COUNTRY REPORT – SOUTH AFRICA

This document sets out basic mortality information for South Africa for the use of the International Actuarial Association's Mortality Working Group.

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NEW RESEARCH

IMPROVED LIFE EXPECTANCY DUE TO TREATMENT OF HIV/AIDS\(^1\)

In this paper\(^2\) Johnson et al recognises that life expectancy of HIV-positive adults have improved significantly with antitertroviral treatment.

Work such as this has led to the development of more life insurance options for HIV-positive individuals with many insurers recently offering cover to HIV-infected lives. Such cover is offered with loadings on standard rates.

\(^{1}\) Article reference with link if available.
This work has been presented on and should be published soon. This covers the mortality of lives insured via Group Life cover in the SA market and is likely to become the industry standard "table". Note however that mortality varies significantly by salary and industry of the individuals so multiple graduations are involved.
BACKGROUND

South Africa has a young population that is heavily affected by the HIV/AIDS epidemic. Given the rapidly changing nature of the epidemic actuaries generally use the Actuarial Society of South Africa’s AIDS Model\(^3\) (commonly referred to as the “ASSA2008” model) as a source of information on mortality and demographic factors in the country. All information below has been extracted from the full version of the ASSA2008 (dated 2011/03/09) unless otherwise stated. There are also government sources of this information that are updated more frequently but do not always reflect particularities in the data.

The ASSA models are calibrated to HIV prevalence data and reported deaths data (adjusted for underreporting).

POPULATION

DEMOGRAPHICS

<table>
<thead>
<tr>
<th>Basic Information</th>
<th>51.8m estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current population (2013)</td>
<td>51.8m estimate</td>
</tr>
<tr>
<td>Current period life expectancy (2013)</td>
<td>51.8m estimate</td>
</tr>
<tr>
<td>- At birth</td>
<td>58.5</td>
</tr>
<tr>
<td>- At 65</td>
<td>14</td>
</tr>
</tbody>
</table>

Population Pyramid (2013)

Also worth reading is the Rapid Mortality Surveillance Report 2011\(^4\).

\(^3\) [http://aids.actuarialociety.org.za/](http://aids.actuarialociety.org.za/)

## OTHER DEMOGRAPHIC INDICATORS

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth rate/1000</td>
<td>20</td>
</tr>
<tr>
<td>Death rate/1000</td>
<td>12</td>
</tr>
<tr>
<td>Net immig rat/1000</td>
<td>0</td>
</tr>
<tr>
<td>Growth rate/1000</td>
<td>9</td>
</tr>
<tr>
<td>Dependency ratio</td>
<td>53%</td>
</tr>
<tr>
<td>Aging index</td>
<td>17%</td>
</tr>
</tbody>
</table>

## HIV/AIDS PREVALENCE

<table>
<thead>
<tr>
<th>Group</th>
<th>Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antenatal clinics</td>
<td>28.1%</td>
</tr>
<tr>
<td>Youth aged 15-24</td>
<td>6.8%</td>
</tr>
<tr>
<td>Women aged 15 - 49</td>
<td>21.2%</td>
</tr>
<tr>
<td>Men aged 15-49</td>
<td>12.7%</td>
</tr>
<tr>
<td>Adults aged 15-49</td>
<td>17.0%</td>
</tr>
<tr>
<td>Adult women (ages 20 - 64)</td>
<td>20.9%</td>
</tr>
<tr>
<td>Adult men (ages 20 - 64)</td>
<td>14.8%</td>
</tr>
<tr>
<td>Adults (ages 20 - 64)</td>
<td>18.0%</td>
</tr>
<tr>
<td>Male population</td>
<td>9.3%</td>
</tr>
<tr>
<td>Female population</td>
<td>13.0%</td>
</tr>
<tr>
<td>Total population</td>
<td>11.2%</td>
</tr>
</tbody>
</table>

## POPULATION MORTALITY TABLES

Due to several factors including the underreporting of deaths and the rapidly changing impact of the HIV/AIDS epidemic no official mortality tables have been published in recent decades.

Actuaries tend to use mortality rates from the ASSA2008 model and we reproduce a chart from 2013 data from this model below.
One can clearly see the impact of HIV/AIDS on mortality of lives between 20 and 50 years of age.

We reproduce a chart of 45q15 over time to show the impact of HIV/AIDS more clearly. The reduction in the later years is due to the roll-out of antiretroviral therapy by the government.
POPULATION MORTALITY IMPROVEMENTS

Very limited data exists on mortality improvements and the country’s population mortality initiatives are all focussed on HIV/AIDS. The roll-out of treatment has definitely affected overall mortality and as can be seen in the chart above.
PROTECTION INSURANCE

This section could cover background on the life insurance protection environment. This is for life insurance and not longevity protection.

MARKET BACKGROUND

INDIVIDUAL MARKET

There are different mortality products depending on the target market (typically differentiated by socio-economic status). Almost all products are sold intermediated (agents and independent brokers) but the direct market is growing.

