

## Premium patterns: Caveat emptor

Assessing the consumer implications of various premium pattern options that are available from South African life insurers

May 2012



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**True South Actuaries and Consultants**

Paul Zondagh - [paul@truesouth.co.za](mailto:paul@truesouth.co.za)

[www.truesouth.co.za](http://www.truesouth.co.za)

021 914 6440

# 1 INTRODUCTION

## 1.1 BACKGROUND

In the South African industry, life insurers tend to provide prospective policyholders with a number of different premium patterns from which to choose.

In practise this means that, while the sum insured increases annually in line with (say) inflation, the level of premium increases can vary considerably. As a general rule: the lower the initial premium that is available from a provider, the higher the annual increases thereafter.

## 1.2 BRIEF

Brightrock (Pty) Ltd ("Brightrock") retained True South Actuaries and Consultants ("True South") to investigate the consumer implications of these various premium pattern options that are commercially available from South African life insurers.

This report contains our findings and was initially addressed to the management of Brightrock, who have since authorised distribution hereof in the public domain.

## 1.3 HIGH-LEVEL APPROACH

For this purpose True South obtained 126 quotes, using different premium patterns, from four of the major providers of risk cover under the Long-Term Insurance Act.

The quotes provided for life cover (whole of life), lump sum disability cover (up to age 65) and income continuation cover (up to age 65) for a number of hypothetical insured lives (split 50/50 between male/female and with entry ages respectively at 25, 30, 35, 40, 50 and 60).

Our analysis focussed primarily on how the different premium pattern options, available from a provider, compare against each other (for each hypothetical insured life).

## 2 EXECUTIVE SUMMARY OF FINDINGS

### ***Life insurers offer a lot of choice ...***

It might be argued that increasing commoditisation of life insurance cover has been one of the drivers that brought about the divergent premium patterns generally offered by South African life insurers.

The consumer now not only makes a choice between different providers, but also has to select a pattern of future premium increases that will best match his/her needs and circumstances (current and future).

### ***...which puts the onus on the consumer to choose carefully...***

While increased choice is generally beneficial for the consumer, there is a risk that consumers might be tempted to simply select the cheapest initial premium for their desired cover level, without having proper regard for the future premium increases that are required under that policy.

### ***... since the wrong choice might be very costly...***

If a consumer simply picks the lowest initial premium (i.e. possibly with the most aggressive future increases) the premium will rapidly become more expensive over time and might even become unaffordable eventually.

This could lead to a forced lapse, the effect of which could be further exacerbated if that individual's health has deteriorated at that point and he/she is unable to find alternative cover (when it is possibly needed most).

### ***...highlighting the value of getting proper advice.***

In our view these results highlight the value of proper financial advice at the outset. This will ensure that the consumer makes a fully informed decision, which also achieves a balance between current and future affordability.

### 3 STRUCTURE OF THE REMAINDER OF THIS REPORT

#### 3.1 MAIN BODY

<i>Section 4</i>	<b>Lifetime cost of cover</b>	<i>Examines the total cost of cover over the lifetime of the insured (for each of the quotes) and quantifies the value that builds up over time (under the different premium patterns)</i>
<i>Section 5</i>	<b>Share of wallet over time</b>	<i>For each quote, expresses the change in spend over time as a % of the insured's income</i>

#### 3.2 APPENDICES

<i>Appendix A</i>	<b>Overview of the quotes</b>	<i>A high-level overview of the cover for which quotes were requested &amp; the premiums quoted per provider</i>
<i>Appendix B</i>	<b>Premium progression</b>	<i>Graphical overview of premium progression over the first 20 policy years for entry ages 25, 30, 35 &amp; 40</i>
<i>Appendix C</i>	<b>Assumptions used</b>	<i>A high-level overview of the salient assumptions used during the analysis hereof</i>

## 4 LIFETIME COST OF COVER

Appendix B graphically shows the premium progression over the initial 20 policy years for entry ages up to 40. As is evident and intuitive, it generally follows that the cheaper initial premium options soon become more expensive (due to having more aggressive annual increases).

