

True South Actuaries and Consultants

Bureau of Market Research (UNISA)

The South African insurance gap in 2013

Quantifying the insurance gap by reference to the financial impact on South African households of the death or disability of an active earner in the household

Nov 2013

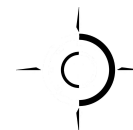
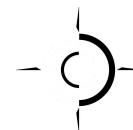
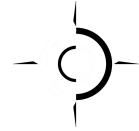


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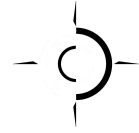
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1 INTRODUCTION

1.1 DEFINITIONS

Throughout this report, terms defined in Appendix A are typed in *italics*.

1.2 BACKGROUND AND BRIEF

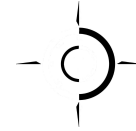
In 2007, True South Actuaries and Consultants (True South), on behalf of the (then) Life Offices' Association of South Africa undertook an investigation into the extent to which life and *Disability* insurance cover for the South African pre-retirement population fall short of their real needs.

In 2010, True South updated the 2007 study with the assistance of the Bureau of Market Research at UNISA (BMR), on behalf of the Association for Savings and Investments SA (ASISA).

ASISA has retained True South and the BMR to update this study to reflect the situation as at 2013.

1.3 ACKNOWLEDGEMENTS

We express our thanks to the life insurers who participated in the study through the provision of data on fairly tight timelines. We saw some improvement in the general quality of data compared to the previous study. We are also particularly grateful for the many instances where senior officials in the respective organizations got personally involved to assist us in securing the necessary data.



2 EXECUTIVE SUMMARY OF FINDINGS

Growth in the level of insurance cover since 2010

R'billion	Death cover	
	2010	2013
Retail insurance	2 495	3 248
Group insurance	1 930	2 619

R'billion	Disability cover	
	2010	2013
Retail insurance	1 780	2 620
Group insurance	3 783	4 660

Since the 2010 study, average cover levels of retail policies increased by between 9% and 10% pa. In addition, the number of Disability insurance policies increased by about 3% pa, whilst the number of life insurance policies remained largely unchanged.

The number of South African earners with group risk cover grew at a rate of about 2.5% pa compound, whilst average cover amounts increased in line with inflation at around 6% pa.

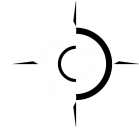
The insurance gap has increased from R18.4 trillion in 2010 to R24.0 trillion in 2013:

R'billion	2010 Insurance Gap	
	Death	Disability
Insurance Need	11 683	18 714
Actual Cover	-4 426	-5 563
Disability grant cover		-2 014
Insurance Gap	7 257	11 137
Gap as % of Need	62%	60%

In 2010, the Insurance Gap was calculated as R18.4 trillion. It now amounts to R24.0 trillion (R9.3 trillion in respect of death and R14.7 trillion in respect of disability cover.) This represents an increase of between 9% and 10% pa - i.e. exceeding inflation by about 3% over the period.

R'billion	2013 Insurance Gap	
	Death	Disability
Insurance Need	15 146	24 435
Actual Cover	-5 867	-7 280
Disability grant cover		-2 414
Insurance Gap	9 279	14 741
Gap as % of Need	61%	60%

As both earnings (which drives the Insurance Need) and Actual Cover increased at similar rates over the 3-year period, the Insurance Gap as % of the Insurance Need remained largely unchanged at around 60%.



The additional death cover required by a specific earner depends crucially on current personal income:

	Number of earners (million)	Ave age	Ave gross income p.a. (R'000)	Ave gap per earner (R'm)	Total gap (R'bn)
20% poorest	2.6	37	9	0.1	131
2nd Quintile	2.6	36	26	0.3	663
3rd Quintile	2.6	37	52	0.5	1 299
4th Quintile	2.6	38	111	0.9	2 287
20% richest	2.6	42	401	1.9	4 899
All	13.0	38	120	0.7	9,279

The 13m Earners were ranked into 5 equal (in size) groups based on earnings.

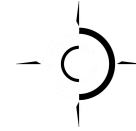
The Insurance Gap increases steeply as income increases (both per earner and in total).

A response to the insurance gap in respect of death cover, could be to pro-actively purchase additional cover, while reactive responses (post the death event) may include curtailing household expenditure or increasing household income:

Personal monthly income (net of tax)	Pro-active	Reactive post death event	
	Cost to close gap (% of income)	% reduction in household expenditure	Generating Additional income per month
20% poorest	2.8%	7%	273
2nd Quintile	4.7%	27%	1 379
3rd Quintile	4.6%	39%	2 703
4th Quintile	3.8%	35%	4 761
20% richest	2.3%	36%	10 186
All	2.9%	33%	3,861

To close the Insurance Gap in respect of death cover, a household can buy additional cover. This may cost around 2.9% of personal income (on a group scheme basis).

Alternatively, households would have to either cut expenditure by a third, or somehow replace some of deceased's income.



The additional disability cover required by a specific earner depends crucially on current personal income:

	Number of earners (million)	Ave age	Ave gross income p.a. (R'000)	Ave gap per person (R'm)	Total gap (R'bn)
20% poorest	2.6	37	9	-0.2	-425
Next 20%	2.6	36	26	0.2	409
Next 20%	2.6	37	52	0.6	1 497
Next 20%	2.6	38	111	1.3	3 459
20% richest	2.6	42	401	3.8	9 801
All	13.0	38	120	1.1	14 741

Government's disability grant is very effective in protecting those earners in the bottom income bracket against disability events.

