't pay anything. I found the flat through friends, and we shared expenses and each paid R 300 per month toward the rent. That is, I moved alone, and then I met three other girls who assisted me to get settled. It was very satisfactory at the time, it enabled me to find a living. But I still phone my mother and family now and then.

In our flat, all three of us contributed to our support. None of us was employed. I wasn't employed myself, I just did this and that. That's what we all did. None of us had a government grant, and we just got money from going around.

Our life in the flat was very different from living at home. At home I was looked after, and here I had to find my own way. But our income was adequate for our needs at the time – we lived well. We drank every day, as and when we wanted.

I don't know much about the services in that area – I didn't have a child, and never needed the clinic. There was piped water, and of course electricity, and we did pay for that. We did sometimes need the police – sometimes we got into fights, and there was one police officer who was very helpful most of the time. I was very happy, the flat was located at the right place for our way of life. There was nothing bad about it at all.

But after a while, I moved to Diepsloot, into a shack. This was because I started living with a steady boyfriend. So we decided to get cheap accommodation because we want to save money for my lobola – that's now that we have finished buying our household property. We got here in 2003, and we are still here, but not for long now.

It did cost us money to come here, but it was my boyfriend who saved. We heard that sites were available here, and we moved fast. We came here and just allocated ourselves a stand for our shack, and then we built it. We constructed this shack.

For now, this housing is very satisfactory to my needs. It's big enough for me, there's no problem. Since we came here, I've had my baby, and I've started in with buying and selling. No, I'm not saying buying and selling what. But I am doing well – it can be more than R 3500 per month. Also, my boyfriend sends money from where he is working. He also makes more than R 3500 per month, he has a Grade 9.

I don't use the local clinic – I go to Johannesburg for my medical needs and those of my child. Water comes from a public tank, and the electricity is cheap. Housing services are bad, but I think there are too many people in Johannesburg and this makes services more stretched. We haven't put our names down for RDP housing yet, but we will. What we need here is cheaper houses for the poor. And please do something about lighting in this area – the nights are too dark.

I intend to stay here until end of next year. After that we will marry, and we'll move to a better place. Right now, this place a is a good means to an end.

GUGU H: MOVING TO THE SHACKS FROM AN INFLATED HOUSEHOLD

I left my family in Jabavu, Soweto, in 1993 – it was because of overcrowding in our parents' house after they died, and also there was fighting and quarrelling among all of us in the home. I was working as a domestic helper, and others were not working, so I had to support everyone. And I had to pay R 50 every month for water and another R 50 for electricity. Living there was too expensive for me and my daughter.

My two older sisters are still at home, they should go out to establish their own houses, but they can't get a proper place to stay, and they are afraid of living in the shacks. But since I was working, I was able to move out when my nephew, who lives in Diepkloof, told me about a backyard shack for rent there.

Now I am self-employed and earning about R 1000 per month, and my son is earning about R 200, and the two youngest children receive child support grants, so we are able to survive as a family of five, even though my daughter has now had a baby. We pay R 180 per month for our backyard shack, but it isn't satisfactory for us because it's very small.

I am somewhat satisfied here, but the bad thing is that I couldn't get a site to build my own house anywhere around this place. I put down my name in 2001 for an RDP house, but I am still waiting. Housing delivery here in Johannesburg is very poor. Tell those government people that these houses are being sold for money.

HERMAN P: GOING INTO SHACK AFTER PARENTAL HOUSE IS SOLD

I moved here to Diepsloot in 1999, because our parents' house in Orlando West was sold by my older brother, and then he moved to KwaZulu Natal. I just came here with my family and erected my own shack, because some of my friends from Soweto were here already. I didn't have to pay anything, because the place had no services. Things here are bad, but I can't think of moving, I have no means to do that.

It's a one-room shack, and when I built it I was living in it with my wife and our four children. After that my wife ran away, and went to live with another man, leaving her children. Now I am sleeping here in our one room with all the children, and they have no mother.

None of the children are schooling, because there is no money to send them to school. This is because I have no ID document so I am unable to get employment. I went to the Home Affairs Department four times, but my ID document was never there whenever I went. I was told to register again, and I'm still waiting. There is no rendering of government services here.

I am 39 years old and have a standard 5 education, and I have no regular income as matters stand. We survive only because I sometimes can get piecework jobs, temporary work. There has been some delivery of services in this neighbourhood, but still sometimes we don't get water now, and there is no electricity. Also, Diepsloot is a very dangerous place for anyone to live in, and there is no employment. I don't know what to do, and my children are totally not schooling.

035 MARIA N: LOSING A DOMESTIC JOB AND MOVING INTO A SHACK

I had to bring my family to Diepsloot when I lost my job as a domestic worker in Sandton. I had been working there 14 years, but I didn't receive any retrenchment or pension benefits, so I had to do something. It wasn't difficult to come here, though

the move was expensive. I just got a site and built my own shack. But it's very bad when it's raining or windy.

This was in 1996. I came here with my two daughters and my son, and my grandchildren as well. The younger grandchildren are just starting in school. All eight of us are now relying on my daughters' child support grants – these grants amount to R 850 a month now. My daughters have Standard 10, but when we came here my older daughter had to give up college. Neither they nor my son has been able to find a job. I have not found another job either. So we are four unemployed adults, together with the children.

This place is short of government services, we don't have electricity and water is unreliable. However, we always have at least one rapist operating, and we can be sure of high crime and public violence. We have applied for an RDP house, but nothing has happened yet.

