Migration in southern Africa: Theoretical, methodological and policy issues

by

Pieter Kok[1]

We still seem to understand very little about the process of migration in southern Africa. Neither do we fully understand the process of urbanization in South Africa, especially with regard to small towns. Appropriate urban and rural development planning is hampered by this lack of understanding. This paper attempts to indicate how the current HSRC migration project may help fill this gap.

MIGRATION ISSUES: THEORETICAL AND METHODOLOGICAL OBSTACLES

Despite important progress in recent decades,[2] 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.[3] 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.

THE HSRC PROJECT: FOCUS, PROGRESS AND PRODUCTS

The HSRC project described in the paper deals specifically with the need for achieving an understanding of the multi-level determinants of migration. Consequently, although forced mobility is also covered, the emphasis is on migration-choice behaviour. This made it necessary to study migration from the perspective of the individual, yet all the time taking cognisance of the role of the family, community members and macro-level factors. Therefore, although a multi-level approach is adopted, the starting point is the individual and his or her needs, values, preferences and expectations.

The study borrows heavily from the value-expectancy model by De Jong and Fawcett (1981). The value-expectancy model provides an ideal framework for incorporating the meso-level and macro-level factors that affect migration decision-making and behaviour (Gardner 1981). The value-expectancy model has since given rise to the development of a general model of migration by De Jong (2000) and a theoretical synthesis of migration by Gelderblom (2003). The essence of all these models is that migration behaviour is determined mainly by migration intentions. Various factors, such as value-expectancies, individual, household and community characteristics, migrant networks, household power structures and reward/penalty structures lead to migration intentions. Migration intentions often do not lead to actual moves, because constraints (filters) may interfere, and then *in situ* adjustments have to be made.

Gelderblom's (2003) paper also provides evidence that the 'structuralists' and the 'behaviourists' are not so far apart as might have been expected. In fact, he shows that both perspectives can be accommodated to a

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[1] Chief Research Specialist, Integrated Rural and Regional Development Programme, Human Sciences Research Council (HSRC), Pretoria.

[2] 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).

[3] In this study we 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.*

large extent in the same conceptual model. This is precisely the direction that the current HSRC migration project would like to take.

Two surveys generated the basic data for the HSRC study. The first, preliminary survey (conducted among 911 respondents in 2000) paved the way for a main survey (undertaken in 2001 and 2002 and covering 3 618 respondents) that focused specifically on migration intentions. A follow-up (longitudinal) survey, which is planned to take place in about three years' time (should the necessary funding be obtained), will focus specifically on the extent to which migration intentions are converted into actual moves and the circumstances under which migration may occur or be prevented.

So far, only some parts of the data have been analysed. During a recent migration workshop at the HSRC a number of international and local scholars reported on their use of the data.[4] De Jong and Steinmetz (2003), for example, attempted to compare descriptive and regression results for South Africa with similar prior research results from developing countries. They concluded that a comparison of the *determinants* of intentions to migrate in this study with findings from studies from selected other developing countries suggests considerable similarity to the basic set of predictors. This is regarded as most encouraging.

From the data of the preliminary survey a number of potentially important factors (dimensions) in migration decision-making was identified and subjected to reliability tests (see Kok 2001). The best items underlying these dimensions were then included in the questionnaire for the main survey. Similar tests were conducted on the data from the main survey, and it has been found that eight hypothesised factor dimensions can probably be used successfully in future analyses of migration intentions, and could provide a suitable platform from which to launch the longitudinal phase of the study.[5] The relationships of these and other factors with migration intentions, informed by the application of structural equation modelling, are described in the paper.

Apart from making further theoretical inputs it is intended to develop an operational model for predicting migration intentions. The proposed microsimulation model is expected to provide a basis for policy and decision making at various levels of society, especially among migration scholars and interested planners and policy makers at local, provincial and national government level. A way of making the model user-friendly and accessible to such decision makers in South Africa and beyond still needs to found, but it seems that the Internet may provide the necessary means.

MIGRATION LIKELIHOOD: RESULTS FROM STRUCTURAL EQUATION MODELLING

The factors related to the context and causes of migration (described in Kok et al. 2003) must now be incorporated into an analytical model that would provide the basis for developing a better understanding of the causes of migration. In the next section one possible (hypothesised) configuration of the structural interrelationships of these factors are evaluated. This is followed by a structural equation analysis with a view to testing the appropriateness of the hypothesised causal pattern for predicting future migration likelihoods (and also explaining past migration probabilities).

The contextual factors and possible migration/non-migration causes described in Kok (2001: Chapter 4) will be discussed here mainly with a view to understanding their empirically observed relationships with the likelihood of future migration in South Africa. The purpose here is not to predict migration/non-migration as such, but to examine the relative potential importance of these variables for future stochastic migration-prediction models. What is essential now is to determine the extent to which these variables are likely to affect migration decisions.

[4] These papers will hopefully soon be published.

[5] The value-expectancy factors that withstood the tests relate to the (a) cultural and (b) urban environments, as well as the following socio-psychological clusters: (c) wealth and comfort, (d) affiliation and morality, and (e) stimulation. The existence of a new hypothesised dimension, namely (f) "services and facilities", was also confirmed. Two further dimensions, this time of personality traits that the migration literature regards as important, have been confirmed, namely (g) risk-taking ability and (h) efficacy.

Predicting migration and non-migration intentions: hypothesised causal effects

The emphasis here is on an explanatory and predictive analysis. This will be done by means of a causal analysis through the application of a statistical procedure called "structural equation modelling" (which is sometimes also referred to as "path analysis"). Structural equation modelling is a statistical technique that indicates the degree of causality among variables on the basis of a system of structural equations, each of which represents a series of predefined (usually but not necessarily unidirectional) causalities, albeit perhaps weak, in respect of the dependent and intermediate variables to be used in the analysis.

The CALIS procedure of the Statistical Analysis System (SAS) software was used to estimate the causal relationships among the different variables. All calculations related to the structural equations reported here are based on the "maximum likelihood estimation" method. The dependent and independent variables used in the analyses are described below.

(1) Dependent variables

Two alternative dependent variables were used in this analysis. They are the following:

(a) The main dependent variable for the path analyses presented here is "likelihood of a future migration", labelled LIKELIHD. This is a variable that is measured at the micro level and contains the most appropriate of the following variables: (i) for those not intending to move: "How likely or unlikely is it that you will *never* move away from 'this area'?" (which was reverse-coded[6]), and (ii) for those who have ever considered moving: (aa) "How likely or unlikely is it that you would actually move to that place?" or (bb) "How likely or unlikely is it that you would ever actually move to that place?"

(b) An alternative dependent variable, MIG_PROB, denotes the probability of a person in the particular magisterial district migrating to another South African district. The data for this variable were obtained from the Migration Community Profile generated by Census '96 (for the period 1992–96). The purpose of this district-level dependent variable was to obtain some perspective on the degree to which micro-level factors might also help to explain meso-level patterns of migration.

(2) Proximate predictors

Two expected "proximate" variables, namely value-expectancy and social networks, were used in these analyses:

(a) *Value-expectancy* is expected to be one of the most important proximate predictors of migration likelihood. In the main 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 proximate predictor (VAL_EXP) has been constructed largely on the basis of the formula suggested by De Jong and Fawcett (1981:47). Their (1981) formula was, however, extended to include two expectancy components (in respect of both the possible destination and the origin, i.e. the current area of residence) instead of the one suggested by De Jong and Fawcett (that relates to the comparative expectation in respect of the possible area of destination):

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

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)

[6] The reverse coding was done as follows: N = 6 – O; where N is the new code and O the original code. (The response option "Don't know", was converted to a missing value.)

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 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.[7]

In the analyses that will be described below, the predictor "VAL_EXP" is used in various forms. It will be used in these analyses firstly to describe overall value-expectancy (VE_TOTAL), and then to denote the six individual value dimensions that were mentioned in Footnote 5, namely: (i) "Cultural Environment" (CULT_ENV), (ii) "Urban Environment" (URBN_ENV), (iii) "Wealth and Comfort" (WLTH_COM), (iv) "Affiliation and Morality" (AFF_MOR), (v) "Stimulation" (STIMULAT), and (vi) "Services and Facilities" (SERV_FAC).

(b) 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 SOC_NET has been 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).

(2) Intermediate variables

Sixteen intermediate predictor variables were used in these analyses. They are given here in alphabetical order (of the variable labels).

(a) 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).

(b) *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.

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

(d) 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),[8] 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.

(e) *Duration of stay* in the current area of residence (L_STAY), expressed in completed years.

[7] This means, for example, that if a person has comparatively high expectations for an area (whether the current or the possible future area) in terms of a specific item/dimension, yet regards that item/dimension as relatively unimportant, the value-expectancy will be lower than the expectancy level as such. Similarly, if an item/dimension is regarded as important but the expectations for an area in respect of that item/dimension are limited, the value-expectancy will also be lower.

[8] 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.

(f) Whether or not the respondent lived in a *metropolitan area* (METRO) at the time of the survey, with the value 1 if it was a metropolitan area and zero if non-metropolitan.

(g) *Metropolitan or SDI*[9] *location of the possible destination* (METSDI_D), a meso-level variable, is expected to be an important predictor of value-expectancy and social networks.

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

(i) 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: zero), 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)?" (OWN_INT). This predictor should be regarded mainly as a "control variable" to eliminate its effects on the other variables included in the model, although it may perhaps also be important in its own right.

(j) A meso-level economic variable denoting the *proportion of the population in the EA being employed* (PROP_EMP) at the time of Census '96 is expressed as a fraction (with values between 0 and 1).

(k) In the migration literature the importance of *relative income* (partly as an indicator of "relative deprivation") as opposed to *own income*, is stressed by some scholars (cf. Massey et al. 1993). The variable used in these analyses (REL_INC) has been constructed by dividing the personal annual income of the respondent[10] by the 1996 per capita annual income of the population in the magisterial district where the respondent resided at the time of the survey, expressed as a percentage.

(l) *Risk-taking ability* has been suggested by various scholars – such as Lee (1969), Todaro (1969), De Jong and Fawcett (1981) and DaVanzo (1981) – as an important personality trait that may facilitate migration. 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.

(m) The control variable, *social desirability*, is included here to eliminate differences in respondents' need to "look good" in the eyes of the interviewer/researcher. 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.

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

(o) The *locality type of the possible destination* is expected to be another important (meso-level) predictor of migration likelihood. In the analyses described below the variable used is whether or not the possible destination is an urban area (URBN_DES). If the respondent indicated that s/he is likely to settle in an urban area the allocated value was one (1).[11] In all other cases the value of URBN_DES was zero.

(p) 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.

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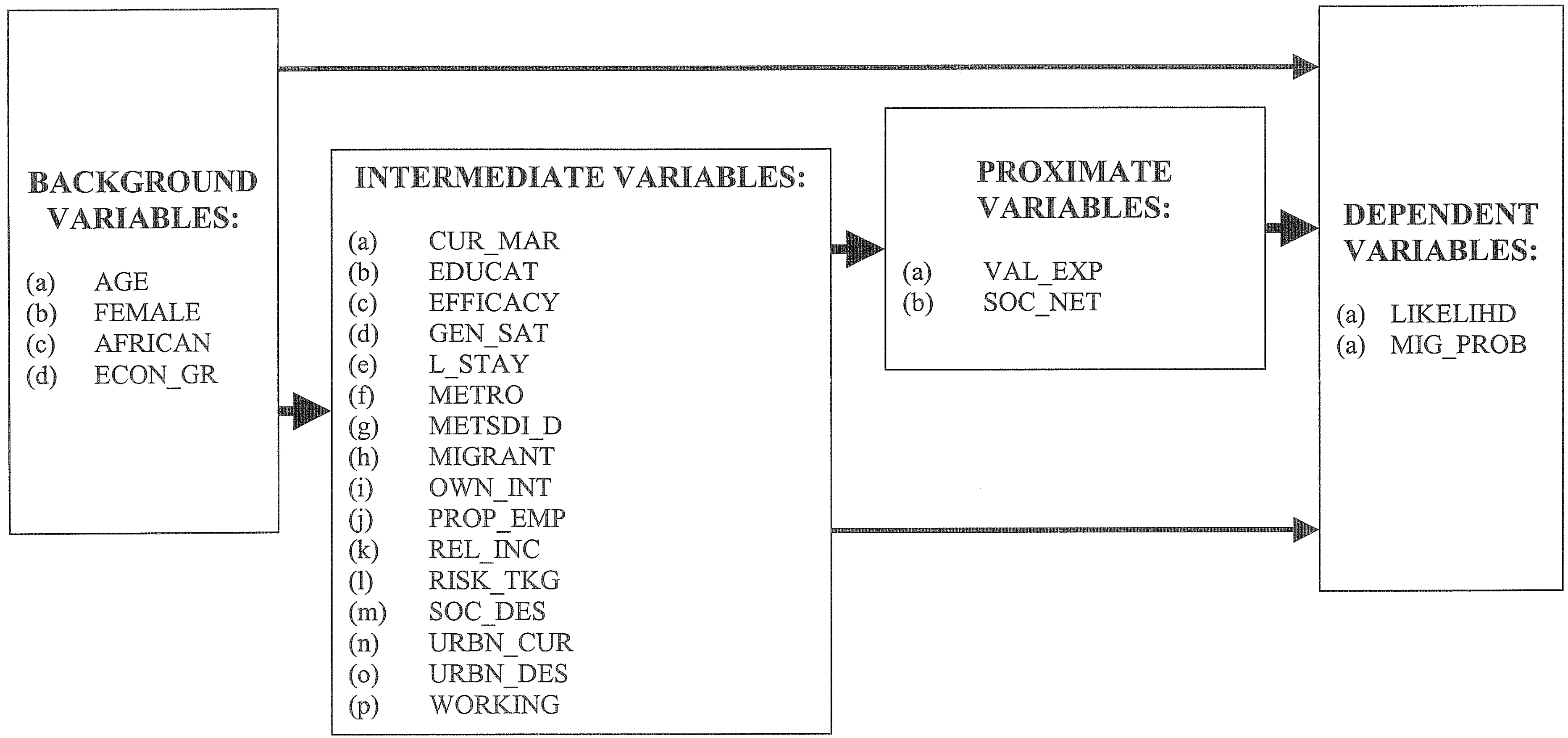
[9] SDI = "spatial development initiative" (which is one of the South African government's key regional development initiatives).

[10] In the survey a 14-point income scale was used. For the purpose of calculating relative income, it was necessary to allocate a specific value in the income category concerned. This was done by randomly selecting a value from a uniform (sometimes also referred to as the "rectangular") distribution over that interval in most categories. To those respondents who indicated "no income", the value zero was allocated, and for the highest category, which was open-ended (R360 001 or more), the random value that was generated was obtained from the exponential distribution over the interval R360 001–R720 000. (It should be noted, though, that some of the resulting percentages exceeded 1 000%. Some of these particularly high values for REL_INC might have originated in this process despite the effort to minimise the probability of selecting a value near R720 000.)