For higher income earners, the average gap increases sharply (by value) in line with income.

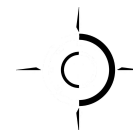
A response to the insurance gap in respect of disability cover, could be to pro-actively purchase additional cover, while reactive responses (post the disability event) may include curtailing household expenditure or increasing household income:

Personal monthly income (net of tax)	Pro-active	Reactive post <i>Disability</i> event	
	Cost to close gap (% of income)	% reduction in household expenditure	Generating Additional income per month
20% poorest	-3.6%	-16%	-856
2nd Quintile	1.2%	13%	824
3rd Quintile	2.1%	34%	3 016
4th Quintile	2.3%	39%	6 975
20% richest	1.8%	46%	19 734
All	1.8%	37%	5 941

Households with earners ranking in the top 20%, would need extra earnings of almost R20,000 per month to "plug the gap" should the earner become disabled.

Alternatively expenditure would have to be cut by 46%.

A pro-active alternative would be to buy additional Disability cover (at a cost of around 1.8% of earnings on a group scheme basis).



3 STRUCTURE OF THE REMAINDER OF THIS REPORT

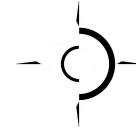
As mentioned before, throughout this report, terms defined in Appendix A are typed in *italics*.

3.1 MAIN BODY

<i>Section 4</i>	Macro Insurance Gap	<i>Quantifying the Insurance Gap for the South African actively earning population as a whole</i>
<i>Section 5</i>	Micro Insurance Gap	<i>Translating the macro gap to an average amount per South African Earner</i>
<i>Section 6</i>	Responses to the Insurance Gap	<i>Considering how Earners could react in response the Insurance Gap</i>
<i>Sections 7 to 9</i>	Gap per income category, education level and age	<i>Analysing how the Insurance Gap varies over income, education and age</i>

3.2 APPENDICES

<i>Appendix A</i>	Definitions and principles	<i>Definitions of terms and the main principles guiding the study</i>
<i>Appendix B</i>	Data sources and approach	<i>Information on the main sources of data used to determine the Insurance Need and Actual Cover</i>
<i>Appendix C</i>	The Insurance Need	<i>A more technical discussion on the methodology employed to derive the Insurance Need</i>
<i>Appendix D</i>	Actual Cover	<i>Information on how Actual Cover was allocated to individuals</i>



4 THE *INSURANCE GAP* AT A MACRO LEVEL

4.1 *INSURANCE GAP = INSURANCE NEED - ACTUAL COVER*

4.1.1 DEATH *INSURANCE GAP*

If South African households would want to maintain their standards of living after the death of an *Earners*, the *Insurance Need* for a death event for all employed South African *Earners* is in the region of R15.1 trillion (1 trillion = 1000 billion = 1 000 000 million = 10^{12}).

The actual extent of death cover in force in the economy only amounts to R5.9 trillion. This leaves a death *Insurance Gap* of around R9.3 trillion.

4.1.2 DISABILITY *INSURANCE GAP*

Similarly the *Insurance Need* for *Disability* cover is likely to be in the region of R24.4 trillion. Actual *Disability* cover, however, only amounts to about R9.7 trillion.

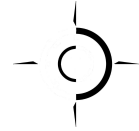
This leaves a *Disability Insurance Gap* of around R14.7 trillion.

4.1.3 DETAIL

The table below provides more detail to illustrate how the *Insurance Gap* is derived as the difference between the *Insurance Need* and the *Actual Cover*.

	Death	Disability
<i>Insurance Need</i> (R'bn)	15 146	24 435
Total income at risk	1 559	1 559
* Replacement ratio	64%	98%
* Capitalisation factor	15.3	15.9
<i>Actual Cover</i> (R'bn)	-5 867	-9 693
Insurance: Retail	-3 248	-2 620
Insurance: Group	-2 619	-4 660
Government grants	-	-2 414
<i>Insurance Gap</i> (R'bn)	9 279	14 741
Gap as % of cover needed	61%	60%
Cover adequacy (Cover / Need)	39%	40%

As mentioned earlier, the terms in italics are defined in Appendix A.



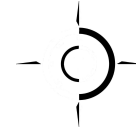
4.2 COMMENT

Some comments on the high-level approach can be found in Appendix B.

The three terms used to define the *Insurance Need* are discussed in the C-Appendices.

The derivation of the *Actual Cover* is discussed in the D-Appendices. Appendix D2 mentions the use of two models to derive [1] product ownership probability and [2] level of cover given ownership has been established. Some interesting findings from these models are:

- **Level of education**: There is a very strong correlation between insurance policy ownership and highest level of education attained. The likelihood of a graduate having a life insurance policy is more than 3 times higher than an otherwise identical person (with regard to income, age, gender, family composition, marital status), but with only a primary school education. For *Disability* policies this distinction is even more pronounced with the factor being almost 5 times.
- **Age**: A 50 year old person is 2.5 times more likely to own a life insurance policy compared to an otherwise identical person aged 20. For *Disability* the probability of owning a policy increases sharply until age 30 after which it remains relatively constant before reducing again after age 50.
- **Income**: A person with earnings in the top quartile is about 1.3 times more likely to have life insurance compared to an otherwise identical person (including education level, age etc.), but with earnings in the next (second) quartile. For *Disability* policy ownership this distinction is much more pronounced with the factor being 2.2.
- **Group cover**: The main determinants for the level of group cover are salaries and wages (as opposed to total personal income), age and education level.