The smallest policies are funeral products that provide low cover amounts to cover funeral costs. These are sold with very limited underwriting and typically include cover for the whole family (sometimes even more extended members of the family). Having a good funeral is culturally important in many local cultures and these products are therefore quite popular. These covers are provided up to R20 000 to R50 000 (roughly EUR2000 to EUR5000). No HIV test is performed. Claims need to be paid out anything from 24h to 48h from receipt of a valid death certificate. Fraud is an issue in this market.

The next level of cover involves limited underwriting covers which typically involve 5 or so underwriting questions but more cover (up to say EUR50 000). No HIV test is performed. Risk is managed by offering only accidental cover at outset. Cover from other causes are 0% in the first 6 months stepping up by 25% every 6 months or so. Cover would typically cover all causes after 2 years.

The top-end products are typically whole of life (term is also offered but commission skews advice towards whole of life). Premium (and cover) increases are common but cover is not strictly age rated. Typically no surrender values are payable on these “risk-only” life covers. These covers are fully underwritten and HIV tested.

GROUP MARKET

South Africa has a large group market which involves typically compulsory cover for employer based groups. Some of the larger groups are based on union membership as opposed to individual employers (with several very large unions). Cover is typically 3 times pensionable salary. No underwriting is done on these groups below the free cover limits which are generally quite high.
The most recent standard mortality tables are SA85-90 mortality tables\(^5\). Further investigations have been done but no standard tables been issued.

### Period Covered
1985-1990

### Tables Produced
- SA8590 Light
- SA8590 Aggregate
- SA8590 Heavy

### Factors
- Gender, Smoker Status

### Duration
- Yes

Given the changing nature of the HIV/AIDS epidemic most companies value and price based on adjustments of these tables including separate allowance for HIV/AIDS. Typically a heavily adjusted Light table would be used for the top retail products and adjusted versions of the other tables are used for funeral products. Separate allowance for HIV/AIDS is usually made\(^6\). These tables are considered free of HIV/AIDS deaths.

The major issue with updating mortality tables with the HIV/AIDS epidemic is that because the epidemic is changing using a table based on experience in say 2000 would not be as relevant in 2015 as the HIV/AIDS related mortality rates would be very different. Especially in light of treatment roll-out for example. The other aspect is that for higher products HIV testing is in place and therefore there is a large durational component to HIV/AIDS. Thus making a mortality assumption on a policy that incepted in 2010 based on experience of policies incepting in 2000 needs care.

### GROUP MARKET

There is a large study on mortality of this market that is in process of being published.

### MORTALITY IMPROVEMENTS

Very little work has been done on mortality improvements.

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RETAIL LONGEVITY PROTECTION

This section should cover the annuity market.

MARKET BACKGROUND

South Africa has a favourable treatment for retirement savings via pension funds (or specific insurance products called “Retirement Annuities” that also operate much the same as pension funds). These products can be financed from pre-tax income as long as at least 2/3rds of proceeds are annuitised at retirement. Proceeds that are taken as cash over the 2/3rds are taxed as income.

This means there is a vibrant immediate annuity market. Pricing is done based on age and gender. Rates are generally published and updated frequently (weekly) in line with changes in yields. Limited impaired annuities exist.

MORTALITY TABLES

Many companies would be using adjustments of UK tables such as PA90 to price and value immediate annuities. No standard tables have been published though some investigations have been done by the Actuarial Society. See for example the Annuitant Report 2001-2004.

MORTALITY IMPROVEMENTS

No definitive results are available in this area. The annuitant report above had inconclusive results on mortality improvement (due mainly to data issues).

This paper provides a summary of what is available on this topic.

RELEVANT ORGANISATIONS

This section can cover details on relevant organisations and bodies that do work in mortality for that country. This may be easier than providing background earlier on.

STATISTICS SOUTH AFRICA

This is the government statistical department and does various mortality statistics and data. Data on mortality is published. This report does contain data on various aspects including:

- Completeness of death registration.
- Overview of the framework of death registration.
- Data on registered deaths.
- Data on causes of death (as notified).

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9 [www.statssa.gov.za](http://www.statssa.gov.za)
Data is not always fully interpreted given limitations of some of the data sources. For example cause of death data shows the leading cause of death as Tuberculosis. Due to limitations in the process of capture of causes of death the true underlying cause (HIV/AIDS in this case) is not properly reflected.

**ACTUARIAL SOCIETY OF SOUTH AFRICA**

This is the official actuarial body of South Africa.

- The Continuous Statistical Investigation (CSI) committee of the society does experience investigations for the Actuarial Society.
- The AIDS committee produces the ASSA2008 model and guidance on HIV/AIDS assumptions.

**FINANCIAL SERVICES BOARD (INSURANCE REGULATOR)**

Regulates a broad range of financial services including long-term (life) and short-term insurance as well as pension funds.

**MEDICAL RESEARCH COUNCIL**

Has several units which produce valuable research in mortality. The Bureau of Disease Research Unit produces relevant research on mortality and causes of death in South Africa.

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16 [http://www.fsb.co.za/](http://www.fsb.co.za/)
17 [http://www.mrc.ac.za](http://www.mrc.ac.za)
18 [http://www.mrc.ac.za/bod/bod.htm](http://www.mrc.ac.za/bod/bod.htm)