[11] 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).

FIGURE 1
MIGRATION LIKELIHOOD/PROBABILITY: HYPOTHESISED STRUCTURAL FRAMEWORK



(3) Background variables

Four background variables (three being demographic-type variables and one being economic) have also been included in these analyses:

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

(b) The variable, *gender* (FEMALE), denotes whether (1) or not (zero) the respondent is a woman.

(c) In South Africa *race* has been found to be an important predictor for various social and economic phenomena. In view of the legacy of the migration measures applied by the previous (apartheid) government of this country, it has been decided to include it here as well. The last demographic-type variable is therefore AFRICAN. If the respondent preferred to be classified as African/Black" the variable AFRICAN received the value 1, and in for all other preferred classifications the value is zero.

(d) The economic variable, measured at the macro level, is real *growth in provincia*[12]*l gross geographic product* (ECON_GR), described by Statistics South Africa (2002) as "gross domestic product per region (GDPR)", and denotes the 1995–2001 growth in GDPR as a (positive or negative) fraction.

Based mainly on the theoretical contributions by De Jong and Fawcett (1981), Massey et al. (1993) and De Jong (2000), the set of structural equations below is expected to best describe the relationships with LIKELIHD and MIG_PROB. In Figure 1 the general structure of these relationships is indicated. The expected detailed structure (which would present a very "busy" figure and is therefore not provided here) could probably have been simplified by excluding some of the variables, but that would have defeated one of the purposes of this exercise, namely to pave the way for the later microsimulation modelling.

(1) MIG_PROB = $b_{01,01}$ VE_TOTAL + $b_{01,02}$ SOC_NET + $b_{01,03}$ METSDI_D + $b_{01,04}$ URBN_DES + $b_{01,05}$ REL_INC + $b_{01,06}$ MIGRANT + $b_{01,07}$ WORKING + $b_{01,08}$ OWN_INT + $b_{01,09}$ RISK_TKG + $b_{01,10}$ EFFICACY + $b_{01,11}$ SOC_DES + $b_{01,12}$ L_STAY + $b_{01,13}$ PROP_EMP + $b_{01,14}$ METRO + $b_{01,15}$ URBN_CUR + $b_{01,16}$ ECON_GR + $b_{01,17}$ AGE + $b_{01,18}$ FEMALE + $b_{01,19}$ AFRICAN + e_{01}[13]

(2) LIKELIHD = $b_{02,01}$ VE_TOTAL + $b_{02,02}$ SOC_NET + $b_{02,03}$ URBN_DES + $b_{02,04}$ GEN_SAT + $b_{02,05}$ CUR_MAR + $b_{02,06}$ WORKING + $b_{02,07}$ L_STAY + $b_{02,08}$ EDUCAT + $b_{02,09}$ PROP_EMP + $b_{02,10}$ METRO + $b_{02,11}$ URBN_CUR + $b_{02,12}$ AGE + e_{02}

(3) VE_TOTAL = $b_{03,01}$ SOC_NET + $b_{03,02}$ URBN_DES + $b_{03,03}$ GEN_SAT + $b_{03,04}$ MIGRANT + $b_{03,05}$ WORKING + $b_{03,06}$ OWN_INT + $b_{03,07}$ L_STAY + $b_{03,08}$ RISK_TKG + $b_{03,09}$ EFFICACY + $b_{03,10}$ SOC_DES + $b_{03,11}$ EDUCAT + $b_{03,12}$ PROP_EMP + $b_{03,13}$ METRO + $b_{03,14}$ URBN_CUR + $b_{03,15}$ ECON_GR + $b_{03,16}$ AGE + $b_{03,17}$ FEMALE + $b_{03,18}$ AFRICAN + e_{03}

(4) SOC_NET = $b_{04,01}$ METSDI_D + $b_{04,02}$ URBN_DES + $b_{04,03}$ CUR_MAR + $b_{04,04}$ L_STAY + $b_{04,05}$ SOC_DES + $b_{04,06}$ EDUCAT + $b_{04,07}$ METRO + $b_{04,08}$ URBN_CUR + $b_{04,09}$ ECON_GR + $b_{04,10}$ FEMALE + e_{04}

(5) METSDI_D = $b_{05,01}$ URBN_DES + $b_{05,02}$ CUR_MAR + $b_{05,03}$ MIGRANT + $b_{05,04}$ OWN_INT + $b_{05,05}$ RISK_TKG + $b_{05,06}$ EFFICACY + $b_{05,07}$ SOC_DES + $b_{05,08}$ EDUCAT + $b_{05,09}$ METRO +

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[12] Since 1995 Statistics South Africa no longer produce gross geographical product (GGP) at the magisterial district level, but have instead produced provisional GDPR data at a provincial level and intend to produce these later at a district municipality and local government level) – see Statistics South Africa (2002).

[13] Each e_i represents the latent error variable for Equation *i* (also known as the "error term"), which is given by the formula: $e_i = \sqrt{1 - r_i^2}$, where r_i is the multivariate correlation coefficient of the dependent variable in Equation *i*.

$$b_{05,10}\ \text{PROP\_EMP} + b_{05,11}\ \text{URBN\_CUR} + b_{05,12}\ \text{ECON\_GR} + b_{05,13}\ \text{AGE} + e_{05}$$

$$(6) \quad \text{URBN\_DES} = b_{06,01}\ \text{GEN\_SAT} + b_{06,02}\ \text{L\_STAY} + b_{06,03}\ \text{RISK\_TKG} + b_{06,04}\ \text{PROP\_EMP} + b_{06,05}\ \text{URBN\_CUR} + b_{06,06}\ \text{ECON\_GR} + b_{06,07}\ \text{AFRICAN} + e_{06}$$

$$(7) \quad \text{GEN\_SAT} = b_{07,01}\ \text{REL\_INC} + b_{07,02}\ \text{CUR\_MAR} + b_{07,03}\ \text{MIGRANT} + b_{07,04}\ \text{SOC\_DES} + b_{07,05}\ \text{EDUCAT} + b_{07,06}\ \text{PROP\_EMP} + b_{07,07}\ \text{METRO} + b_{07,08}\ \text{URBN\_CUR} + b_{07,09}\ \text{ECON\_GR} + b_{07,10}\ \text{AFRICAN} + e_{07}$$

$$(8) \quad \text{REL\_INC} = b_{08,01}\ \text{WORKING} + b_{08,02}\ \text{EDUCAT} + b_{08,03}\ \text{METRO} + b_{08,04}\ \text{ECON\_GR} + b_{08,05}\ \text{AGE} + b_{08,06}\ \text{FEMALE} + e_{08}$$

$$(9) \quad \text{CUR\_MAR} = b_{09,01}\ \text{MIGRANT} + b_{09,02}\ \text{WORKING} + b_{09,03}\ \text{EFFICACY} + b_{09,04}\ \text{SOC\_DES} + b_{09,05}\ \text{PROP\_EMP} + b_{09,06}\ \text{AGE} + b_{09,07}\ \text{FEMALE} + b_{09,08}\ \text{AFRICAN} + e_{09}$$

$$(10) \quad \text{MIGRANT} = b_{10,01}\ \text{L\_STAY} + b_{10,02}\ \text{RISK\_TKG} + b_{10,03}\ \text{EFFICACY} + b_{10,04}\ \text{EDUCAT} + b_{10,05}\ \text{PROP\_EMP} + b_{10,06}\ \text{METRO} + b_{10,07}\ \text{URBN\_CUR} + b_{10,08}\ \text{AGE} + e_{10}$$

$$(11) \quad \text{WORKING} = b_{11,01}\ \text{OWN\_INT} + b_{11,02}\ \text{EDUCAT} + b_{11,03}\ \text{PROP\_EMP} + b_{11,04}\ \text{AGE} + b_{11,05}\ \text{FEMALE} + e_{11}$$

$$(12) \quad \text{OWN\_INT} = b_{12,01}\ \text{RISK\_TKG} + b_{12,02}\ \text{EFFICACY} + b_{12,03}\ \text{EDUCAT} + b_{12,04}\ \text{URBN\_CUR} + b_{12,05}\ \text{ECON\_GR} + b_{12,06}\ \text{AGE} + b_{12,07}\ \text{AFRICAN} + e_{12}$$

$$(13) \quad \text{L\_STAY} = b_{13,01}\ \text{RISK\_TKG} + b_{13,02}\ \text{EDUCAT} + b_{13,03}\ \text{METRO} + b_{13,04}\ \text{AGE} + b_{13,05}\ \text{FEMALE} + e_{13}$$

$$(14) \quad \text{RISK\_TKG} = b_{14,01}\ \text{EFFICACY} + b_{14,02}\ \text{SOC\_DES} + b_{14,03}\ \text{METRO} + b_{14,04}\ \text{URBN\_CUR} + b_{14,05}\ \text{AGE} + b_{14,06}\ \text{FEMALE} + e_{14}$$

$$(15) \quad \text{EFFICACY} = b_{15,01}\ \text{SOC\_DES} + b_{15,02}\ \text{EDUCAT} + b_{15,03}\ \text{PROP\_EMP} + b_{15,04}\ \text{METRO} + b_{15,05}\ \text{ECON\_GR} + b_{15,06}\ \text{AGE} + b_{15,07}\ \text{AFRICAN} + e_{15}$$

$$(16) \quad \text{SOC\_DES} = b_{16,01}\ \text{EDUCAT} + b_{16,02}\ \text{METRO} + b_{16,03}\ \text{AFRICAN} + e_{16}$$

$$(17) \quad \text{EDUCAT} = b_{17,01}\ \text{PROP\_EMP} + b_{17,02}\ \text{METRO} + b_{17,03}\ \text{URBN\_CUR} + b_{17,04}\ \text{ECON\_GR} + b_{17,05}\ \text{AGE} + b_{17,06}\ \text{AFRICAN} + e_{17}$$

$$(18) \quad \text{PROP\_EMP} = b_{18,01}\ \text{METRO} + b_{18,02}\ \text{URBN\_CUR} + b_{18,03}\ \text{ECON\_GR} + b_{18,04}\ \text{AGE} + b_{18,05}\ \text{FEMALE} + b_{18,06}\ \text{AFRICAN} + e_{18}$$

$$(19) \quad \text{METRO} = b_{19,01}\ \text{URBN\_CUR} + b_{19,02}\ \text{ECON\_GR} + b_{19,03}\ \text{AGE} + b_{19,04}\ \text{FEMALE} + b_{19,05}\ \text{AFRICAN} + e_{19}$$

$$(20) \quad \text{URBN\_CUR} = b_{20,01}\ \text{ECON\_GR} + b_{20,02}\ \text{FEMALE} + b_{20,03}\ \text{AFRICAN} + e_{20}$$

Predicting migration likelihood: observed causal effects in respect of overall value-expectancy

In this section the findings from the path analysis based on the empirical data are discussed in some detail in respect of *overall* value-expectancy. (The individual value dimensions are also important and will be discussed as well, but not in such detail.)

The results of the structural equation modelling exercise in respect of the *overall* value-expectancy (VE_TOTAL) are given in Appendix A. The findings of this analysis, which is based on 1 802 observations, are reported in detail in Table 1. The main conclusions are briefly discussed next.

TABLE 1: DIRECT, INDIRECT AND TOTAL EFFECTS IN RESPECT OF THE DEPENDENT VARIABLES "LIKELIHOOD OF MIGRATION (LIKELIHD)" OR "PROBABILITY OF MIGRATION FROM MAGISTERIAL DISTRICT" (MIG_PROB): RESULTS FOR *OVERALL VALUE-EXPECTANCY*

HYPOTHESISED PATH	COEFFI-CIENT	EXPECTED SIGN	STANDARDISED EFFECT		
			Direct*	Indirect	Total
ECON_GR → URBN_CUR	$b_{20,01}$	+	–0,08 ☻	0,00	–0,08
FEMALE → URBN_CUR	$b_{20,02}$	–	–0,04‡	0,00	–0,04
AFRICAN → URBN_CUR	$b_{20,03}$	–	–0,42 ☻	0,00	–0,42
URBN_CUR → METRO	$b_{19,01}$	+	0,18 ☻	0,00	0,18
ECON_GR → METRO	$b_{19,02}$	+	0,28 ☻	–0,01	0,27
AGE → METRO	$b_{19,03}$	–	–0,05‡	0,00	–0,05
FEMALE → METRO	$b_{19,04}$	–	0,05‡	–0,01	0,04
AFRICAN → METRO	$b_{19,05}$	–	–0,24 ☻	–0,08	–0,31
METRO → PROP_EMP	$b_{18,01}$	+	0,09 ☻	0,00	0,09
URBN_CUR → PROP_EMP	$b_{18,02}$	+	0,35 ☻	0,02	0,37
ECON_GR → PROP_EMP	$b_{18,03}$	+	0,09 ☻	–0,00	0,08
AGE → PROP_EMP	$b_{18,04}$	+	–0,06 ☺	–0,00	–0,07
FEMALE → PROP_EMP	$b_{18,05}$	–	–0,09 ☻	–0,01	–0,10
AFRICAN → PROP_EMP	$b_{18,06}$	–	–0,24 ☻	–0,18	–0,42
PROP_EMP → EDUCAT	$b_{17,01}$	+	0,17 ☻	0,00	0,17
METRO → EDUCAT	$b_{17,02}$	+	0,06 ☺	0,01	0,07
URBN_CUR → EDUCAT	$b_{17,03}$	+	0,20 ☻	0,07	0,27
ECON_GR → EDUCAT	$b_{17,04}$	+	0,10 ☻	0,01	0,12
AGE → EDUCAT	$b_{17,05}$	–	–0,33 ☻	–0,01	–0,34
AFRICAN → EDUCAT	$b_{17,06}$	–	–0,17 ☻	–0,17	–0,35
EDUCAT → SOC_DES	$b_{16,01}$	+	–0,05‡	0,00	–0,05
METRO → SOC_DES	b_{1602}	–	–0,07 ☺	0,00	–0,07
AFRICAN → SOC_DES	$b_{16,03}$	+	0,16 ☻	0,04	0,20
SOC_DES → EFFICACY	$b_{15,01}$	+	0,27 ☻	0,00	0,27
EDUCAT → EFFICACY	$b_{15,02}$	+	0,21 ☻	–0,01	0,20
PROP_EMP → EFFICACY	$b_{15,03}$	+	–0,12 ☻	0,03	–0,09
METRO → EFFICACY	$b_{15,04}$	+	0,07 ☺	–0,01	0,06
ECON_GR → EFFICACY	$b_{15,05}$	+	0,04†	0,03	0,07
AGE → EFFICACY	$b_{15,06}$	+	0,08 ☻	–0,06	0,02
AFRICAN → EFFICACY	$b_{15,07}$	+	–0,06‡	0,01	–0,05
EFFICACY → RISK_TKG	$b_{14,01}$	+	0,08 ☻	0,00	0,08
SOC_DES → RISK_TKG	$b_{14,02}$	+	0,31 ☻	0,02	0,33
METRO → RISK_TKG	$b_{14,03}$	+	–0,07‡	–0,02	–0,08
URBN_CUR → RISK_TKG	$b_{14,04}$	+	0,11 ☻	–0,02	0,09
AGE → RISK_TKG	$b_{14,05}$	–	–0,09 ☻	0,01	–0,08
FEMALE → RISK_TKG	$b_{14,06}$	–	–0,04 ☻	–0,01	–0,05
RISK_TKG → L_STAY	$b_{13,01}$	–	–0,09 ☻	0,00	–0,09
EDUCAT → L_STAY	$b_{13,02}$	–	0,07 ☺	–0,00	0,07
METRO → L_STAY	$b_{13,03}$	–	–0,04†	0,01	–0,03
AGE → L_STAY	$b_{13,04}$	+	0,08 ☻	–0,01	0,07
FEMALE → L_STAY	$b_{13,05}$	+	–0,10 ☻	0,00	–0,10
RISK_TKG → OWN_INT	$b_{12,01}$	+	0,06‡	0,00	0,06