5 THE *INSURANCE GAP* AT A MICRO LEVEL

5.1 EXPECTED NUMBER OF DEATH AND *DISABILITY* EVENTS

The table below shows the number of *Earners* that will be involved (on an expected basis) in death¹ and *Disability*² events during 2013.

	Death	<i>Disability</i>
Number of <i>Earners</i>	13.0m	13.0m
Number of death / <i>Disability</i> events expected per year	130,050	43,065
Number of death / <i>Disability</i> events expected per day	356	118

5.2 THE SIZE OF THE *INSURANCE GAP* PER *EARNER*

The *Insurance Gap* can also be presented as amounts reflecting the “average South African *Earners*”:

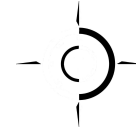
	Death	<i>Disability</i>
<i>Insurance Need (Rand)</i>	1 164 607	1 878 861
Total income at risk (p.a.)	119 843	119 843
* Replacement ratio	64%	98%
* Capitalisation factor	15.3	15.9
<i>Actual Cover (Rand)</i>	-451 107	-745,367
Insurance: Retail	-249 733	-201 443
Insurance: Group	-201 374	-358 317
Government grants	-	-185 608
<i>Insurance Gap (Rand)</i>	713 500	1 133 493
Gap as % of cover needed	61%	60%
Cover adequacy (Cover / Need)	39%	40%

As mentioned earlier:

- The terms in italics are defined in Appendix A.
- Some comments on the high-level approach can be found in Appendix B.
- Terms used to define the *Insurance Need* are discussed in the C-Appendices.
- The derivation of the *Actual Cover* is discussed in the D-Appendices.

¹ By reference to the demographics of the *Earners* in each segment and application of the AIDS model of the Actuarial Society of South Africa (2003).

² By reference to a disability investigation of the Actuarial Society of South Africa calibrated so that ratio of disabilities to deaths is consistent with group premium rates obtained.



6 RESPONSES TO THE *INSURANCE GAP*

6.1 CONSIDERING THREE POSSIBLE RESPONSES

In response to the gap in insurance cover, South African *Earners* could increase their death and *Disability* insurance cover.

In the absence of sufficient insurance cover, a household could also adjust its expenditure post the death or disablement of an *Earner*.

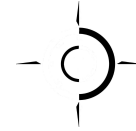
Alternatively, the burden of under-insurance could be shifted to the remaining household members of working-age by requiring increased contributions to total household income.

6.2 EXTENT OF RESPONSE REQUIRED

The table below provides insight into the implication of each of the above options for the average South African *Earner*.

		Death	Disability
Purchase additional insurance	Cost of insurance (as % of current earnings) ³	2.9%	1.8%
	Increase in current level of cover (e.g. 1.5x implies additional cover required equal to 1.5 times current level)	1.6	1.5
Reduce household expenditure	Required reduction in household expenditure	33%	37%
Additional income required	Extra income required per month (net of tax)	3,861	5,941
	Extra income as % of <i>Earner's</i> income prior to disability	44%	59%

³ To provide an indication on the cost to "close the gap", we obtained indicative premium rates from a number of life insurers. Information was obtained in respect of lump sum life cover and lump sum disability (total and permanent) cover, for an "average group fund member". As such we base our estimate for closing the *Insurance Gap* on the cost of cover in the group risk market for fairly large units of cover. The actual cost where the gap is closed by individual retail policies is likely to be substantially higher.



7 THE INSURANCE GAP PER EARNINGS GROUP

7.1 SEGMENTS

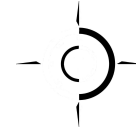
Due to the diversity of South African socio-economic landscape, the concept of the “average South African *Earners*” is less clear than (say) the “average Swedish *Earners*”. For this reason, it made sense to consider the *Insurance Gap* for different socio-economic groups. For this we used personal income as broad indicator for socio-economic class.

The 13 million *Earners* were divided into 5 groups with equal representation. The first group represented the 20% poorest individuals within the universe of *Earners*. The next group represented the next 20% poorest individuals, etc:

Segment	Net (after tax) earnings	Number of <i>Earners</i>	Average age
Poorest 20%	Up to R18 034pa	2.6	37
2nd Quintile	R18 034pa - R37 245pa	2.6	36
3rd Quintile	R37 246pa - R71 097pa	2.6	37
4th Quintile	R71 098pa - R148 718pa	2.6	38
Richest 20%	R148 719pa+	2.6	42
Total		13.0	38

7.2 FINDINGS

For the death event, the *Insurance Gap* for as percentage of the *Insurance Need* shows a strong negative correlation with personal income. This would have been the case for the *Disability* event as well had it not been for government grants. The level of the grant is such that it covers the full *Disability Insurance Need* of the poorest 20% *Earners*. Most *Earners* within this (poorest 20%) group would therefore not have any need for additional disability insurance.



7.3 THE SIZE OF THE *INSURANCE GAP* PER SEGMENT

The tables below highlight how different the *Insurance Gap* is for the different segments. We show figures for the “average *Earners*” within each segment.