LUCAS F: LEAVING HOME ALONE AND UNEMPLOYED

When I came to Diepsloot, I was alone and I'm still alone. I came here in 2003 and it was because I wanted to stay on my own, I was tired of staying with my family at home. That was with my widowed mother and all my family members excluding my father, he died many years ago. I was about 22 at the time, and no job. So I got money somehow and left, I just informed them of my decision, I didn't consult anyone.

I'm staying in a rented shack now. It costs me R 100 per month. I got this place through a woman I got to know – I met this girl in town, we came together and I spent a night or two at her place. Then she organized this place for me. It seemed very satisfactory then, and I'm going to stay here till I move again.

Even though I'm not rooming with anyone, I have several friends and they move in and out. You could say I'm never alone really. In fact, we all call this place our place. I do visit my family at home, though.

I wasn't working at the time I moved here, and I still don't have a job. I don't have any government grant either, we just do this and that to get money. We are just survivors, we do this and that and we get along. My income is not at all adequate for my needs here, but I'm not complaining. It's different from home, living here in a shack – there are no rules around here.

There's no electricity here, I use candles. I sometimes use the clinic, it's all right, but I have no child so I don't know about the schools. I've never needed to consult the police – I do not like the police. Generally, I feel fine about this place – it makes me live peacefully alone, which is what I want.

ABEL J: JOB LOSS AND FAMILY BREAKUP

I moved here to Diepsloot in 2002 – I lost my job, split with my wife, and had no income, so I had to look for cheaper accommodation. From 1986, when I married and moved out of my mother's house in Soweto to Protea Glen, until these events in 2002, I had been working at a number of jobs on and off while I was staying with my wife and two children. This was all right, because I made reasonable money and she had a steady domestic service job. In fact we were renting a house with two other guys, we were paying R 500 a month at that time. My mother put me in touch with them when I got married.

Then I lost the job I was working at in 2002, around the time my wife left. I've heard she's staying in Cape Town now. My children are staying with my mother, in Soweto. I see them once in a while, and I call my mother now and then.

I had no money, only about R 1000 when I came here, so I had to move to a shack settlement. Without money there was no other possibility. A woman I was close to advised me to come over here – that is, it was a friend who helped me find the place. But I was alone when I came.

Here I'm paying R 180 a month. I'll stay here until my fortunes change for the better. I'm staying with a different woman, and we have a small child. I'm self-employed now, and I'm into buying and selling. So is my new wife, and we are doing well although we aren't actually married. I am still living hard, but every day is getting better than the one before. My income has to be adequate for the household needs, or else I'm going to divorce again – I mean, have a separation.

Although this place is the last place anyone would want to stay, I am happy here, now that I have a woman who cares. But housing here is a sad story. I've put my name down for RDP housing, and I hope one day I will get a house. Water and electricity are difficult, and getting health care was easy when I had money, but it's very difficult now. It's no good passing on a message to the City of Johannesburg – they may listen, but it changes nothing. They are well aware of what's going on, but who are we to deserve their response?

JOANIE B: MOVING TO SHACK AREA TO JOIN BOYFRIEND

I ran away from home, and I came here to stay with my boyfriend. It was 2004, and I didn't tell anyone I was going. I just used to money he sent me for travelling so I could join him in his shack.

It's his own shack, so we don't pay rent. He is employed, so we have enough money – he earns more than R 2000 monthly. I wasn't doing any kind of earning at the time I left my parents' home, though I've now become self-employed. I now jointly own two public phones with a friend of mine, and we make more than R 3500 a month. But we mainly rely on his salary.

It's good, and I'm happy living here with him. I left my parents, my brothers and my sisters behind, but I don't regret that. I am more than 21 years old. I later communicated with my mother, and now she is supportive. I talk to my sisters too.

I feel that I am now a grown-up woman, not the young girl that I was. I look after my lovely boyfriend and keep him happy. This is not a good place, it's dirty and crowded, but we are happy.

Although water and electricity are bad, at least our shack has electricity, and there is a clinic around, though I haven't used it yet. We also have a mobile phone. I don't have any problems with provision of housing services to myself and my friends and family – I've never had to be afraid about establishing my own household because I couldn't get housing. There are always shacks, and they are easy to get. But after we are married, my husband will put our names down for city or government housing – we have agreed on that. What the City should know is that we need more water points, also that the area is too dirty, refuse is all over the place, and it stinks.

THEMBA X: CONSANGUINE HOUSEHOLD TRAPPED IN SHACK

All of us were born in Msinga district, that's where our relatives are. Msinga is one of the most rural of all places in KwaZulu Natal, it is known for starvation and for faction fights. All of that is all caused by the apartheid land clearances that excluded us, the original owners, from our inherited land. We of our own family first came to Johannesburg, to Moroka in Soweto, in 1995. We children were still young, so my mother came here in search of a job. To make the decision she consulted only herself, because as we were told our father died while we were very small. But our mother died last year, 2004.

Yes, it was expensive to make the move. When we came to Johannesburg, we left no one behind in Msinga, but we are in touch with our relatives there. We obtained a rented shack. It was our late mother who made all those connections.

At the time, we were somewhat satisfied. My mother was employed. My older sister was receiving a disability grant, and I myself had a kind of small business – no, I'm not saying what. In fact, I felt very good about our previous place by Moroka, because we were next to our relatives. Its only bad point was the crime.

We moved because my mother was intending to get her own place. This was in 2000, and she also took that decision by herself only. It was expensive, but we got a shack. Mother bought it. But this shack is totally not good, particularly when it's raining. And after four years, our mother died.

Since we have been here, both of my two younger sisters have given birth, and they are getting child support grants, but those children don't live here in Diepsloot with us. We were three children, and our late mother. No, we aren't going to move. We are going to remain here the whole of our lives, because we haven't got anywhere to go.