* Significance of the "direct" effects (path coefficients): ☻ : **0,1%** level; ☺ : **1%** level; ‡: **5%** level; †: **10%** level

HYPOTHESISED PATH	COEFFI-CIENT	EXPECTED SIGN	STANDARDISED EFFECT		
			Direct*	Indirect	Total
EFFICACY → OWN_INT	$b_{12,02}$	+	–0,07 ☺	0,00	–0,07
EDUCAT → OWN_INT	$b_{12,03}$	+	0,18 ☻	–0,01	0,17
URBN_CUR → OWN_INT	$b_{12,04}$	+	–0,05†	0,05	0,01
ECON_GR → OWN_INT	$b_{12,05}$	+	0,05‡	0,02	0,07
AGE → OWN_INT	$b_{12,06}$	–	–0,07 ☺	–0,07	–0,14
AFRICAN → OWN_INT	$b_{12,07}$	–	0,14 ☻	–0,04	0,10
OWN_INT → WORKING	$b_{11,01}$	–	–0,06 ☺	0,00	–0,07
EDUCAT → WORKING	$b_{11,02}$	+	0,05‡	–0,01	0,04
PROP_EMP → WORKING	$b_{11,03}$	+	0,33 ☻	0,01	0,33
AGE → WORKING	$b_{11,04}$	+	0,07 ☺	–0,03	0,04
FEMALE → WORKING	$b_{11,05}$	–	–0,08 ☻	–0,03	–0,11
L_STAY → MIGRANT	$b_{10,01}$	–	0,21 ☻	0,00	0,21
RISK_TKG → MIGRANT	$b_{10,02}$	+	–0,06‡	–0,02	–0,07
EFFICACY → MIGRANT	$b_{10,03}$	+	0,06 ☺	–0,01	0,06
EDUCAT → MIGRANT	$b_{10,04}$	+	–0,06‡	0,03	–0,03
PROP_EMP → MIGRANT	$b_{10,05}$	+	0,12 ☻	–0,01	0,11
METRO → MIGRANT	$b_{10,06}$	+	0,04	0,01	0,04
URBN_CUR → MIGRANT	$b_{10,07}$	+	0,07 ☺	0,03	0,10
AGE → MIGRANT	$b_{10,08}$	+	0,07 ☺	0,03	0,10
MIGRANT → CUR_MAR	$b_{09,01}$	+	0,06 ☺	0,00	0,06
WORKING → CUR_MAR	$b_{09,02}$	+	0,10 ☻	0,00	0,10
EFFICACY → CUR_MAR	$b_{09,03}$	+	0,04†	0,00	0,04
SOC_DES → CUR_MAR	$b_{09,04}$	+	–0,06 ☺	0,01	–0,05
PROP_EMP → CUR_MAR	$b_{09,05}$	+	0,06‡	0,04	0,10
AGE → CUR_MAR	$b_{09,06}$	+	0,37 ☻	0,01	0,37
FEMALE → CUR_MAR	$b_{09,07}$	+	0,10 ☻	–0,02	0,08
AFRICAN → CUR_MAR	$b_{09,08}$	–	–0,11 ☻	–0,06	–0,17
WORKING → REL_INC	$b_{08,01}$	+	0,34 ☻	0,00	0,35
EDUCAT → REL_INC	$b_{08,02}$	+	0,25 ☻	0,01	0,27
METRO → REL_INC	$b_{08,03}$	+	–0,16 ☻	0,03	–0,14
ECON_GR → REL_INC	$b_{08,04}$	+	0,05‡	–0,00	0,05
AGE → REL_INC	$b_{08,05}$	+	0,21 ☻	–0,06	0,15
FEMALE → REL_INC	$b_{08,06}$	–	–0,11 ☻	–0,05	–0,16
REL_INC → GEN_SAT	$b_{07,01}$	+	0,14 ☻	0,00	0,14
CUR_MAR → GEN_SAT	$b_{07,02}$	–	–0,08 ☺	0,00	-0,08
MIGRANT → GEN_SAT	$b_{07,03}$	–	–0,10 ☻	–0,00	–0,10
SOC_DES → GEN_SAT	$b_{07,04}$	+	–0,05‡	0,00	–0,05
EDUCAT → GEN_SAT	$b_{07,05}$	+	0,04	0,04	0,08
PROP_EMP → GEN_SAT	$b_{07,06}$	+	0,11 ☻	0,00	0,11
METRO → GEN_SAT	$b_{07,07}$	+	0,06‡	–0,01	0,06
URBN_CUR → GEN_SAT	$b_{07,08}$	+	–0,06‡	0,06	–0,00
ECON_GR → GEN_SAT	$b_{07,09}$	+	–0,08 ☻	0,04	–0,04
AFRICAN → GEN_SAT	$b_{07,10}$	–	–0,19 ☻	–0,05	–0,24
GEN_SAT → URBN_DES	$b_{06,01}$	+	0,20 ☻	0,00	0,20
L_STAY → URBN_DES	$b_{06,02}$	–	–0,12 ☻	–0,00	–0,12
RISK_TKG → URBN_DES	$b_{06,03}$	+	0,06 ☺	0,01	0,07
PROP_EMP → URBN_DES	$b_{06,04}$	–	–0,27 ☻	0,02	–0,25
URBN_CUR → URBN_DES	$b_{06,05}$	+	0,07 ☺	–0,09	–0,02
ECON_GR → URBN_DES	$b_{06,06}$	+	–0,05‡	–0,04	–0,09

HYPOTHESISED PATH	COEFFI-CIENT	EXPECTED SIGN	STANDARDISED EFFECT		
			Direct*	Indirect	Total
AFRICAN → URBN_DES	$b_{06,07}$	+	–0,11 ☻	0,04	–0,07
URBN_DES → METSDI_D	$b_{05,01}$	+	0,23 ☻	0,00	0,23
CUR_MAR → METSDI_D	$b_{05,02}$	–	–0,05‡	–0,00	–0,06
MIGRANT → METSDI_D	$b_{05,03}$	+	0,04†	–0,01	0,03
OWN_INT → METSDI_D	$b_{05,04}$	+	0,13 ☻	0,00	0,13
RISK_TKG → METSDI_D	$b_{05,05}$	+	–0,10 ☻	0,02	–0,07
EFFICACY → METSDI_D	$b_{05,06}$	+	–0,13 ☻	–0,02	–0,15
SOC_DES → METSDI_D	$b_{05,07}$	+	0,13 ☻	–0,06	0,07
EDUCAT → METSDI_D	$b_{05,08}$	+	0,13 ☻	–0,01	0,12
METRO → METSDI_D	$b_{05,09}$	+	0,22 ☻	0,01	0,23
PROP_EMP → METSDI_D	$b_{05,10}$	+	0,06‡	–0,02	0,05
URBN_CUR → METSDI_D	$b_{05,11}$	+	–0,08 ☺	0,08	0,01
ECON_GR → METSDI_D	$b_{05,12}$	+	0,06 ☺	0,07	0,13
AGE → METSDI_D	$b_{05,13}$	–	0,09 ☻	–0,09	0,00
METSDI_D → SOC_NET	$b_{04,01}$	–	–0,09 ☻	0,00	–0,09
URBN_DES → SOC_NET	$b_{04,02}$	+	–0,12 ☻	–0,02	–0,14
CUR_MAR → SOC_NET	$b_{04,03}$	+	–0,05‡	0,04	–0,06
L_STAY → SOC_NET	$b_{04,04}$	–	0,14 ☻	0,02	0,16
SOC_DES → SOC_NET	$b_{04,05}$	+	–0,09 ☻	–0,01	–0,10
EDUCAT → SOC_NET	$b_{04,06}$	+	0,33 ☻	0,00	0,33
METRO → SOC_NET	$b_{04,07}$	+	–0,10 ☻	0,01	–0,10
URBN_CUR → SOC_NET	$b_{04,08}$	+	–0,07 ☺	0,07	0,00
ECON_GR → SOC_NET	$b_{04,09}$	+	0,06‡	0,02	0,07
FEMALE → SOC_NET	$b_{04,10}$	+	0,04‡	–0,03	0,01
SOC_NET → VE_TOTAL	$b_{03,01}$	+	–0,03	0,00	–0,03
URBN_DES → VE_TOTAL	$b_{03,02}$	+	–0,02	0,00	–0,01
GEN_SAT → VE_TOTAL	$b_{03,03}$	–	–0,06 ☺	0,00	–0,06
MIGRANT → VE_TOTAL	$b_{03,04}$	+	–0,05‡	0,01	–0,04
WORKING → VE_TOTAL	$b_{03,05}$	–	–0,04†	–0,00	–0,04
OWN_INT → VE_TOTAL	$b_{03,06}$	+	0,00	0,00	0,01
L_STAY → VE_TOTAL	$b_{03,07}$	–	0,06‡	–0,01	0,05
RISK_TKG → VE_TOTAL	$b_{03,08}$	+	–0,06‡	–0,00	–0,06
EFFICACY → VE_TOTAL	$b_{03,09}$	+	0,15 ☻	–0,01	0,14
SOC_DES → VE_TOTAL	$b_{03,10}$	+	–0,07 ☺	0,03	–0,05
EDUCAT → VE_TOTAL	$b_{03,11}$	+	–0,03	0,02	–0,01
PROP_EMP → VE_TOTAL	$b_{03,12}$	–	0,08 ☺	–0,04	0,04
METRO → VE_TOTAL	$b_{03,13}$	–	0,08 ☺	0,02	0,10
URBN_CUR → VE_TOTAL	$b_{03,14}$	–	–0,20 ☻	0,02	–0,18
ECON_GR → VE_TOTAL	$b_{03,15}$	–	0,01	0,05	0,07
AGE → VE_TOTAL	$b_{03,16}$	–	–0,17 ☻	0,01	–0,16
FEMALE → VE_TOTAL	$b_{03,17}$	+	–0,05‡	0,01	–0,04
AFRICAN → VE_TOTAL	$b_{03,18}$	+	0,07 ☺	0,04	0,11
FOR EITHER:					
VE_TOTAL → LIKELIHD	$b_{02,01}$	+	0,09 ☻	0,00	0,09
SOC_NET → LIKELIHD	$b_{02,02}$	+	0,19 ☻	–0,00	0,19
URBN_DES → LIKELIHD	$b_{02,03}$	+	–0,20 ☻	–0,03	–0,23
GEN_SAT → LIKELIHD	$b_{02,04}$	–	–0,17 ☻	–0,05	–0,22
CUR_MAR → LIKELIHD	$b_{02,05}$	–	–0,12 ☻	0,01	–0,11
WORKING → LIKELIHD	$b_{02,06}$	–	–0,08 ☺	–0,02	–0,10

HYPOTHESISED PATH	COEFFI-CIENT	EXPECTED SIGN	STANDARDISED EFFECT		
			Direct*	Indirect	Total
L_STAY → LIKELIHD	$b_{02,07}$	–	0,07 ☻	0,06	0,14
EDUCAT → LIKELIHD	$b_{02,08}$	+	0,12 ☻	0,05	0,17
PROP_EMP → LIKELIHD	$b_{02,09}$	–	0,15 ☻	0,03	0,18
METRO → LIKELIHD	$b_{02,10}$	–	0,03	–0,00	0,03
URBN_CUR → LIKELIHD	$b_{02,11}$	–	–0,06‡	0,07	0,01
AGE → LIKELIHD	$b_{02,12}$	–	–0,13 ☻	–0,13	–0,26
OR:					
VE_TOTAL → MIG_PROB	$b_{01,01}$	+	0,10 ☻	0,00	0,10
SOC_NET → MIG_PROB	$b_{01,02}$	+	0,08 ☻	0,00	0,08
METSDI_D → MIG_PROB	$b_{01,03}$	+	0,09 ☻	–0,01	0,08
URBN_DES → MIG_PROB	$b_{01,04}$	+	0,10 ☻	0,01	0,10
REL_INC → MIG_PROB	$b_{01,05}$	–	0,15 ☻	0,00	0,15
MIGRANT → MIG_PROB	$b_{01,06}$	+	0,05‡	–0,00	0,04
WORKING → MIG_PROB	$b_{01,07}$	–	0,06 ☺	0,05	0,11
OWN_INT → MIG_PROB	$b_{01,08}$	+	–0,03†	0,00	–0,03
RISK_TKG → MIG_PROB	$b_{01,09}$	+	0,06 ☺	–0,01	0,05
EFFICACY → MIG_PROB	$b_{01.10}$	+	–0,11 ☻	0,01	–0,10
SOC_DES → MIG_PROB	$b_{01,11}$	–	–0,08 ☻	–0,01	–0,09
L_STAY → MIG_PROB	$b_{01.12}$	–	–0,04‡	0,01	–0,03
PROP_EMP → MIG_PROB	$b_{01,13}$	–	0,47 ☻	0,05	0,52
METRO → MIG_PROB	$b_{01,14}$	–	0,15 ☻	0,04	0,19
URBN_CUR → MIG_PROB	$b_{01,15}$	–	–0,03	0,21	0,19
ECON_GR → MIG_PROB	$b_{01,16}$	–	0,04‡	0,10	0,14
AGE → MIG_PROB	$b_{01,17}$	–	0,14 ☻	–0,04	0,10
FEMALE → MIG_PROB	$b_{01,18}$	–	0,05‡	–0,07	–0,02
AFRICAN → MIG_PROB	$b_{01,19}$	–	0,21 ☻	–0,28	–0,07

Adjusted goodness of fit index: 0,98   Chi-Square = 123,35; df = 104   CFI** = 0,997   Obs. (n) = 1 806

Correlations among exogenous variables:
(a) ECON_GR ↔ AGE: 0,03; (b) ECON_GR ↔ FEMALE: 0,01; (c) ECON_GR ↔ AFRICAN: -0,07; (d) AGE ↔ FEMALE: 0,05; (e) FEMALE ↔ AFRICAN: 0,01; (f) AGE ↔ AFRICAN: -0,07

Values of latent exogenous ('error') terms:
(a) MIG_PROB (e_{01}): 0,80; (b) LIKELIHD (e_{01}): 0,85; (c) VE_TOTAL (e_{03}): 0,94; (c) SOC_NET (e_{04}): 0,91; (d) METSDI_D (e_{05}): 0,91; (e) URBN_DES (e_{06}): 0,94; (f) GEN_SAT (e_{07}): 0,94; (g) REL_INC (e_{08}): 0,87; (h) CUR_MAR (e_{09}): 0,89; (i) MIGRANT (e_{10}): 0,95; (j) WORKING (e_{11}): 0,93; (k) OWN_INT (e_{12}): 0,97; (l) L_STAY (e_{13}): 0,99; (m) RISK_TKG (e_{14}): 0,93; (n) EFFICACY (e_{15}): 0,94; (o) SOC_DES (e_{16}): 0,98; (p) EDUCAT (e_{17}): 0,82; (q) PROP_EMP (e_{18}): 0,83; (r) METRO (e_{19}): 0,89; (s) URBN_CUR (e_{20}): 0,90.