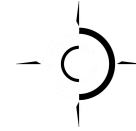
7.3.1 DEATH *INSURANCE GAP* PER *EARNER*

	Poorest 20%	2nd Quintile	3rd Quintile	4th Quintile	Richest 20%
Insurance Need (Rand)	54 131	283 023	622 033	1 260 409	3 601 595
Total income at risk	8 631	26 223	51 957	110 961	401 217
* Replacement ratio	36%	57%	66%	67%	63%
* Capitalisation factor	17.5	18.8	18.1	17.0	14.2
Actual Cover (Rand)	-3 678	-28 261	-122 596	-380 668	-1 719 303
Insurance: Retail	-491	-4 789	-33 180	-155 629	-1,053,895
Insurance: Group	-3 186	-23 473	-89 417	-225 039	-665,407
Government grants	-	-	-	-	-
Insurance Gap (Rand)	50 453	254 761	499 437	879 741	1 882 292
Gap as % of <i>Insurance Need</i>	93%	90%	80%	70%	52%
Cover adequacy	7%	10%	20%	30%	48%
Number of <i>Earners</i> (million)	2.6	2.6	2.6	2.6	2.6
Total <i>Insurance Gap</i> (R'bn)	131	663	1 299	2 287	4 899

For example, the 20% richest South African *Earners* would typically need life cover of about R3.6m. Typically such an *Earners* would only have cover of R1.7m, leaving an *Insurance Gap* of almost R1.9m.

7.3.2 DISABILITY *INSURANCE GAP* PER *EARNER*

	Poorest 20%	2nd Quintile	3rd Quintile	4th Quintile	Richest 20%
Insurance Need (Rand)	158 402	504 968	972 138	1 938 460	5 817 301
Total income at risk	8 631	26 223	51 957	110 961	401 217
* Replacement ratio	100%	100%	100%	99%	98%
* Capitalisation factor	18.4	19.3	18.8	17.7	14.8
Actual Cover (Rand)	-321 759	-347 668	-396 607	-607 685	-2 052 018
Insurance: Retail	-207	-2 413	-22 577	-118 724	-862 727
Insurance: Group	-5 820	-44 477	-169 131	-413 027	-1 158 538
Government grants	-315 732	-300 778	-204 900	-75 934	-30 753
Insurance Gap (Rand)	-163 358	157 300	575 531	1 330 775	3 765 283
Gap as % of cover needed	-103%	31%	59%	69%	65%
Cover adequacy	>100%	69%	41%	31%	35%
Number of <i>Earners</i> (million)	2.6	2.6	2.6	2.6	2.6
Total <i>Insurance Gap</i> (R'bn)	-425	409	1 497	3 459	9 801



7.4 RESPONSES TO THE *INSURANCE GAP* PER SEGMENT

7.4.1 DEATH GAP

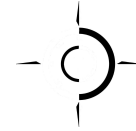
The table below gives (for each of the segments) the degree of intervention required for each of three possible responses to the *Insurance Gap*.

		Poorest 20%	2nd Quintile	3rd Quintile	4th Quintile	Richest 20%	All
Purchase additional insurance	Cost of insurance (as % of earnings)	2.8%	4.7%	4.6%	3.8%	2.3%	2.9%
	Increase in current level of cover (e.g. 1.5x implies additional cover required equal to 1.5 times current level)	13.7	9.0	4.1	2.3	1.1	1.6
Reduce household expenditure	Required reduction in household expenditure	7%	27%	39%	35%	36%	33%
Additional income required	Extra income required per month (net of tax)	273	1,379	2,703	4,761	10,186	3,861
	Extra income as % of <i>Earners</i> ' income prior to disability	38%	63%	62%	54%	37%	44%

7.4.2 DISABILITY GAP

For the *Disability* event, the figures are as follows:

		Poorest 20%	2nd Quintile	3rd Quintile	4th Quintile	Richest 20%	All
Purchase additional insurance	Cost of insurance (as % of earnings)	-3.6%	1.2%	2.1%	2.3%	1.8%	1.8%
	Increase in current level of cover (e.g. 1.5x implies additional cover required equal to 1.5 times current level)	-0.5	0.5	1.5	2.2	1.8	1.5
Reduce household expenditure	Required reduction in household expenditure	-16%	13%	34%	39%	46%	37%
Additional income required	Extra income required per month (net of tax)	-856	824	3,016	6,975	19,734	5,941
	Extra income as % of <i>Earners</i> ' income prior to disability	-119%	38%	70%	75%	59%	59%



8 THE *INSURANCE GAP* PER EDUCATION LEVEL

8.1 SEGMENTS

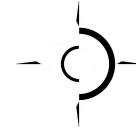
Each *Earners* is allocated to one of six education categories depending on the highest level of education achieved:

- PS or lower: Primary school not completed
- Some HS: Completed primary school, but not high school.
- Matric: Completed high school, but no diploma or degree
- Diploma: Diploma but no degree
- Degree: Degree or more.

Segment	Number of <i>Earners</i> (in million)	Average annual Earnings in Rand (gross of tax)	Average age
PS or lower	2.3	35 759	43
Some HS	4.5	57 426	37
Matric	4.0	116 669	35
Diploma	1.1	205 875	39
Degree	1.1	305 144	40
Total	13.0	105 494	38

8.2 FINDINGS

For the death event, the *Insurance Gap* as percentage of the *Insurance Need* shows a strong negative correlation with highest level of education achieved. This would have been the case for the *Disability* event as well had it not been for government grants. These grants are targeted at the poor where there is a bias to lower levels of education.