In order to analyse the impact hereof; we calculated the present value<sup>1</sup> of the premiums that would be paid over the lifetime of the insured life on each quote (i.e. until death<sup>2</sup> & in the absence of lapses). The results are shown in the sections that follow below.

### 4.1 SUMMARY OF RESULTS

- In most instances a small initial saving becomes significantly more expensive, when viewed over the lifetime of the insured. The extent varies by provider, e.g. for Provider B (with very aggressive premium increase patterns), the extra cost varies between 11% and 74%, compared to Provider D (with less aggressive premium increase patterns) where it varies between 6% and 36%.
- There is a general tendency for the lifetime costs of the various premium patterns to converge at the higher entry ages.
- Unless the policyholder has a relatively short time horizon (e.g. where the cover is only required for a specific purpose for a specific number of years), the initial saving by picking a lower starting premium (with more aggressive future increases) may well be a bad financial decision.
- This highlights the value of proper advice at the point of sale. While quotations show the future premiums, the consumer's natural inclination may often be to simply pick the cheapest initial premium that is available from a provider.

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<sup>1</sup> Using the discount rate as set out in Appendix C

<sup>2</sup> According to the mortality table as set out in Appendix C



## 4.2 PROVIDER A

The table below shows the initial monthly premium of each quote, as well as the present value of the total lifetime premiums thereof.

	Gender	Premium pattern A1		Premium pattern A2		Premium pattern A3	
		Initial premium	Lifetime premium	Initial premium	Lifetime premium	Initial premium	Lifetime premium
<b>Age 25 at entry</b>	Female	436	415 672	413	416 842	538	277 587
<b>Age 30 at entry</b>		532	418 835	520	436 315	685	310 271
<b>Age 35 at entry</b>		738	480 567	749	455 919	984	344 910
<b>Age 40 at entry</b>		1 003	491 885	1 038	475 991	1 361	378 383
<b>Age 50 at entry</b>		1 583	507 077	1 721	487 009	2 182	411 657
<b>Age 60 at entry</b>		2 333	307 372	2 566	305 499	3 008	301 980
<b>Age 25 at entry</b>	Male	536	362 744	501	370 422	647	252 387
<b>Age 30 at entry</b>		569	383 933	551	404 817	721	296 018
<b>Age 35 at entry</b>		692	478 694	707	443 373	934	344 105
<b>Age 40 at entry</b>		931	498 459	976	476 355	1 291	388 034
<b>Age 50 at entry</b>		1 693	536 295	1 873	520 795	2 404	458 193
<b>Age 60 at entry</b>		2 841	364 564	3 166	371 504	3 782	376 241

The next table compares the initial saving (i.e. if the cheapest initial premium is selected), with the additional lifetime cost of that selection (versus the alternative of initially selecting the highest premium). E.g. a 25 year-old female can initially save R125 per month, but in doing so will spend R139 254 more over her lifetime (50% more than what the more expensive initial premium would have cost over her lifetime), with the initially cheaper option becoming more expensive from year 8.

	Gender	Initial monthly saving	Lifetime extra cost	Extra cost as % of lifetime premium of the most expensive initial premium	Crossover point
<b>Age 25 at entry</b>	Female	125	139 254	50%	From year 8
<b>Age 30 at entry</b>		165	126 045	41%	From year 8
<b>Age 35 at entry</b>		246	135 658	39%	From year 9
<b>Age 40 at entry</b>		358	113 501	30%	From year 8
<b>Age 50 at entry</b>		599	95 420	23%	From year 7
<b>Age 60 at entry</b>		675	5 391	2%	From year 15
<b>Age 25 at entry</b>	Male	146	118 034	47%	From year 7
<b>Age 30 at entry</b>		170	108 798	37%	From year 8
<b>Age 35 at entry</b>		242	134 590	39%	From year 9
<b>Age 40 at entry</b>		360	110 425	28%	From year 9
<b>Age 50 at entry</b>		711	78 102	17%	From year 7
<b>Age 60 at entry</b>		941	-11 677	-3%	From year 13

### 4.3 PROVIDER B

The table below shows the initial, monthly premium of each quote, as well as the present value of the total lifetime premiums thereof.