ECON_GR = Provincial econ. growth (1995-00)–fraction	AGE = Age (in single years: 18-69 years)
FEMALE = Gender (Female=1; Male=0)	AFRICAN = Pop. group (African=1; Minority=0)
URBN_CUR = Living in an urban area? (Yes=1; No=0)	METRO = Living in a metropole? (Yes=1; No=0)
PROP_EMP = Proportion (aged 18+ employed)–fraction	EDUCAT = Education level (Ordinal: 18 categories)
SOC_DES = Social desirability score (%)	EFFICACY = Efficacy score (expressed as %)
RISK_TKG = Risk-taking ability score (%)	L_STAY = Length of stay in current area (years)
OWN_INT = Acting in own interest? (Yes=1; No=0)	WORKING = Currently working? (Yes=1; No=0)
MIGRANT = A former migrant? (Yes=1; No=0)	CUR_MAR = Currently married? (Yes=1; No=0)
REL_INC = Personal / Mean income in district (%)	GEN_SAT = Life satisfaction (5-pt Likert-type scale)
URBN_DES = Urban destination? (Yes=1; No=0)	METSDI_D = Metro/SDI destination? (Yes=1; No=0)
SOC_NET = Social network in dest.? (Yes=1; No=0)	VE_TOTAL = Overall value-expectancy score (%)

LIKELIHD = Likelihood of future migration (Range: 0="Not considered at all", 1="Very unlikely", 2="Unlikely", 3="Neither likely nor unlikely", 4= "Likely", 5= "Very likely")

(OR)

MIG_PROB = District-level migration probability, based on the 1992–96 pattern (Fraction between 0 and 1)

** CFI = Bentler's Comparative Fit Index

Non-significance of the expected relationships

The existence (statistically significant at the 5% level) of 148 (90%) of the 164 hypothesised relationships was confirmed. Of these 148 significant relationships, 89 (60%) were found to be statistically significant at the 0,1% level (which is the highest significance level used here), 28 (19%) at the 1% level, and 31 (21%) at the 5% level. It would not be viable to discuss these in this paper.

Unexpected signs of the (significant) path coefficients

The signs of 49 (a third) of the 148 significant coefficients are opposite to what was expected in terms of the assumptions described earlier. Some of these can be ascribed to incorrect prior assumptions. Again, these cannot be discussed here.

Main expectations that were realised

It is important, though, to take a closer look briefly at some of the more important expectations that *were* confirmed by the data.

(a) From the details reported in Table 1 and Appendix A, it is clear that the hypothesised structure is both valid and appropriate. The model has an acceptable goodness of fit, the residuals are small and normally distributed, and nine out every ten path coefficients are significant at the 5% level. Although it was hoped that the coefficients would be larger in absolute magnitude, it should be remembered that the majority are, in fact, sufficiently large and statistically significant at the 0,1% level.

(b) One of the most important confirmed findings here is that "overall value-expectancy" has a significant effect (with the expected sign) on migration likelihood. This is an unambiguous confirmation of the suggestions by De Jong and Fawcett (1981), and De Jong (2000). The value-expectancy framework provides a very useful and important mechanism for linking macro-level and meso-level circumstances to individual (micro-level) migration decision-making processes (see also Gardner 1981).

(c) The same applies to the strong effect of "social networks" on migration likelihood. Massey et al. (1993), De Jong (2000) and others have indicated that the existence of such networks are important in the entire migration process and often lead to a perpetuation of migration streams.

(d) Similarly it has been confirmed that "satisfaction with life on the whole" has a strong direct effect on migration likelihood. This serves as some confirmation of the conclusions reached by, amongst others, Speare, Kobrin and Kingkade (1982), and De Jong (2000) that "residential dissatisfaction" is an important cause of migration.

(e) The experiment with an alternative, district-level dependent variable has also borne fruit. The fact that micro-level factors (such as value-expectancy, social networks and risk-taking ability) and meso-level factors (such as employment rate, type of locality – i.e. whether or not a metropolitan area – and the provincial economic growth rate) all come together in explaining general out-migration levels, is also regarded as an important research result.

Predicting migration likelihood: observed causal effects in respect of the individual value-expectancy components

Separate structural-equation analyses, using exactly the same model framework as that depicted in Figure 1, were undertaken for the following six individual value-expectancy dimensions: (a) "cultural environment" (CULT_ENV); (b) "urban environment" (URBN_ENV); (c) "wealth and comfort" (WLTH_COM); (d) "affiliation and morality" (AFF_MOR); (e) "stimulation" (STIMULAT), and (f) "services and facilities" (SERV_FAC). The results of these analyses regarding the differential effects of these individual value-expectancy dimensions (see VAL_EXP in Figure 1) on migration likelihood (LIKELIHD) and migration probability (MIG_PROB), *each based on the data for the same 1 806 respondents*, are discussed briefly below.

In each case the items that withstood the very strict tests of the confirmatory factor analyses and item analyses are given, as well as the statistical details of their relationships with the overall dimension. Also given are the various important reliability coefficients for the different dimensions. The statistical results of the structural equation modelling for the effect of every dimension on the two dependent variables described earlier, LIKELIHD and MIG_PROB are also given. In all cases the models were found to be highly appropriate in terms of the various statistical indicators produced by CALIS.

(1) Cultural Environment (CULT_ENV)

The following two items were found to be appropriate for this dimension: (a) "To live in a community where people mostly have the same customs and habits" [Factor loading (FL): 0,74; Discrimination value, as adjusted for the number of items used in the analysis (DV) = 0,47; Alpha value *if this item were to have been deleted*, based on the *weighted* data (α) = 0,25], and (b) "To live in a community where people mostly speak one's own language" (FL = 0,47; DV = 0,32; α = 0,42). The Cronbach Coefficient Alpha (CCA) for this dimension (on the weighted data) was 0,49, and the Kuder-Richardson (KR) reliability coefficients (based on the unweighted data were as follows: KR-20: 0,51 and KR-8: 0,70.

The coefficient for the path between CULT_ENV and LIKELIHD was 0,04 (significant at the 5% level), and that for CULT_ENV → MIG_PROB was 0,01 (not significant at the 10% level).

(2) Urban Environment (URBN_ENV)

The items used here were (a) "Living in an area with fresh, unpolluted air" (FL = 0,66; DV = 0,42; α = 0,55); (b) "To live in a community with a balanced quest for progress" (FL = 0,61; DV = 0,61; α = 0,64), and (c) "Living in a clean, litter-free living environment" (FL = 0,72; DV = 0,51; α = 0,62). The CCA reliability coefficient (on the weighted data) was found to be 0,69, while the KR-20 reliability (on the unweighted data) and the KR-8 were 0,90 and 0,72 respectively.

The path coefficient for URBN_ENV → LIKELIHD was 0,09 (significant at the 0,1% level) and for URBN_ENV → MIG_PROB it was 0,17 (also significant at the 0,1% level).

(3) Wealth and Comfort (WLTH_COM)

The following items were used: (a) "Having *total* financial independence" (FL = 0,76; DV = 0,53; α = 0,53); (b) "To have a high degree of financial security" (FL = 0,64; DV = 0,55; α = 0,59), and (c) "Having a restful way of life" (FL = 0,60; DV = 0,39; α = 0,68). The reliability coefficients were as follows: CCA: 0,70; KR-20: 0,85, and KR-8: 0,79.

The two path coefficients were: WLTH_COM → LIKELIHD: 0,10 (significant at the 0,1% level), and WLTH_COM → MIG_PROB: 0,05 (significant at the 5% level).

(4) Affiliation and Morality (AFF_MOR)

The items were: (a) "Being good friends with people in the neighbourhood" (FL = 0,56; DV = 0,57; α = 0,65); (b) "Knowing people on whom one can rely for help and assistance" (FL = 0,71; DV = 0,59; α = 0,44), and (c) "Living in a place without bad moral influences" (FL = 0,64; DV = 0,43; α = 0,59). The reliability coefficients were as follows: CCA: 0,66; KR-20: 0,85, and KR-8: 0,80.

The two path coefficients were: AFF_MOR → LIKELIHD: 0,002 (not significant at the 10% level), and AFF_MOR → MIG_PROB: 0,09 (significant at the 0,1% level).

(5) Stimulation (STIMULAT)

The items used here were: (a) "To have a job with status" (FL = 0,55; DV = 0,47; α = 0,58); (b) "To experience new and exciting things" (FL = 0,66; DV = 0,55; α = 0,43), and (c) "Being active in public life" (FL = 0,59; DV = 0,44; α = 0,56). The reliability coefficients were: CCA: 0,62; KR-20: 0,74, and KR-8: 0,81.

The two path coefficients were: STIMULAT → LIKELIHD: 0,06 (significant at the 1% level), and STIMULAT → MIG_PROB: -0,01 (not significant at the 10% level).

(6) Services and Facilities (SERV_FAC)

The items used here were: (a) "To have decent schools within walking distance" (FL = 0,62; DV = 0,48; α = 0,71); (b) "Having decent health-care facilities nearby" (FL = 0,77; DV = 0,70; α = 0,57), and (c) "Having very good telephone services" (FL = 0,71; DV = 0,65; $\alpha = 0{,}67$). The reliability coefficients were as follows: CCA: 0,73; KR-20: 0,82, and KR-8: 0,81.

The two path coefficients were: SERV_FAC → LIKELIHD: 0,07 (significant at the 0,1% level), and SERV_FAC → MIG_PROB: -0,10 (also significant at the 0,1% level).

From the above it is clear that all the value-expectancy dimensions (except for one, "affiliation and morality") have significant, direct effects on the micro-level dependent variable "migration likelihood" (LIKELIHD). At the same time four of the six dimensions (including "affiliation and morality") have direct effects on the meso-level dependent variable "migration probability" (MIG_PROB). These findings indicate that it would be possible to study the effects of policies and plans on people's value-expectancies and migration intentions in a more nuanced manner.

CONCLUSIONS

There are many gaps in our understanding of migration processes in South and southern Africa. Some of these can be ascribed to theoretical and methodological obstacles, which are not easily overcome, but most of them can be traced back to a lack of theoretically founded and empirically sound explanatory research. Policy makers and planners are therefore left with little insight into the migration implications of their decisions. The research described here attempts to help bridge these gaps.

The analytical findings that have been discussed in some detail here can now be applied with confidence in the proposed microsimulation model of migration intentions and behaviour. The model will provide opportunities to experiment with different economic and spatial parameters. Such a model should provide policy makers and planners with a mechanism to gauge the potential impact of their decisions. This successful modelling exercise, based on recent HSRC and Stats SA data (at the micro-level, meso-level and macro-level) paves the way for an appropriate mechanism to assist policy makers an planners in making informed decisions. That will be the final phase of the current HSRC project, but a longitudinal, follow-up study is envisaged in order to place the modelling on an even more secure footing by incorporating actual micro-level migration behaviour into the model, instead of having to rely largely on past meso-level aggregate patterns.