8.3 THE SIZE OF THE *INSURANCE GAP* PER SEGMENT

The tables below highlight how different the *Insurance Gap* is for the different segments. We show figures for the “average *Earners*” within each segment.

8.3.1 DEATH *INSURANCE GAP* PER *EARNER*

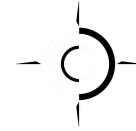
	PS or lower	Some HS	Matric	Diploma	Degree
Insurance Need (Rand)	294 233	620 965	1 463 429	2 126 329	3 137 446
Total income at risk	37 206	61 414	131 039	240 279	368 484
* Replacement ratio	66%	66%	66%	62%	59%
* Capitalisation factor	11.9	15.3	16.9	14.3	14.4
Actual Cover (Rand)	-61 460	-145 137	-457 023	-1 067 221	-1 872 133
Insurance: Retail	-18 153	-54 365	-247 086	-599 662	-1 189 561
Insurance: Group	-43 307	-90 773	-209 936	-467 559	-682 572
Government grants	-	-	-	-	-
Insurance Gap (Rand)	232 773	475 828	1 006 407	1 059 108	1 265 313
Gap as % of cover needed	79%	77%	69%	50%	40%
Cover adequacy	21%	23%	31%	50%	60%
Number of <i>Earners</i> (million)	2.3	4.5	4.0	1.1	1.1
Total <i>Insurance Gap</i> (R'bn)	525	2 159	4 027	1 184	1 384

For example, those with matric as highest qualification would typically need life cover of about R1.5m. Typically such an *Earners* would only have cover of R0.5m, leaving an *Insurance Gap* of R1.0m.

8.3.2 DISABILITY *INSURANCE GAP* PER *EARNER*

	PS or lower	Some HS	Matric	Diploma	Degree
Insurance Need (Rand)	461 205	973 066	2 263 106	3 557 687	5 436 565
Total income at risk	37 206	61 414	131 039	240 279	368 484
* Replacement ratio	99%	99%	98%	98%	98%
* Capitalisation factor	12.5	16.0	17.5	15.1	15.1
Actual Cover (Rand)	-286 771	-438 793	-757 307	-1 436 886	-2 211 881
Insurance: Retail	-10 678	-37 284	-200 108	-517 483	-957 494
Insurance: Group	-71 124	-160 916	-381 992	-837 191	-1 193 030
Government grants	-204 969	-240 593	-175 207	-82 212	-61 357
Insurance Gap (Rand)	174 434	534 273	1 505 799	2 120 801	3 224 684
Gap as % of cover needed	38%	55%	67%	60%	59%
Cover adequacy	62%	45%	33%	40%	41%
Number of <i>Earners</i> (million)	2.3	4.5	4.0	1.1	1.1
Total <i>Insurance Gap</i> (R'bn)	393	2 424	6 026	2 372	3 526

For example, *Earners* with at least a degree would typically need *Disability* cover of about R5.4m. Typically such an *Earners* would only have cover of R2.2m, leaving a substantial *Insurance Gap* of R3.2m.



8.4 RESPONSES TO THE *INSURANCE GAP* PER SEGMENT

8.4.1 DEATH GAP

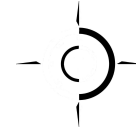
The table below gives (for each of the segments) the degree of intervention required for each of three possible responses to the *Insurance Gap*.

		PS or lower	Some HS	Matric	Diplo ma	Degre e	All
Purchase additional insurance	Cost of insurance (as % of earnings)	3.0%	3.7%	3.7%	2.1%	1.6%	2.9%
	Increase in current level of cover (e.g. 1.5x implies additional cover required equal to 1.5 times current level)	3.8x	3.3x	2.2x	1.0x	0.7x	1.6x
Reduce household expenditure	Required reduction in household expenditure	30%	37%	40%	26%	23%	33%
Additional income required	Extra income required per month (net of tax)	1,260	2,575	5,446	5,731	6,847	3,861
	Extra income as % of <i>Earner's</i> income prior to disability	42%	54%	56%	33%	27%	44%

8.4.2 DISABILITY GAP

For the *Disability* event, the figures are as follows:

		PS or lower	Some HS	Matric	Diplo ma	Degre e	All
Purchase additional insurance	Cost of insurance (as % of earnings)	0.9%	1.7%	2.2%	1.7%	1.7%	1.8%
	Increase in current level of cover (e.g. 1.5x implies additional cover required equal to 1.5 times current level)	0.6	1.2	2.0	1.5	1.5	1.5
Reduce household expenditure	Required reduction in household expenditure	17%	31%	43%	35%	38%	37%
Additional income required	Extra income required per month (net of tax)	914	2,800	7,892	11,115	16,901	5,941
	Extra income as % of <i>Earner's</i> income prior to disability	29%	55%	72%	56%	55%	59%



9 THE INSURANCE GAP PER BY AGE GROUP

9.1 SEGMENTS

Earners were categorised based on their age last birthday:

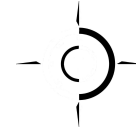
Segment	Number (in million)	Average Earnings (gross of tax)	Average age
<30	3.3	73 757	25
30-40	4.4	112 259	34
40-50	3.0	147 812	44
50-55	1.1	153 829	52
55+	1.2	175 217	58
Total	13.0	119 843	38

9.2 FINDINGS

Those younger than forty are most at risk.