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APPENDIX A

STRUCTURAL EQUATION MODELLING OF MIGRATION LIKELIHOOD/PROBABILITY: *OVERALL VALUE-EXPECTANCY*

```
         STRUCTURAL-EQUATION MODELLING INCORPORATING MULTI-LEVEL DATA      1823
                      (EA-LEVEL DATA: PROPORTION EMPLOYED)
                    (DISTRICT-LEVEL DATA: MIGRATION PROBABILITY)
                (PROVINCE-LEVEL DATA: REAL ECONOMIC GROWTH RATE)
                                          10:21 Thursday, September 25, 2003

                           The CALIS Procedure
          Covariance Structure Analysis: Pattern and Initial Values


   urbn_cur =        .*african  +        .*female   +        .*econ_gr
                      b20_03              b20_02              b20_01

+  1.0000 e20


   educat    =       .*urbn_cur +        .*prop_emp +        .*metro
                      b17_03              b17_01              b17_02

+       .*african  +       .*age       +       .*econ_gr  +  1.0000 e17
         b17_06             b17_05              b17_04


   l_stay    =       .*educat   +        .*risk_tkg +        .*metro
                      b13_02              b13_01              b13_03

+       .*female   +       .*age       +  1.0000 e13
         b13_05             b13_04


   rel_inc   =       .*educat   +        .*working  +        .*metro
                      b08_02              b08_01              b08_03

+       .*female   +       .*age       +       .*econ_gr  +  1.0000 e08
         b08_06             b08_05              b08_04


   working   =       .*educat   +        .*own_int  +        .*prop_emp
                      b11_02              b11_01              b11_03

+       .*female   +       .*age       +  1.0000 e11
         b11_05             b11_04
```

The CALIS Procedure
Covariance Structure Analysis: Pattern and Initial Values

```
    urbn_des =        .*urbn_cur +      .*l_stay    +      .*risk_tkg
                        b06_05            b06_02             b06_03

+      .*gen_sat  +      .*prop_emp +      .*african  +      .*econ_gr
         b06_01            b06_04            b06_07            b06_06

+  1.0000 e06


    migrant   =       .*urbn_cur +      .*educat    +      .*l_stay
                        b10_07            b10_04             b10_01

+      .*risk_tkg +      .*efficacy +      .*prop_emp +      .*metro
         b10_02            b10_03            b10_05            b10_06

+      .*age      +  1.0000 e10
         b10_08


    soc_des   =       .*educat    +     .*metro     +      .*african
                        b16_01            b16_02             b16_03

+  1.0000 e16


    risk_tkg =        .*urbn_cur +      .*soc_des   +      .*efficacy
                        b14_04            b14_02             b14_01

+      .*metro    +      .*female   +      .*age      +  1.0000 e14
         b14_03            b14_06            b14_05


    efficacy =        .*educat    +     .*soc_des   +      .*prop_emp
                        b15_02            b15_01             b15_03

+      .*metro    +      .*african  +      .*age      +      .*econ_gr
         b15_04            b15_07            b15_06            b15_05

+  1.0000 e15


    own_int   =       .*urbn_cur +      .*educat    +      .*risk_tkg
                        b12_04            b12_03             b12_01

+      .*efficacy    +     .*african +       *age      +      .*econ_gr
         b12_02              b12_07            b12_06            b12_05

+  1.0000 e12
```

The CALIS Procedure
Covariance Structure Analysis: Pattern and Initial Values

```
       soc_net   =        .*urbn_cur +       .*educat    +        .*l_stay
                            b04_08             b04_06               b04_04

+        .*metro    +       .*african  +       .*age        +       .*econ_gr
           b15_04             b15_07             b15_06               b15_05

+  1.0000 e15


       metsdi_d =         .*urbn_cur +       .*educat    +        .*urbn_des
                            b05_11             b05_08               b05_01

+        .*migrant  +       .*soc_des  +       .*risk_tkg +         .*efficacy
           b05_03             b05_07             b05_05               b05_06

+        .*own_int  +       .*cur_mar  +       .*prop_emp +         .*metro
           b05_04             b05_02             b05_10               b05_09

+        .*age      +       .*econ_gr  +  1.0000 e05
           b05_13             b05_12


       gen_sat   =        .*urbn_cur +       .*educat    +        .*rel_inc
                            b07_08             b07_05               b07_01

+        .*working  +       .*migrant  +       .*soc_des  +         .*cur_mar
           b07_11             b07_03             b07_04               b07_02

+        .*prop_emp +       .*metro    +       .*african  +         .*age
           b07_06             b07_07             b07_10               b07_12

+        .*econ_gr  +  1.0000 e07
           b07_09


       ve_total =         .*urbn_cur +       .*educat    +        .*l_stay
                            b03_14             b03_11               b03_07

+        .*working  +       .*urbn_des +       .*migrant  +         .*soc_des
           b03_05             b03_02             b03_04               b03_10

+        .*risk_tkg +       .*efficacy +       .*own_int  +         .*soc_net
           b03_08             b03_09             b03_06               b03_01

+        .*gen_sat  +       .*prop_emp +       .*metro    +         .*african
           b03_03             b03_12             b03_13               b03_18

+        .*female   +       .*age      +       .*econ_gr  +  1.0000 e03
           b03_17             b03_16             b03_15
```

The CALIS Procedure
Covariance Structure Analysis: Pattern and Initial Values

```
     cur_mar  =         .*working  +        .*migrant  +        .*soc_des
                          b09_02              b09_01              b09_04

 +        .*efficacy +        .*prop_emp +        .*african  +        .*female
            b09_03              b09_05              b09_08              b09_07

 +        .*age      +  1.0000 e09
            b09_06


     prop_emp =         .*urbn_cur +        .*metro    +        .*african
                          b18_02              b18_01              b18_06

 +        .*female   +        .*age      +        .*econ_gr  +  1.0000 e18
            b18_05              b18_04              b18_03


     metro    =         .*urbn_cur +        .*african  +        .*female
                          b19_01              b19_05              b19_04

 +        .*age      +        .*econ_gr  +  1.0000 e19
            b19_03              b19_02


     likelihd =         .*urbn_cur +        .*educat   +        .*l_stay
                          b02_11              b02_08              b02_07

 +        .*working  +        .*urbn_des +        .*soc_net  +        .*gen_sat
            b02_06              b02_03              b02_02              b02_04

 +        .*ve_total +        .*cur_mar  +        .*prop_emp +        .*metro
            b02_01              b02_05              b02_09              b02_10

 +        .*age      +  1.0000 e02
            b02_12
```

The CALIS Procedure
Covariance Structure Analysis: Pattern and Initial Values

```
mig_prob =        .*urbn_cur +        .*l_stay    +        .*rel_inc
                   b01_15              b01_12               b01_05

+       .*working  +       .*urbn_des +        .*migrant   +        .*soc_des
         b01_07             b01_04              b01_06               b01_11

+       .*risk_tkg +       .*efficacy +        .*own_int   +        .*soc_net
         b01_09             b01_10              b01_08               b01_02

+       .*metsdi_d +       .*ve_total +        .*prop_emp +         .*metro
         b01_03             b01_01              b01_13               b01_14

+       .*african  +       .*female   +        .*age       +        .*econ_gr
         b01_19             b01_18              b01_17               b01_16

                          +  1.0000 e01
```

The CALIS Procedure
Covariance Structure Analysis: Maximum Likelihood Estimation

Observations	1806	Model Terms	1
Variables	24	Model Matrices	4
Informations	300	Parameters	186

Variable	Mean	Std Dev	Minimum	Maximum
econ_gr	0.0262110	0.0096441	-0.0030000	0.0380000
age	38.6024363	13.7384865	18.0000000	69.0000000
female	0.6179402	0.4860256	0	1.0000000
african	0.4169435	0.4931899	0	1.0000000
urbn_cur	0.7569214	0.4290610	0	1.0000000
metro	0.5066445	0.5000943	0	1.0000000
prop_emp	0.3040017	0.1531095	0	1.0000000
educat	9.6849391	3.6807300	0	17.0000000
soc_des	56.7358804	13.0242266	0	100.0000000
efficacy	74.3992248	13.2976402	15.0000000	100.0000000
risk_tkg	47.7142857	23.9580262	0	100.0000000
l_stay	0.5476190	2.9354463	0	41.0000000
own_int	0.5697674	0.4952457	0	1.0000000
working	0.3787375	0.4852069	0	1.0000000
migrant	0.4174972	0.4932829	0	1.0000000
cur_mar	0.5376523	0.4987184	0	1.0000000
rel_inc	184.8233666	383.7526317	0	6577.00
gen_sat	3.3327796	1.2738581	1.0000000	5.0000000
urbn_des	0.9645626	0.1849339	0	1.0000000
metsdi_d	0.7613511	0.4263758	0	1.0000000
soc_net	0.4224806	0.4940910	0	1.0000000
ve_total	17.1090808	9.2979464	2.0000000	74.0000000
likelihd	1.7635659	1.6242693	0	5.0000000
mig_prob	0.1637559	0.1645512	0	1.0000000

Set Covariances of Exogenous Manifest Variables

african female age econ_gr

NOTE: Some initial estimates computed by two-stage LS method.

NOTE: Some initial estimates computed by McDonald's method.

The CALIS Procedure
Covariance Structure Analysis: Maximum Likelihood Estimation

Dual Quasi-Newton Optimization

Dual Broyden - Fletcher - Goldfarb - Shanno Update (DBFGS)

Parameter Estimates	186
Functions (Observations)	300

Optimization Start

Active Constraints	0	Objective Function	0.073654039
Max Abs Gradient Element	0.1401069415		

Iter	Restarts	Func Calls	Act Con	Objective Function	Obj Fun Change	Max Abs Gradient Element	Step Size	Slope Search Direc
1	0	3	0	0.06910	0.00455	0.0477	0.0127	-0.715
2	0	4	0	0.06835	0.000752	0.00458	1.000	-0.0015
3	0	5	0	0.06834	0.000010	0.00161	1.000	-167E-7
4	0	7	0	0.06834	2.094E-6	0.000754	0.493	-849E-8
5	0	8	0	0.06834	4.186E-7	0.000205	1.000	-935E-9
6	0	10	0	0.06834	3.081E-8	0.000064	1.210	-51E-9
7	0	12	0	0.06834	4.302E-9	0.000018	0.908	-95E-10
8	0	14	0	0.06834	2.67E-10	1.848E-6	1.000	-54E-11

Optimization Results

Iterations	8	Function Calls	15
Gradient Calls	10	Active Constraints	0
Objective Function	0.0683359921	Max Abs Gradient Element	1.8482715E-6
Slope of Search Direction	-5.3803E-10		

GCONV convergence criterion satisfied.

The CALIS Procedure
Covariance Structure Analysis: Maximum Likelihood Estimation

Fit Function	0.0683
Goodness of Fit Index (GFI)	0.9944
GFI Adjusted for Degrees of Freedom (AGFI)	0.9837
Root Mean Square Residual (RMR)	0.0127
Parsimonious GFI (Mulaik, 1989)	0.3747
Chi-Square	123.3465
Chi-Square DF	104
Pr > Chi-Square	0.0948
Independence Model Chi-Square	7189.8
Independence Model Chi-Square DF	276
RMSEA Estimate	0.0102
RMSEA 90% Lower Confidence Limit	.
RMSEA 90% Upper Confidence Limit	0.0165
ECVI Estimate	0.2773
ECVI 90% Lower Confidence Limit	.
ECVI 90% Upper Confidence Limit	0.3007
Probability of Close Fit	1.0000
Bentler's Comparative Fit Index	0.9972
Normal Theory Reweighted LS Chi-Square	122.8176
Akaike's Information Criterion	-84.6535
Bozdogan's (1987) CAIC	-760.5360
Schwarz's Bayesian Criterion	-656.5360
McDonald's (1989) Centrality	0.9947
Bentler & Bonett's (1980) Non-normed Index	0.9926
Bentler & Bonett's (1980) NFI	0.9828
James, Mulaik, & Brett (1982) Parsimonious NFI	0.3703
Z-Test of Wilson & Hilferty (1931)	1.3121
Bollen (1986) Normed Index Rho1	0.9545
Bollen (1988) Non-normed Index Delta2	0.9973
Hoelter's (1983) Critical N	1886

The CALIS Procedure
Covariance Structure Analysis: Maximum Likelihood Estimation

Asymptotically Standardized Residual Matrix

	urbn_cur	african	female	age	educat	l_stay
urbn_cur	0.0000	0.0000	0.0000	1.3539	-1.1706	-0.1316
african	0.0000	0.0000	0.0000	0.0000	0.0000	-1.1231
female	0.0000	0.0000	0.0000	0.0000	0.7245	0.4245
age	1.3539	0.0000	0.0000	0.0000	0.5806	0.0161
educat	-1.1706	0.0000	0.7245	0.5806	-0.6651	-0.7176
l_stay	-0.1316	-1.1231	0.4245	0.0161	-0.7176	-0.7338
rel_inc	-0.4443	-0.8105	0.5421	0.3860	-0.4895	-0.0077
working	-0.4110	1.3992	0.2614	0.7408	-0.7765	-1.9936
urbn_des	0.2556	0.6658	1.0309	0.9307	0.0912	1.8605
migrant	0.5246	0.4667	-0.9999	0.7055	-0.6790	-0.5627
soc_des	0.9923	0.0000	-0.7442	-0.0288	0.1525	-1.1395
risk_tkg	0.6881	0.7788	-0.8049	0.3840	0.5383	0.9149
efficacy	0.8572	0.0000	-0.6740	0.0942	0.0102	0.6641
own_int	-1.3253	0.1552	-0.4766	0.0365	-0.2532	0.4610
soc_net	-1.1320	-1.0188	0.7603	0.0498	-0.3320	-0.3062
metsdi_d	0.2116	0.9999	-0.9777	0.7987	-0.2344	0.4217
gen_sat	-0.4500	-0.5034	-1.1273	-0.0129	-0.2738	1.1599
ve_total	-0.8525	-0.5062	0.1350	-0.7921	-0.3389	0.2327
cur_mar	-0.2247	0.3002	-0.0539	0.1015	0.6305	1.4791
prop_emp	-0.3337	0.0000	0.0000	0.8898	-0.6286	-1.0894
metro	-0.3251	0.0000	0.0000	0.5454	-0.3916	0.3322
econ_gr	0.0000	0.0000	0.0000	0.0000	0.0000	0.8594
likelihd	-0.8577	0.8379	-0.9440	-0.3616	-0.5909	-1.5730
mig_prob	-0.3593	0.2469	0.5627	1.1469	0.3155	-1.3457

Asymptotically Standardized Residual Matrix

	rel_inc	working	urbn_des	migrant	soc_des	risk_tkg
urbn_cur	-0.4443	-0.4110	0.2556	0.5246	0.9923	0.6881
african	-0.8105	1.3992	0.6658	0.4667	0.0000	0.7788
female	0.5421	0.2614	1.0309	-0.9999	-0.7442	-0.8049
age	0.3860	0.7408	0.9307	0.7055	-0.0288	0.3840
educat	-0.4895	-0.7765	0.0912	-0.6790	0.1525	0.5383
l_stay	-0.0077	-1.9936	1.8605	-0.5627	-1.1395	0.9149
rel_inc	-0.4091	-0.2597	1.1404	-0.7481	0.0585	1.8672
working	-0.2597	0.6642	-0.9069	-0.1003	-0.5354	1.1694
urbn_des	1.1404	-0.9069	-1.5861	-1.4931	0.8153	-0.1336
migrant	-0.7481	-0.1003	-1.4931	-0.0370	1.2964	0.2189
soc_des	0.0585	-0.5354	0.8153	1.2964	-0.0235	1.0116
risk_tkg	1.8672	1.1694	-0.1336	0.2189	1.0116	0.8478
efficacy	-0.8736	0.6846	0.3454	0.9574	-0.3370	0.8359
own_int	-0.0277	-1.1605	-1.1197	-0.1672	1.2420	0.8173

The CALIS Procedure
Covariance Structure Analysis: Maximum Likelihood Estimation

Asymptotically Standardized Residual Matrix

	rel_inc	working	urbn_des	migrant	soc_des	risk_tkg
soc_net	-0.1611	-0.4483	0.5580	1.3799	-1.4154	-0.8391
metsdi_d	1.6447	-1.1290	-1.1409	-0.9148	1.5550	0.8606
gen_sat	1.3511	-0.5584	-0.7166	-0.9200	-0.6867	0.2701
ve_total	-1.0733	0.4964	-0.5799	-0.3167	-0.6046	-0.3563
cur_mar	0.6487	0.0470	0.8424	-0.8670	-0.0716	-1.6024
prop_emp	1.2965	0.5484	1.1180	-0.7910	0.8409	0.1156
metro	0.3494	0.2688	-1.1492	0.2824	0.0608	-0.4949
econ_gr	-0.3951	-0.4904	-0.5977	-0.5622	1.0270	0.0511
likelihd	0.4787	-0.0946	-0.1208	1.6452	1.2234	-0.2703
mig_prob	1.5821	0.9334	0.1325	-1.0974	0.8946	0.9163

Asymptotically Standardized Residual Matrix

	efficacy	own_int	soc_net	metsdi_d	gen_sat	ve_total
urbn_cur	0.8572	-1.3253	-1.1320	0.2116	-0.4500	-0.8525
african	0.0000	0.1552	-1.0188	0.9999	-0.5034	-0.5062
female	-0.6740	-0.4766	0.7603	-0.9777	-1.1273	0.1350
age	0.0942	0.0365	0.0498	0.7987	-0.0129	-0.7921
educat	0.0102	-0.2532	-0.3320	-0.2344	-0.2738	-0.3389
l_stay	0.6641	0.4610	-0.3062	0.4217	1.1599	0.2327
rel_inc	-0.8736	-0.0277	-0.1611	1.6447	1.3511	-1.0733
working	0.6846	-1.1605	-0.4483	-1.1290	-0.5584	0.4964
urbn_des	0.3454	-1.1197	0.5580	-1.1409	-0.7166	-0.5799
migrant	0.9574	-0.1672	1.3799	-0.9148	-0.9200	-0.3167
soc_des	-0.3370	1.2420	-1.4154	1.5550	-0.6867	-0.6046
risk_tkg	0.8359	0.8173	-0.8391	0.8606	0.2701	-0.3563
efficacy	-0.3206	-0.3021	-0.2483	0.2188	-1.5717	-0.0143
own_int	-0.3021	0.3212	-0.9092	0.5674	0.7806	0.2555
soc_net	-0.2483	-0.9092	-0.1932	-0.0741	0.4821	-0.4269
metsdi_d	0.2188	0.5674	-0.0741	-0.2546	1.4618	2.2441
gen_sat	-1.5717	0.7806	0.4821	1.4618	1.2385	-0.4363
ve_total	-0.0143	0.2555	-0.4269	2.2441	-0.4363	0.7551
cur_mar	0.2228	-1.3499	1.1143	0.5693	-0.0918	-2.0960
prop_emp	0.8582	-1.3850	-0.4564	-0.3248	0.5404	-1.1334
metro	0.0829	1.6049	0.8101	-0.0363	0.3195	-0.2266
econ_gr	0.9523	-0.0794	-0.0904	-0.1230	-0.3772	0.2714
likelihd	-1.1718	0.8063	-0.6946	-1.4958	0.8148	1.5618
mig_prob	-0.0281	-1.2834	-0.5360	1.3911	0.4257	-0.5379

The CALIS Procedure
Covariance Structure Analysis: Maximum Likelihood Estimation

Asymptotically Standardized Residual Matrix

	cur_mar	prop_emp	metro	econ_gr	likelihd	mig_prob
urbn_cur	-0.2247	-0.3337	-0.3251	0.0000	-0.8577	-0.3593
african	0.3002	0.0000	0.0000	0.0000	0.8379	0.2469
female	-0.0539	0.0000	0.0000	0.0000	-0.9440	0.5627
age	0.1015	0.8898	0.5454	0.0000	-0.3616	1.1469
educat	0.6305	-0.6286	-0.3916	0.0000	-0.5909	0.3155
l_stay	1.4791	-1.0894	0.3322	0.8594	-1.5730	-1.3457
rel_inc	0.6487	1.2965	0.3494	-0.3951	0.4787	1.5821
working	0.0470	0.5484	0.2688	-0.4904	-0.0946	0.9334
urbn_des	0.8424	1.1180	-1.1492	-0.5977	-0.1208	0.1325
migrant	-0.8670	-0.7910	0.2824	-0.5622	1.6452	-1.0974
soc_des	-0.0716	0.8409	0.0608	1.0270	1.2234	0.8946
risk_tkg	-1.6024	0.1156	-0.4949	0.0511	-0.2703	0.9163
efficacy	0.2228	0.8582	0.0829	0.9523	-1.1718	-0.0281
own_int	-1.3499	-1.3850	1.6049	-0.0794	0.8063	-1.2834
soc_net	1.1143	-0.4564	0.8101	-0.0904	-0.6946	-0.5360
metsdi_d	0.5693	-0.3248	-0.0363	-0.1230	-1.4958	1.3911
gen_sat	-0.0918	0.5404	0.3195	-0.3772	0.8148	0.4257
ve_total	-2.0960	-1.1334	-0.2266	0.2714	1.5618	-0.5379
cur_mar	0.0264	0.5836	-0.6074	1.2654	-0.2629	0.4034
prop_emp	0.5836	-0.2276	-0.1707	0.0000	-1.3143	0.7997
metro	-0.6074	-0.1707	-0.1023	0.0000	0.7736	-0.5429
econ_gr	1.2654	0.0000	0.0000	0.0000	-1.6561	-0.7808
likelihd	-0.2629	-1.3143	0.7736	-1.6561	-0.3587	-0.8970
mig_prob	0.4034	0.7997	-0.5429	-0.7808	-0.8970	1.3534

Average Standardized Residual 0.622161
Average Off-diagonal Standardized Residual 0.639601

Rank Order of the 10 Largest Asymptotically Standardized Residuals

Row	Column	Residual
ve_total	metsdi_d	2.24411
cur_mar	ve_total	-2.09596
working	l_stay	-1.99363
risk_tkg	rel_inc	1.86724
urbn_des	l_stay	1.86050
likelihd	econ_gr	-1.65612
likelihd	migrant	1.64516
metsdi_d	rel_inc	1.64473
metro	own_int	1.60492
cur_mar	risk_tkg	-1.60240

The CALIS Procedure
Covariance Structure Analysis: Maximum Likelihood Estimation

Distribution of Asymptotically Standardized Residuals

Each * Represents 2 Residuals

----------Range---------		Freq	Percent	
-2.25000	-2.00000	1	0.35	
-2.00000	-1.75000	1	0.35	
-1.75000	-1.50000	5	1.77	**
-1.50000	-1.25000	9	3.19	****
-1.25000	-1.00000	16	5.67	********
-1.00000	-0.75000	19	6.74	*********
-0.75000	-0.50000	25	8.87	************
-0.50000	-0.25000	29	10.28	**************
-0.25000	0	31	10.99	***************
0	0.25000	48	17.02	************************
0.25000	0.50000	25	8.87	************
0.50000	0.75000	22	7.80	***********
0.75000	1.00000	19	6.74	*********
1.00000	1.25000	12	4.26	******
1.25000	1.50000	11	3.90	*****
1.50000	1.75000	6	2.13	***
1.75000	2.00000	2	0.71	*
2.00000	2.25000	1	0.35	

The CALIS Procedure
Covariance Structure Analysis: Maximum Likelihood Estimation

Manifest Variable Equations with Estimates

```
    urbn_cur =   -0.4223*african  + -0.0453*female   + -0.0839*econ_gr
    Std Err       0.0213 b20_03      0.0213 b20_02      0.0213 b20_01
    t Value     -19.8071            -2.1301            -3.9343

+  1.0000 e20


    educat   =    0.1995*urbn_cur +  0.1661*prop_emp +  0.0577*metro
    Std Err       0.0234 b17_03      0.0234 b17_01      0.0219 b17_02
    t Value       8.5181             7.0950             2.6307

+ -0.1743*african  + -0.3281*age       +  0.1053*econ_gr  +  1.0000 e17
   0.0229 b17_06      0.0196 b17_05       0.0207 b17_04
  -7.6141           -16.7293              5.0919


    l_stay   =    0.0675*educat   + -0.0865*risk_tkg + -0.0450*metro
    Std Err       0.0253 b13_02      0.0234 b13_01      0.0241 b13_03
    t Value       2.6722            -3.6920            -1.8650

+ -0.1015*female   +  0.0854*age       +  1.0000 e13
   0.0233 b13_05      0.0246 b13_04
  -4.3513             3.4702


    rel_inc  =    0.2525*educat   +  0.3485*working  + -0.1655*metro
    Std Err       0.0225 b08_02      0.0209 b08_01      0.0219 b08_03
    t Value      11.2285            16.6692            -7.5424

+ -0.1101*female   +  0.2124*age       +  0.0515*econ_gr  +  1.0000 e08
   0.0206 b08_06      0.0217 b08_05       0.0214 b08_04
  -5.3458             9.7942              2.4071


    working  =    0.0494*educat   + -0.0639*own_int  +  0.3293*prop_emp
    Std Err       0.0249 b11_02      0.0222 b11_01      0.0238 b11_03
    t Value       1.9808            -2.8772            13.8624

+ -0.0792*female   +  0.0684*age       +  1.0000 e11
   0.0220 b11_05      0.0232 b11_04
  -3.6058             2.9471
```

The CALIS Procedure
Covariance Structure Analysis: Maximum Likelihood Estimation

```
   urbn_des =    0.0752*urbn_cur + -0.1203*l_stay    +  0.0599*risk_tkg
   Std Err       0.0266 b06_05      0.0223 b06_02       0.0224 b06_03
   t Value       2.8285            -5.3948              2.6716

+  0.1988*gen_sat  + -0.2718*prop_emp + -0.1124*african  + -0.0484*econ_gr
   0.0231 b06_01      0.0267 b06_04      0.0260 b06_07       0.0226 b06_06
   8.6217           -10.1947           -4.3225             -2.1438

+  1.0000 e06


   migrant  =    0.0744*urbn_cur + -0.0620*educat    +  0.2127*l_stay
   Std Err       0.0266 b10_07      0.0270 b10_04       0.0226 b10_01
   t Value       2.7955            -2.2939              9.3998

+ -0.0550*risk_tkg +  0.0627*efficacy +  0.1185*prop_emp +  0.0378*metro
   0.0231 b10_02      0.0232 b10_03      0.0268 b10_05      0.0241 b10_06
  -2.3829             2.6987             4.4225             1.5662

+  0.0719*age      +  1.0000 e10
   0.0242 b10_08
   2.9676


   soc_des  =   -0.0496*educat   + -0.0656*metro     +  0.1646*african
   Std Err       0.0246 b16_01      0.0246 b16_02       0.0252 b16_03
   t Value      -2.0175            -2.6670              6.5265

+  1.0000 e16


   risk_tkg =    0.1135*urbn_cur +  0.3071*soc_des   +  0.0821*efficacy
   Std Err       0.0228 b14_04      0.0229 b14_02       0.0227 b14_01
   t Value       4.9784            13.4231              3.6138

+ -0.0686*metro    + -0.0434*female   + -0.0873*age      +  1.0000 e14
   0.0230 b14_03      0.0220 b14_06      0.0219 b14_05
  -2.9867            -1.9744            -3.9790


   efficacy =    0.2092*educat   +  0.2726*soc_des   + -0.1247*prop_emp
   Std Err       0.0263 b15_02      0.0227 b15_01       0.0257 b15_03
   t Value       7.9555            12.0066             -4.8605

+  0.0716*metro    + -0.0644*african  +  0.0845*age      +  0.0421*econ_gr
   0.0249 b15_04      0.0262 b15_07      0.0239 b15_06      0.0233 b15_05
   2.8799            -2.4557             3.5411             1.8087

+  1.0000 e15
```

The CALIS Procedure
Covariance Structure Analysis: Maximum Likelihood Estimation

```
      own_int  =  -0.0475*urbn_cur +  0.1846*educat    +  0.0551*risk_tkg
      Std Err      0.0263 b12_04      0.0274 b12_03       0.0233 b12_01
      t Value     -1.8028             6.7406              2.3685

 + -0.0715*efficacy +  0.1406*african  + -0.0754*age       +  0.0526*econ_gr
    0.0234 b12_02      0.0260 b12_07      0.0248 b12_06       0.0233 b12_05
   -3.0530             5.4006            -3.0384              2.2624

 +  1.0000 e12


      soc_net  =  -0.0704*urbn_cur +  0.3338*educat    +  0.1413*l_stay
      Std Err      0.0239 b04_08      0.0237 b04_06       0.0218 b04_04
      t Value     -2.9397            14.1118              6.4929

 + -0.1215*urbn_des + -0.0907*soc_des  + -0.0918*metsdi_d + -0.0525*cur_mar
    0.0222 b04_02      0.0219 b04_05      0.0229 b04_01       0.0219 b04_03
   -5.4763            -4.1519            -4.0151             -2.4005

 + -0.1022*metro    +  0.0452*female   +  0.0579*econ_gr  +  1.0000 e04
    0.0243 b04_07      0.0217 b04_10      0.0229 b04_09
   -4.2032             2.0807             2.5263


      metsdi_d =  -0.0774*urbn_cur +  0.1348*educat    +  0.2311*urbn_des
      Std Err      0.0261 b05_11      0.0263 b05_08       0.0219 b05_01
      t Value     -2.9697             5.1336             10.5631

 +  0.0382*migrant  +  0.1291*soc_des  + -0.0947*risk_tkg + -0.1348*efficacy
    0.0219 b05_03      0.0237 b05_07      0.0231 b05_05       0.0229 b05_06
    1.7426             5.4544            -4.1003             -5.8918

 +  0.1280*own_int  + -0.0531*cur_mar  +  0.0665*prop_emp +  0.2224*metro
    0.0220 b05_04      0.0237 b05_02      0.0263 b05_10       0.0240 b05_09
    5.8296            -2.2370             2.5298              9.2769

 +  0.0927*age      +  0.0653*econ_gr  +  1.0000 e05
    0.0251 b05_13      0.0230 b05_12
    3.6968             2.8463
```