Earners in the older age categories (55+) tend to be over-insured – i.e. the *Insurance Need* is more likely to be lower than the *Actual Cover* for older *Earners* compared to their younger counterparts:

- *Insurance Need*: As mentioned in Appendix A, it is assumed that an *Insurance Need* only exists up to intended retirement age. As such, the *Insurance Need* for older *Earners* is a much smaller multiple than current earnings compared to younger *Earners*. This is evidenced in the Capitalisation factors in the tables in section 9.3 below.
- *Actual Cover*: Lump sum benefits do not take into account the diminishing need for insurance with increasing age.



9.3 THE SIZE OF THE *INSURANCE GAP* PER SEGMENT

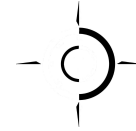
The tables below highlight how different the *Insurance Gap* is for the different segments. We show figures for the “average *Earners*” within each segment.

9.3.1 DEATH *INSURANCE GAP* PER *EARNER*

	<30	30-40	40-50	50-55	55+
Insurance Need (Rand)	1 084 851	1 438 495	1 340 395	766 578	299 364
Total income at risk	73 757	112 259	147 812	153 829	175 217
* Replacement ratio	58%	64%	67%	65%	62%
* Capitalisation factor	25.3	20.2	13.6	7.6	2.8
Actual Cover (Rand)	-190 906	-381 913	-628 664	-719 333	-736 612
Insurance: Retail	-94 044	-206 548	-349 142	-402 426	-452 777
Insurance: Group	-96 862	-175 365	-279 522	-316 907	-283 835
Government grants	-	-	-	-	-
Insurance Gap (Rand)	893 945	1 056 582	711 731	47 245	-437 247
Gap as % of cover needed	82%	73%	53%	6%	-146%
Cover adequacy	18%	27%	47%	94%	>100%
Number of <i>Earners</i> (million)	3.3	4.4	3.0	1.1	1.2
Total <i>Insurance Gap</i> (R'bn)	2 982	4 616	2 132	54	-505

9.3.2 DISABILITY *INSURANCE GAP* PER *EARNER*

	<30	30-40	40-50	50-55	55+
Insurance Need (Rand)	1 874 789	2 284 988	2 045 198	1 232 890	566 293
Total income at risk	73 757	112 259	147 812	153 829	175 217
* Replacement ratio	99%	98%	98%	98%	98%
* Capitalisation factor	25.8	20.7	14.1	8.2	3.3
Actual Cover (Rand)	-635 273	-750 598	-899 432	-775 746	-613 685
Insurance: Retail	-97 614	-207 715	-295 125	-253 970	-182 271
Insurance: Group	-221 310	-331 386	-489 372	-461 539	-413 124
Government grants	-316 349	-211 497	-114 936	-60 237	-18 290
Insurance Gap (Rand)	1 239 516	1 534 390	1 145 765	457 144	-47 392
Gap as % of cover needed	66%	67%	56%	37%	-8%
Cover adequacy	34%	33%	44%	63%	>100%
Number of <i>Earners</i> (million)	3.3	4.4	3.0	1.1	1.2
Total <i>Insurance Gap</i> (R'bn)	4 134	6 704	3 433	526	-55



9.4 RESPONSES TO THE *INSURANCE GAP* PER SEGMENT

9.4.1 DEATH GAP

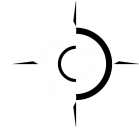
The table below gives (for each of the segments) the degree of intervention required for each of three possible responses to the *Insurance Gap*.

		<30	30-40	40-50	50-55	55+	All
Purchase additional insurance	Cost of insurance (as % of earnings)	5.8%	4.5%	2.3%	0.1%	-1.2%	2.9%
	Increase in current level of cover (e.g. 1.5x implies additional cover required equal to 1.5 times current level)	4.7x	2.7x	1.1x	0.1x	n/a	1.6x
Reduce household expenditure	Required reduction in household expenditure	47%	55%	30%	2%	-16%	33%
Additional income required	Extra income required per month (net of tax)	4,837	5,717	3,851	256	-	3,861
	Extra income as % of <i>Earners</i> ' income prior to disability	85%	69%	36%	2%	-19%	44%

9.4.2 DISABILITY GAP

For the *Disability* event the figures are as follows:

		<30	30-40	40-50	50-55	55+	All
Purchase additional insurance	Cost of insurance (as % of earnings)	3.2%	2.6%	1.5%	0.6%	-0.1%	1.8%
	Increase in current level of cover (e.g. 1.5x implies additional cover required equal to 1.5 times current level)	195%	204%	127%	59%	-8%	152%
Reduce household expenditure	Required reduction in household expenditure	46%	55%	34%	12%	-1%	37%
Additional income required	Extra income required per month (net of tax)	6,496	8,042	6,005	2,396	-248	5,941
	Extra income as % of <i>Earners</i> ' income prior to disability	106%	86%	49%	19%	-2%	59%



APPENDIX A: DEFINITIONS AND PRINCIPLES

Where assumptions were required, we generally aimed to set these at objective “best estimate” levels. However, where this proved difficult, our approach was to rather err in the direction that would provide a lower *Insurance Gap*.

ACTIVE EARNER (OR “EARNER” FOR SHORT)

These are the individuals for which an *Insurance Gap* was calculated and aggregated to arrive at the total gap for purposes of this study.