The CALIS Procedure
Covariance Structure Analysis: Maximum Likelihood Estimation

```
  gen_sat   =   -0.0629*urbn_cur +  0.0422*educat    +  0.1410*rel_inc
  Std Err        0.0273 b07_08      0.0277 b07_05       0.0254 b07_01
  t Value       -2.3052             1.5266              5.5452

+ -0.0314*working  + -0.0966*migrant  + -0.0516*soc_des  + -0.0758*cur_mar
   0.0256 b07_11       0.0227 b07_03       0.0228 b07_04       0.0249 b07_02
  -1.2267            -4.2587             -2.2635             -3.0492

+  0.1136*prop_emp +  0.0647*metro    + -0.1874*african  +  0.0210*age
   0.0284 b07_06      0.0255 b07_07       0.0269 b07_10       0.0265 b07_12
   4.0028             2.5378             -6.9594              0.7910

+ -0.0785*econ_gr  +  1.0000 e07
   0.0238 b07_09
  -3.3010


  ve_total =   -0.2017*urbn_cur + -0.0329*educat    +  0.0580*l_stay
  Std Err        0.0275 b03_14      0.0288 b03_11       0.0234 b03_07
  t Value       -7.3282            -1.1430              2.4805

+ -0.0430*working  + -0.0164*urbn_des + -0.0467*migrant  + -0.0725*soc_des
   0.0239 b03_05       0.0237 b03_02       0.0233 b03_04       0.0248 b03_10
  -1.8008            -0.6910             -2.0027             -2.9218

+ -0.0569*risk_tkg +  0.1478*efficacy + 0.00404*own_int  + -0.0267*soc_net
   0.0240 b03_08      0.0237 b03_09       0.0230 b03_06       0.0242 b03_01
  -2.3690             6.2365              0.1760             -1.1051

+ -0.0625*gen_sat  +  0.0838*prop_emp +  0.0784*metro    +  0.0732*african
   0.0237 b03_03      0.0294 b03_12       0.0254 b03_13       0.0274 b03_18
  -2.6386             2.8559              3.0815              2.6712

+ -0.0533*female   + -0.1706*age      +  0.0140*econ_gr  +  1.0000 e03
   0.0226 b03_17      0.0244 b03_16       0.0238 b03_15
  -2.3565            -6.9806              0.5865


  cur_mar   =    0.1049*working   +  0.0555*migrant  + -0.0648*soc_des
  Std Err        0.0225 b09_02       0.0213 b09_01      0.0220 b09_04
  t Value        4.6684              2.6109            -2.9372

+  0.0395*efficacy +  0.0605*prop_emp + -0.1082*african  +  0.0955*female
   0.0217 b09_03      0.0247 b09_05       0.0237 b09_08       0.0211 b09_07
   1.8206             2.4534             -4.5670              4.5241

+  0.3696*age      +  1.0000 e09
   0.0212 b09_06
  17.4394
```

The CALIS Procedure
Covariance Structure Analysis: Maximum Likelihood Estimation

```
   prop_emp =    0.3512*urbn_cur +  0.0910*metro     + -0.2438*african
   Std Err       0.0219 b18_02      0.0219 b18_01       0.0222 b18_06
   t Value      16.0282             4.1624            -10.9999

+ -0.0893*female    + -0.0609*age      +  0.0885*econ_gr  +  1.0000 e18
   0.0195 b18_05       0.0196 b18_04      0.0206 b18_03
  -4.5678             -3.1122             4.3045


   metro     =   0.1846*urbn_cur + -0.2321*african  +  0.0502*female
   Std Err       0.0232 b19_01      0.0232 b19_05      0.0210 b19_04
   t Value       7.9632            -9.9968             2.3891

+ -0.0526*age       +  0.2843*econ_gr  +  1.0000 e19
   0.0210 b19_03       0.0211 b19_02
  -2.4996             13.4774


   likelihd =  -0.0584*urbn_cur +  0.1197*educat   +  0.0751*l_stay
   Std Err       0.0242 b02_11      0.0248 b02_08      0.0204 b02_07
   t Value     -2.4170              4.8232             3.6731

+ -0.0770*working   + -0.2029*urbn_des +  0.1945*soc_net  + -0.1670*gen_sat
   0.0215 b02_06       0.0212 b02_03      0.0216 b02_02      0.0210 b02_04
  -3.5789             -9.5728             8.9939            -7.9483

+  0.0922*ve_total + -0.1172*cur_mar  +  0.1479*prop_emp +  0.0316*metro
   0.0208 b02_01       0.0221 b02_05      0.0256 b02_09      0.0215 b02_10
   4.4247             -5.2919             5.7847             1.4736

+ -0.1344*age       +  1.0000 e02
   0.0234 b02_12
  -5.7398
```

```
                    The CALIS Procedure
  Covariance Structure Analysis: Maximum Likelihood Estimation
 mig_prob =  -0.0268*urbn_cur + -0.0425*l_stay   +  0.1472*rel_inc
 Std Err       0.0231 b01_15      0.0198 b01_12       0.0211 b01_05
 t Value     -1.1599            -2.1473             6.9711

 +  0.0608*working  +  0.0975*urbn_des +  0.0470*migrant  + -0.0772*soc_des
    0.0216 b01_07      0.0202 b01_04      0.0196 b01_06      0.0211 b01_11
    2.8185             4.8267             2.3918            -3.6547

 +  0.0603*risk_tkg + -0.1125*efficacy + -0.0327*own_int  +  0.0816*soc_net
    0.0204 b01_09      0.0201 b01_10      0.0194 b01_08      0.0198 b01_02
    2.9524            -5.6037            -1.6850             4.1236

 +  0.0900*metsdi_d +  0.0995*ve_total +  0.4707*prop_emp +  0.1507*metro
    0.0205 b01_03      0.0199 b01_01      0.0244 b01_13      0.0222 b01_14
    4.3910             5.0065            19.2525             6.7913

 +  0.2112*african  +  0.0478*female   +  0.1427*age      +  0.0430*econ_gr
    0.0228 b01_19      0.0193 b01_18      0.0199 b01_17      0.0202 b01_16
    9.2803             2.4795             7.1545             2.1289

                          +  1.0000 e01
```

The CALIS Procedure
Covariance Structure Analysis: Maximum Likelihood Estimation

```
    urbn_cur =   -0.4223*african  + -0.0453*female   + -0.0839*econ_gr
                         b20_03              b20_02              b20_01

+  0.9037 e20


    educat   =    0.1989*urbn_cur +  0.1657*prop_emp +  0.0575*metro
                         b17_03              b17_01              b17_02

+ -0.1738*african  + -0.3272*age       +  0.1049*econ_gr  +  0.8246 e17
         b17_06              b17_05              b17_04


    l_stay   =    0.0677*educat   + -0.0864*risk_tkg + -0.0450*metro
                         b13_02              b13_01              b13_03

+ -0.1015*female   +  0.0853*age       +  0.9869 e13
         b13_05              b13_04


    rel_inc  =    0.2530*educat   +  0.3481*working  + -0.1654*metro
                         b08_02              b08_01              b08_03

+ -0.1100*female   +  0.2122*age       +  0.0514*econ_gr  +  0.8658 e08
         b08_06              b08_05              b08_04


    working  =    0.0496*educat   + -0.0639*own_int  +  0.3297*prop_emp
                         b11_02              b11_01              b11_03

+ -0.0793*female   +  0.0685*age       +  0.9271 e11
         b11_05              b11_04


    urbn_des =    0.0751*urbn_cur + -0.1201*l_stay   +  0.0598*risk_tkg
                         b06_05              b06_02              b06_03

+  0.1982*gen_sat  + -0.2716*prop_emp + -0.1123*african  + -0.0484*econ_gr
         b06_01              b06_04              b06_07              b06_06

+  0.9423 e06
```

The CALIS Procedure
Covariance Structure Analysis: Maximum Likelihood Estimation

```
     migrant   =    0.0744*urbn_cur + -0.0621*educat    +  0.2128*l_stay
                           b10_07              b10_04             b10_01

+ -0.0550*risk_tkg +  0.0627*efficacy +  0.1186*prop_emp +  0.0378*metro
       b10_02              b10_03              b10_05              b10_06

+  0.0719*age      +  0.9540 e10
       b10_08


     soc_des   =  -0.0497*educat    + -0.0656*metro     +  0.1646*african
                           b16_01              b16_02             b16_03

+  0.9758 e16


     risk_tkg =    0.1136*urbn_cur +  0.3074*soc_des   +  0.0822*efficacy
                           b14_04              b14_02             b14_01

+ -0.0687*metro    + -0.0434*female   + -0.0874*age      +  0.9307 e14
       b14_03              b14_06              b14_05


     efficacy =    0.2097*educat    +  0.2726*soc_des   + -0.1248*prop_emp
                           b15_02              b15_01             b15_03

+  0.0716*metro    + -0.0644*african  +  0.0845*age      +  0.0421*econ_gr
       b15_04              b15_07              b15_06              b15_05

+  0.9411 e15


     own_int   =  -0.0475*urbn_cur +  0.1852*educat    +  0.0551*risk_tkg
                           b12_04              b12_03             b12_01

+ -0.0715*efficacy +  0.1406*african  + -0.0754*age      +  0.0526*econ_gr
       b12_02              b12_07              b12_06              b12_05

+  0.9672 e12


     soc_net   =  -0.0704*urbn_cur +  0.3347*educat    +  0.1413*l_stay
                           b04_08              b04_06             b04_04

+ -0.1215*urbn_des + -0.0907*soc_des  + -0.0918*metsdi_d + -0.0525*cur_mar
       b04_02              b04_05              b04_01              b04_03

+  0.9102 e04
```

The CALIS Procedure
Covariance Structure Analysis: Maximum Likelihood Estimation

```
       metsdi_d =  -0.0773*urbn_cur +  0.1352*educat    +  0.2313*urbn_des
                          b05_11              b05_08               b05_01

  +  0.0382*migrant  +  0.1291*soc_des  + -0.0946*risk_tkg + -0.1348*efficacy
           b05_03              b05_07              b05_05              b05_06

  +  0.1279*own_int  + -0.0531*cur_mar  +  0.0665*prop_emp +  0.2223*metro
           b05_04              b05_02              b05_10              b05_09

  +  0.0926*age      +  0.0653*econ_gr  +  0.9078 e05
           b05_13              b05_12


       gen_sat  =  -0.0630*urbn_cur +  0.0424*educat    +  0.1413*rel_inc
                          b07_08              b07_05               b07_01

  + -0.0315*working  + -0.0967*migrant  + -0.0517*soc_des  + -0.0760*cur_mar
           b07_11              b07_03              b07_04              b07_02

  +  0.1139*prop_emp +  0.0648*metro    + -0.1877*african  +  0.0210*age
           b07_06              b07_07              b07_10              b07_12

  + -0.0786*econ_gr  +  0.9448 e07
           b07_09


       ve_total =  -0.2019*urbn_cur + -0.0330*educat    +  0.0581*l_stay
                          b03_14              b03_11               b03_07

  + -0.0431*working  + -0.0164*urbn_des + -0.0468*migrant  + -0.0726*soc_des
           b03_05              b03_02              b03_04              b03_10

  + -0.0569*risk_tkg +  0.1480*efficacy + 0.00404*own_int  + -0.0268*soc_net
           b03_08              b03_09              b03_06              b03_01

  + -0.0625*gen_sat  +  0.0840*prop_emp +  0.0785*metro    +  0.0733*african
           b03_03              b03_12              b03_13              b03_18

  + -0.0533*female   + -0.1707*age      +  0.0140*econ_gr  +  0.9416 e03
           b03_17              b03_16              b03_15


       cur_mar  =   0.1048*working   +  0.0555*migrant   + -0.0648*soc_des
                          b09_02              b09_01               b09_04

  +  0.0395*efficacy +  0.0605*prop_emp + -0.1082*african  +  0.0955*female
           b09_03              b09_05              b09_08              b09_07

  +  0.3696*age      +  0.8870 e09
           b09_06
```

The CALIS Procedure
Covariance Structure Analysis: Maximum Likelihood Estimation

```
   prop_emp =   0.3510*urbn_cur +  0.0910*metro     + -0.2436*african
                       b18_02             b18_01              b18_06

 + -0.0892*female   + -0.0609*age      +  0.0884*econ_gr  +  0.8263 e18
          b18_05             b18_04             b18_03


   metro    =   0.1845*urbn_cur + -0.2320*african  +  0.0502*female
                       b19_01             b19_05              b19_04

 + -0.0526*age      +  0.2842*econ_gr  +  0.8897 e19
          b19_03             b19_02


   likelihd =  -0.0583*urbn_cur +  0.1200*educat   +  0.0750*l_stay
                       b02_11             b02_08              b02_07

 + -0.0769*working  + -0.2030*urbn_des +  0.1944*soc_net  + -0.1666*gen_sat
          b02_06             b02_03             b02_02             b02_04

 +  0.0920*ve_total + -0.1171*cur_mar  +  0.1479*prop_emp +  0.0316*metro
          b02_01             b02_05             b02_09             b02_10

 + -0.1343*age      +  0.8459 e02
          b02_12


   mig_prob =  -0.0269*urbn_cur + -0.0427*l_stay   +  0.1477*rel_inc
                       b01_15             b01_12              b01_05

 +  0.0610*working  +  0.0980*urbn_des +  0.0471*migrant  + -0.0775*soc_des
          b01_07             b01_04             b01_06             b01_11

 +  0.0604*risk_tkg + -0.1129*efficacy + -0.0328*own_int  +  0.0818*soc_net
          b01_09             b01_10             b01_08             b01_02

 +  0.0903*metsdi_d +  0.0997*ve_total +  0.4725*prop_emp +  0.1513*metro
          b01_03             b01_01             b01_13             b01_14

 +  0.2119*african  +  0.0480*female   +  0.1432*age      +  0.0431*econ_gr
          b01_19             b01_18             b01_17             b01_16

                    +  0.7983 e01
```

The CALIS Procedure
Covariance Structure Analysis: Maximum Likelihood Estimation

Squared Multiple Correlations

	Variable	Error Variance	Total Variance	R-Square
1	urbn_cur	0.81671	1.00000	0.1833
2	educat	0.68403	1.00590	0.3200
3	l_stay	0.97435	1.00045	0.0261
4	rel_inc	0.75070	1.00139	0.2503
5	working	0.85854	0.99888	0.1405
6	urbn_des	0.89073	1.00320	0.1121
7	migrant	0.91014	1.00006	0.0899
8	soc_des	0.95214	1.00003	0.0479
9	risk_tkg	0.86474	0.99830	0.1338
10	efficacy	0.88617	1.00057	0.1143
11	own_int	0.93509	0.99958	0.0645
12	soc_net	0.82893	1.00050	0.1715
13	metsdi_d	0.82487	1.00093	0.1759
14	gen_sat	0.88983	0.99684	0.1073
15	ve_total	0.88493	0.99810	0.1134
16	cur_mar	0.78658	0.99983	0.2133
17	prop_emp	0.68384	1.00154	0.3172
18	metro	0.79209	1.00062	0.2084
19	likelihd	0.71692	1.00185	0.2844
20	mig_prob	0.63322	0.99372	0.3628

Correlations Among Exogenous Variables

Var1	Var2	Parameter	Estimate
african	female		0.01451
african	age		-0.07050
female	age		0.05019
african	econ_gr		-0.06793
female	econ_gr		0.01050
age	econ_gr		0.03036

The CALIS Procedure
Covariance Structure Analysis: Maximum Likelihood Estimation

Total Effects

	african	female	age	econ_gr	ve_total	soc_net
urbn_cur	-.42235	-.04532	0.00000	-.08389	0.00000	0.00000
educat	-.34623	-.02347	-.34206	0.11790	0.00000	0.00000
l_stay	-.01213	-.10055	0.07116	-.00158	0.00000	0.00000
rel_inc	-.09257	-.16244	0.14835	0.04676	0.00000	0.00000
working	-.16204	-.11339	0.03912	0.02874	0.00000	0.00000
urbn_des	-.07457	0.02741	-.00004	-.08631	0.00000	0.00000
migrant	-.07901	-.03029	0.10407	0.01214	0.00000	0.00000
soc_des	0.20211	-.00158	0.02041	-.02347	0.00000	0.00000
risk_tkg	0.03117	-.05105	-.07556	-.02951	0.00000	0.00000
efficacy	-.05152	0.01030	0.02294	0.06920	0.00000	0.00000
own_int	0.10217	-.00573	-.14435	0.07181	0.00000	0.00000
soc_net	-.04896	0.01425	-.12056	0.07520	0.00000	0.00000
metsdi_d	-.07895	0.00653	0.00276	0.13250	0.00000	0.00000
gen_sat	-.24117	-.02908	-.02420	-.03662	0.00000	0.00000
ve_total	0.11416	-.04263	-.16098	0.06879	0.00000	-.02674
cur_mar	-.17011	0.07632	0.37509	0.01299	0.00000	0.00000
prop_emp	-.42032	-.10140	-.06572	0.08352	0.00000	0.00000
metro	-.31004	0.04182	-.05258	0.26882	0.00000	0.00000
likelihd	-.00085	-.02347	-.26264	0.08062	0.09222	0.19206
mig_prob	-.06700	-.02406	0.10036	0.14072	0.09946	0.07891

Total Effects

	metsdi_d	urbn_des	gen_sat	rel_inc	cur_mar	migrant
urbn_cur	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
educat	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
l_stay	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
rel_inc	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
working	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
urbn_des	0.00000	0.00000	0.19883	0.02804	-.01508	-.02004
migrant	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
soc_des	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
risk_tkg	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
efficacy	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
own_int	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
soc_net	-.09185	-.14272	-.02838	-.00400	-.04552	-.00330
metsdi_d	0.00000	0.23107	0.04594	0.00648	-.05656	0.03065
gen_sat	0.00000	0.00000	0.00000	0.14101	-.07585	-.10079
ve_total	0.00246	-.01257	-.06499	-.00916	0.00620	-.04000
cur_mar	0.00000	0.00000	0.00000	0.00000	0.00000	0.05552
prop_emp	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
metro	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
likelihd	-.01764	-.23183	-.21890	-.03087	-.10977	0.01006
mig_prob	0.08272	0.10540	0.01474	0.14925	-.00966	0.04353

The CALIS Procedure
Covariance Structure Analysis: Maximum Likelihood Estimation

Total Effects

	working	own_int	l_stay	risk_tkg	efficacy	soc_des
urbn_cur	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
educat	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
l_stay	0.00000	0.00000	0.00000	-.08649	-.00710	-.02850
rel_inc	0.34850	-.02227	0.00000	-.00123	0.00149	0.00003
working	0.00000	-.06390	0.00000	-.00352	0.00428	0.00009
urbn_des	0.00194	-.00012	-.12454	0.07178	0.00405	0.01387
migrant	0.00000	0.00000	0.21274	-.07343	0.05670	-.00709
soc_des	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
risk_tkg	0.00000	0.00000	0.00000	0.00000	0.08206	0.32947
efficacy	0.00000	0.00000	0.00000	0.00000	0.00000	0.27264
own_int	0.00000	0.00000	0.00000	0.05511	-.06699	-.00134
soc_net	-.00528	-.01142	0.15774	-.01394	0.01005	-.09973
metsdi_d	-.00512	0.12832	-.02127	-.07365	-.15034	0.06681
gen_sat	0.00974	-.00062	-.02144	0.00737	-.00867	-.04678
ve_total	-.04354	0.00713	0.04725	-.05933	0.13986	-.04694
cur_mar	0.10488	-.00670	0.01181	-.00445	0.04307	-.05439
prop_emp	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
metro	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
likelihd	-.09634	0.00427	0.13761	-.02968	0.00957	-.01450
mig_prob	0.10706	-.02859	-.02904	0.05166	-.10031	-.09255

Total Effects

	educat	prop_emp	metro	urbn_cur
urbn_cur	0.00000	0.00000	0.00000	0.00000
educat	0.00000	0.16607	0.07281	0.27126
l_stay	0.06747	0.01209	-.03272	0.00185
rel_inc	0.26589	0.15873	-.13552	0.08470
working	0.03851	0.33515	0.03327	0.13417
urbn_des	0.00853	-.25095	-.01482	-.01984
migrant	-.03539	0.10557	0.04534	0.10444
soc_des	-.04958	-.00823	-.06918	-.02555
risk_tkg	0.00083	-.01009	-.08525	0.09443
efficacy	0.19565	-.09220	0.05664	0.01710
own_int	0.17070	0.03670	0.00470	0.00660
soc_net	0.33473	0.07891	-.09629	0.00321
metsdi_d	0.12374	0.04674	0.22767	0.00806
gen_sat	0.08349	0.11524	0.05579	-.00210
ve_total	-.01015	0.04221	0.09573	-.17642
cur_mar	0.01301	0.09839	0.01823	0.04446
prop_emp	0.00000	0.00000	0.09103	0.36803
metro	0.00000	0.00000	0.00000	0.18459
likelihd	0.16879	0.18231	0.03044	0.00769
mig_prob	0.05148	0.51844	0.19357	0.18669

The CALIS Procedure
Covariance Structure Analysis: Maximum Likelihood Estimation

Indirect Effects

	african	female	age	econ_gr	ve_total	soc_net
urbn_cur	0.00000	0.00000	0.00000	0.00000	0	0.00000
educat	-.17194	-.02347	-.01395	0.01264	0	0.00000
l_stay	-.01213	0.00095	-.01420	-.00158	0	0.00000
rel_inc	-.09257	-.05236	-.06403	-.00471	0	0.00000
working	-.16204	-.03418	-.02932	0.02874	0	0.00000
urbn_des	0.03787	0.02741	-.00004	-.03787	0	0.00000
migrant	-.07901	-.03029	0.03216	0.01214	0	0.00000
soc_des	0.03750	-.00158	0.02041	-.02347	0	0.00000
risk_tkg	0.03117	-.00766	0.01176	-.02951	0	0.00000
efficacy	0.01289	0.01030	-.06155	0.02710	0	0.00000
own_int	-.03848	-.00573	-.06896	0.01918	0	0.00000
soc_net	-.04896	-.03092	-.12056	0.01733	0	0.00000
metsdi_d	-.07895	0.00653	-.08990	0.06717	0	0.00000
gen_sat	-.05373	-.02908	-.04518	0.04189	0	0.00000
ve_total	0.04097	0.01065	0.00957	0.05480	0	0.00000
cur_mar	-.06193	-.01920	0.00549	0.01299	0	0.00000
prop_emp	-.17656	-.01211	-.00479	-.00499	0	0.00000
metro	-.07796	-.00837	0.00000	-.01548	0	0.00000
likelihd	-.00085	-.02347	-.12822	0.08062	0	-.00247
mig_prob	-.27820	-.07190	-.04237	0.09773	0	-.00266

Indirect Effects

	metsdi_d	urbn_des	gen_sat	rel_inc	cur_mar	migrant
urbn_cur	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
educat	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
l_stay	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
rel_inc	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
working	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
urbn_des	0.00000	0.00000	0.00000	0.02804	-.01508	-.02004
migrant	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
soc_des	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
risk_tkg	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
efficacy	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
own_int	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
soc_net	0.00000	-.02122	-.02838	-.00400	0.00703	-.00330
metsdi_d	0.00000	0.00000	0.04594	0.00648	-.00348	-.00758
gen_sat	0.00000	0.00000	0.00000	0.00000	0.00000	-.00421
ve_total	0.00246	0.00382	-.00250	-.00916	0.00620	0.00672
cur_mar	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
prop_emp	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
metro	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
likelihd	-.01764	-.02892	-.05186	-.03087	0.00745	0.01006
mig_prob	-.00725	0.00790	0.01474	0.00208	-.00966	-.00344

The CALIS Procedure
Covariance Structure Analysis: Maximum Likelihood Estimation

Indirect Effects

	working	own_int	l_stay	risk_tkg	efficacy	soc_des
urbn_cur	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
educat	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
l_stay	0.00000	0.00000	0.00000	0.00000	-.00710	-.02850
rel_inc	0.00000	-.02227	0.00000	-.00123	0.00149	0.00003
working	0.00000	0.00000	0.00000	-.00352	0.00428	0.00009
urbn_des	0.00194	-.00012	-.00426	0.01187	0.00405	0.01387
migrant	0.00000	0.00000	0.00000	-.01840	-.00603	-.00709
soc_des	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
risk_tkg	0.00000	0.00000	0.00000	0.00000	0.00000	0.02237
efficacy	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
own_int	0.00000	0.00000	0.00000	0.00000	0.00452	-.00134
soc_net	-.00528	-.01142	0.01647	-.01394	0.01005	-.00899
metsdi_d	-.00512	0.00033	-.02127	0.02107	-.01553	-.06231
gen_sat	0.04119	-.00062	-.02144	0.00737	-.00867	0.00481
ve_total	-.00050	0.00310	-.01078	-.00248	-.00797	0.02561
cur_mar	0.00000	-.00670	0.01181	-.00445	0.00360	0.01038
prop_emp	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
metro	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
likelihd	-.01936	0.00427	0.06251	-.02968	0.00957	-.01450
mig_prob	0.04626	0.00415	0.01350	-.00863	0.01218	-.01531

Indirect Effects

	educat	prop_emp	metro	urbn_cur
urbn_cur	0.00000	0.00000	0.00000	0.00000
educat	0.00000	0.00000	0.01512	0.07177
l_stay	-.00007	0.01209	0.01229	0.00185
rel_inc	0.01342	0.15873	0.02998	0.08470
working	-.01091	0.00586	0.03327	0.13417
urbn_des	0.00853	0.02085	-.01482	-.09502
migrant	0.02658	-.01295	0.00756	0.03005
soc_des	0.00000	-.00823	-.00361	-.02555
risk_tkg	0.00083	-.01009	-.01660	-.01912
efficacy	-.01352	0.03249	-.01498	0.01710
own_int	-.01394	0.03670	0.00470	0.05407
soc_net	0.00094	0.07891	0.00589	0.07360
metsdi_d	-.01108	-.01976	0.00532	0.08544
gen_sat	0.04127	0.00162	-.00893	0.06080
ve_total	0.02277	-.04163	0.01738	0.02526
cur_mar	0.01301	0.03791	0.01823	0.04446
prop_emp	0.00000	0.00000	0.00000	0.01680
metro	0.00000	0.00000	0.00000	0.00000
likelihd	0.04908	0.03437	-.00119	0.06609
mig_prob	0.05148	0.04775	0.04283	0.21354

The CALIS Procedure
Covariance Structure Analysis: Maximum Likelihood Estimation

Rank Order of the 10 Largest Lagrange Multipliers in _PHI_

Row	Column	Chi-Square	Pr > ChiSq
e19	e02	6.05876	0.0138
e09	e03	5.60426	0.0179
e02	age	5.42491	0.0199
e17	e02	4.89625	0.0269
e05	e02	4.76019	0.0291
e05	e03	4.46848	0.0345
e09	e02	4.37392	0.0365
e15	e12	4.07434	0.0435
e18	e06	3.98217	0.0460
e09	e05	3.36876	0.0664

Lagrange Multiplier and Wald Test Indices _GAMMA_ [20:4]

Univariate Tests for Constant Constraints

Rank Order of the 10 Largest Lagrange Multipliers in _GAMMA_

Row	Column	Chi-Square	Pr > ChiSq
likelihd	econ_gr	3.22080	0.0727
cur_mar	econ_gr	2.46805	0.1162
urbn_cur	age	2.24941	0.1337
working	african	2.18387	0.1395
rel_inc	african	2.07908	0.1493
likelihd	african	2.07516	0.1497
gen_sat	female	1.90631	0.1674
metsdi_d	female	1.75784	0.1849
urbn_des	female	1.73417	0.1879
likelihd	female	1.47251	0.2249

The CALIS Procedure
Covariance Structure Analysis: Maximum Likelihood Estimation

Lagrange Multiplier and Wald Test Indices _BETA_ [20:20]

Identity-Minus-Inverse Model Matrix
Univariate Tests for Constant Constraints

Rank Order of the 10 Largest Lagrange Multipliers in _BETA_

Row	Column	Chi-Square	Pr > ChiSq
ve_total	likelihd	5.86620	0.0154
prop_emp	urbn_des	5.63583	0.0176
ve_total	cur_mar	5.60420	0.0179
metro	likelihd	5.37059	0.0205
ve_total	metsdi_d	4.98714	0.0255
metsdi_d	ve_total	4.94718	0.0261
risk_tkg	rel_inc	4.50771	0.0337
efficacy	own_int	4.32452	0.0376
cur_mar	ve_total	4.20809	0.0402
rel_inc	metsdi_d	4.19806	0.0405

Stepwise Multivariate Wald Test

	------Cumulative Statistics-----			--Univariate Increment--	
Parameter	Chi-Square	DF	Pr > ChiSq	Chi-Square	Pr > ChiSq
b03_06	0.03097	1	0.8603	0.03097	0.8603
b03_15	0.38655	2	0.8243	0.35558	0.5510
b03_02	0.89855	3	0.8258	0.51200	0.4743
b07_12	1.52425	4	0.8223	0.62570	0.4289
b03_01	2.48978	5	0.7780	0.96554	0.3258
b01_15	3.83521	6	0.6990	1.34543	0.2461
b07_11	5.43607	7	0.6069	1.60086	0.2058
b07_05	7.33126	8	0.5014	1.89518	0.1686
b03_11	9.37715	9	0.4032	2.04590	0.1526
b02_10	11.54864	10	0.3164	2.17149	0.1406
b10_06	14.00154	11	0.2329	2.45290	0.1173
b01_08	16.82866	12	0.1562	2.82712	0.0927
b05_03	19.86542	13	0.0986	3.03677	0.0814
b12_04	23.11557	14	0.0584	3.25014	0.0714
b15_05	26.38680	15	0.0341	3.27124	0.0705
b09_03	29.70129	16	0.0196	3.31449	0.0687
b03_05	33.16143	17	0.0108	3.46014	0.0629
b13_03	36.63962	18	0.0058	3.47819	0.0622
b03_04	40.38147	19	0.0029	3.74185	0.0531