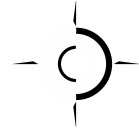
To be included, an individual had to be [a] South African, [c] earning a regular income and [c] between the ages of 18 and 65.

ACTUAL COVER

The *Actual Cover* is the total amount of existing insurance cover of various kinds.

Cover types designed to provide for shorter term expenses are excluded (consistent with the definition for *Insurance Need*). We therefore exclude funeral insurance cover, cover from the Road Accident Fund, Workman’s Compensation cover and short-term insurance cover:

- The **Road Accident Fund** provides cover for expenses incurred (medical and legal) as well as loss of support that are the result of certain types of road accidents. This source of cover has been excluded primarily since it is unlikely that an individual will take this into consideration when doing a financial needs analysis. In addition, it is noted that the potential overlap between this study and the RAF’s cover is relatively small, insofar as the biggest proportion of RAF payouts relate to settlements other than loss of support.
- **Workman’s compensation** cover is of a short-term, immediate nature. Since the definition of *Insurance Need* excludes such short-term costs, this source of cover was excluded from the study.
- **Short-term insurers** also provide a degree of death and *Disability* cover. The extent thereof is limited however. Given [a] the fairly small magnitude and [b] the complexities involved in obtaining detailed data from providers this source was pragmatically excluded.



DISABILITY

For purposes of this report, “*Disability*” is defined as “total and permanent” disability, i.e. where it is unlikely for the disabled person ever to be able to work again.

HOUSEHOLD BUDGET DEFICIT (POST-EVENT)

This is calculated as an intermediate step in the derivation of the *Insurance Need*. It is the difference between:

- Household expenses post event (an annual figure): This takes into account the fact that, in a death event, expenses directly related to the earner considered will disappear from the household expense budget.
- Household income post-event (an annual figure): This takes into account income that will continue after the death / disability event mostly from other *Earners* and retired household members.

INSURANCE GAP

The *Insurance Gap* is defined as the difference between the *Insurance Need* and *Actual Cover*.

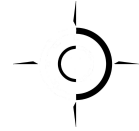
The *Insurance Gap* represents the total net additional cover that will be purchased by South African *Active Earners* in the following situation:

- Those that are under-insured **purchase additional** cover, so that their *Actual Cover* equals their *Insurance Need*
- Those that are over-insured **reduce their current *Actual Cover*** to reflect their respective *Insurance Need*.
- Those that do not have an *Insurance Need*, but do have *Actual Cover*, **terminate their policies.**

INSURANCE NEED

The *Insurance Need* is the amount of cover required to meet the need that is created by the death and *Disability* events.

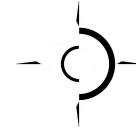
It excludes any short-term expenses related to the risk event. E.g. for the death event, funeral costs were not taken into account. Neither was additional medical or equipment expenditure that may be required as a result of the *Disability*.



It was assumed that the household maintains its current living standards after the death/*Disability* of the *Earners*. Expenditure post death or *Disability* changes only insofar as this event would lead to a reduction or elimination of certain household expenses from that point forward.

It was assumed that an *Insurance Need* only exists up to intended retirement age. From this point onwards it was assumed that prior retirement provision would fund the household's expenditure. This study therefore ignores the extent to which insufficient allowance may currently be made by *Earners* for post-retirement expenses.

Retirement age was taken to be between 60 and 65, depending on the *Earners*' current age.



APPENDIX B: DATA SOURCES AND HIGH-LEVEL APPROACH

INSURANCE NEED

The primary source of information was the “metadata” from Statistic South Africa’s Income and Expenditure Survey (2010/2011). Personal information, personal income, household information and household income tables were used to derive the insurance need.

The total level of income was adjusted to reflect 2013 estimated earnings as per prior work performed by the BMR.

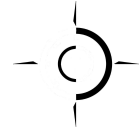
ACTUAL COVER

All information needed to calculate the *Insurance Need* is available on the Statistics South Africa dataset, allowing accurate calculation for each of the sample points. This, however, is not the case for *Actual Cover*. These datasets do not contain any information on product ownership or insurance cover.

Hence additional resources had to be used to [1] determine the total level of *Actual Cover* and [2] assign this cover to each of the sample points in the dataset. For this we used two True South developed models (see Appendix D2).

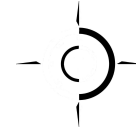
Information used to calibrate these models came from a number of sources:

- Life insurers: The long-term insurance industry is the primary source of death and *Disability* cover. A questionnaire was sent to all relevant insurers (ASISA and non-ASISA members alike). Insurers were requested to provide information on the total payments (per cover type, gender, age etc.) that would be made in the hypothetical scenario where all their policyholders were subject to (separate and independent) death and *Disability* events. Most information was of exceptionally high quality. Where material inconsistencies were identified these were discussed with the insurers. This often led to adjustments being made / new information being supplied.
- Financial Services Board (FSB) data: To calculate the adjustment required for non-respondents to our questionnaires, we used publicly available information supplied by insurers to the FSB via the “Long –Term returns”.
- Self-insured pension schemes: Self-insured schemes provide a material section of the population with risk benefits. Allowance was made for such



cover based on discussions with advisors to these schemes as well as publicly available information.

- *Disability* income grants: Government is a major source of *Disability* cover through its *Disability* income grant and the study paid due consideration to the conditions for payment of these grants.



APPENDIX C: INSURANCE NEED

APPENDIX C1: PERSONAL INCOME AT RISK

Personal income represents income from all sources, including cash salary, employer contributions and deductions, goods and services such as fringe benefits and lump sum payments provided by employers, government and other grants, income from lotteries, income from the sale of fixed assets, inheritances, income from lobola, stokvel and home production as well as income from dividends, shares and director emoluments.

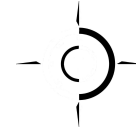
APPENDIX C2: REPLACEMENT RATIO

The replacement ratio represents the proportion of the household member's personal income that "will be missed" after the death or *Disability* event. It is calculated as the *Household Budget Deficit (post-event)* divided by personal income at risk (Appendix C1 above).

For the death *Insurance Need*, the replacement ratio takes account of tax (for the most part, life insurance proceeds are not taxed), the fact that no insurance cover is required for single-member families and the fact that, when an *Earners* dies, the household expenditure will be lower post-event. In addition, savings with a wealth-creation motive was also considered to not form part of the post-event income requirement. For the *Disability Insurance Need* the replacement ratio takes account mostly of the savings-element with wealth creation motive that will not be required in the post-event situation.

Tax adjustment: Some insurance proceeds will not be taxed. Even where proceeds are taxed, income tax will still reduce due to the interaction between lower post-event income and the aggressive nature of tax brackets. Where proceeds are not taxed (mostly life insurance), the portion of personal income that was directed towards income tax was removed. Where proceeds are taxed (mostly *Disability*) we allowed for reduced tax due to lower required post-event income (see below). Actual tax brackets were used to calculate this adjustment.

Other adjustments were made for imputed rent; savings with wealth-creation motive were also removed. To the extent that savings represent provision for retirement, it needs to remain in the expense base. (We are relying on these contributions to provide the household with an income from the intended



retirement age). To the extent that it represents wealth creation, it should be excluded from the expense base in line with definitions of Insurance Need (maintenance of current standard of living).

Family size adjustment: For a death event some expenditure will disappear from the household budget. For single-member families it was assumed that only support payments to other households would need to be provided for. For other families, we allocated expenses to different categories:

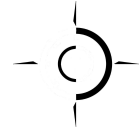
- "Fixed expenses": These expenses cannot sensibly be assigned /allocated to any specific member in the household and would also not change much should the family become smaller. Examples include expenditure on housing, washing and cleaning expenditure and domestic worker wages.
- "Adult expenses": Post-event expenditure is adjusted by taking into account the number of adults in the household before and after the event. Examples include alcoholic beverages.
- "People expenses": Post-event expenditure is adjusted by taking into account the number of people in the household before and after the event. Examples include food, clothing, reading matter and stationary.

APPENDIX C3: CAPITALISATION MULTIPLE

A capitalisation factor is calculated by determining the number of years that the *Earners* would still have contributed to the household up to retirement age only.

Generally speaking, the term is the period that household members would have remained dependent on income at risk. As current retirement provision expenditure was retained in the expense base, it is appropriate to allow the dependency duration to cease at what would have been the retirement date.

An interest rate that exceeds living expense inflation by 1.5% was assumed.



APPENDIX D: ACTUAL COVER

APPENDIX D1: ADJUSTMENTS TO THE ACTUAL COVER DATA

CAPITALISING *DISABILITY* INCOME COVER

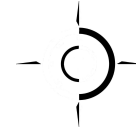
Income *Disability* cover was capitalised by discounting regular payments. Payments were multiplied by annuity factors which took account the term to retirement (dependant on current age) as well as whether payments would escalate or not.

ALLOWING FOR NON-RESPONDENTS

Publicly available insurer-specific information was obtained from the Financial Services Board to derive a response factor. The response factor was between 85% and 95% depending on the type of cover considered. This factor was used to ratio-up the information received in order to adjust for non-respondents.

EXCLUDING OUT-OF-SCOPE COVER

As the study is concerned with the *Actual Cover of Active Earners* only, we had to (approximately) exclude such (retail) cover held by retired individuals, unemployed individuals, housewives and adult students.



APPENDIX D2: TRUE SOUTH OWNERSHIP- AND COVER MODELS

The *Actual Cover* had to be allocated to each of the sample points on the Statistics South Africa Income and Expenditure dataset. This was done separately for individual death cover, individual *Disability* cover, group death cover and group *Disability* cover using two True South-developed models:

- **TSPO-model**: The T rue South Product Ownership model returns the probability of a South African *Earner* having death or *Disability* cover based on supplied information such as education, age, income, marital status and family composition.
- **TSCL-model**: The T rue South Cover Level models return the level of cover given that cover does exist based on similar information required by the TSPO-model.

Genetic algorithm technology⁴ was used to solve the optimization problem of fitting the model parameters. As mentioned elsewhere, input for deriving the parameters were obtained from a wide variety of sources such as AMPS, Financial Services Board information and the Insurer questionnaires.

The total *Actual Cover* for each of the sample points was derived by multiplication of the probability of being insured (from the TSPO-model) with the average level of cover (from the TSCL-model) for each of the four cover types (death vs. *Disability* and retail vs. group).

⁴ A genetic algorithm is an experience-based technique for problem solving that mimics the process of natural evolution (i.e. using concepts inspired by natural evolution, such as inheritance, mutation, selection, and crossover). This approach is routinely used to generate useful solutions to optimization and search problems, including previously unsolvable, complex non-linear problems.