	Gender	Premium pattern B1		Premium pattern B2		Premium pattern B3	
		Initial premium	Lifetime premium	Initial premium	Lifetime premium	Initial premium	Lifetime premium
<b>Age 25 at entry</b>	Female	504	708 925	536	484 688	768	408 125
<b>Age 30 at entry</b>		687	786 759	722	579 818	1 065	493 305
<b>Age 35 at entry</b>		986	937 530	1 040	741 680	1 481	583 594
<b>Age 40 at entry</b>		1 304	984 707	1 367	816 004	1 934	640 090
<b>Age 50 at entry</b>		2 008	944 955	2 115	834 244	2 850	661 311
<b>Age 60 at entry</b>		2 955	774 830	3 160	734 847	4 127	587 212
<b>Age 25 at entry</b>	Male	507	605 888	555	443 631	776	396 344
<b>Age 30 at entry</b>		616	611 156	664	478 577	957	425 943
<b>Age 35 at entry</b>		823	672 971	891	566 568	1 220	461 109
<b>Age 40 at entry</b>		1 164	773 807	1 254	678 992	1 771	571 731
<b>Age 50 at entry</b>		2 480	919 683	2 651	872 744	3 588	765 425
<b>Age 60 at entry</b>		3 583	730 033	3 930	750 045	5 025	656 028

The next table compares the initial saving (i.e. if the cheapest initial premium is selected), with the additional lifetime cost of that selection (versus the alternative of initially selecting the highest premium). E.g. a 25 year-old male can initially save R269 per month, but in doing so will spend R209 544 more over his lifetime (53% more than what the more expensive initial premium would have cost over his lifetime), with the initially cheaper option becoming more expensive from year 24.

	Gender	Initial monthly saving	Lifetime extra cost	Extra cost as % of lifetime premium of the most expensive initial premium	Crossover point
<b>Age 25 at entry</b>	Female	263	300 799	74%	From year 26
<b>Age 30 at entry</b>		379	293 455	59%	From year 21
<b>Age 35 at entry</b>		495	353 936	61%	From year 18
<b>Age 40 at entry</b>		630	344 617	54%	From year 14
<b>Age 50 at entry</b>		842	283 644	43%	From year 10
<b>Age 60 at entry</b>		1 172	187 618	32%	From year 12
<b>Age 25 at entry</b>	Male	269	209 544	53%	From year 24
<b>Age 30 at entry</b>		341	185 213	43%	From year 20
<b>Age 35 at entry</b>		397	211 862	46%	From year 17
<b>Age 40 at entry</b>		607	202 076	35%	From year 14
<b>Age 50 at entry</b>		1 109	154 259	20%	From year 9
<b>Age 60 at entry</b>		1 442	74 005	11%	From year 10

## 4.4 PROVIDER C

The table below shows the initial, monthly premium of each quote, as well as the present value of the total lifetime premiums thereof.

	Gender	Premium pattern C1		Premium pattern C2		Premium pattern C3	
		Initial premium	Lifetime premium	Initial premium	Lifetime premium	Initial premium	Lifetime premium
<b>Age 25 at entry</b>	Female	407	359 038	496	264 576	n/a	n/a
<b>Age 30 at entry</b>		455	435 743	611	281 452	n/a	n/a
<b>Age 35 at entry</b>		574	529 378	793	319 423	n/a	n/a
<b>Age 40 at entry</b>		760	525 819	1 115	377 997	n/a	n/a
<b>Age 50 at entry</b>		1 435	553 870	1 997	480 895	n/a	n/a
<b>Age 60 at entry</b>		n/a	n/a	3 036	482 933	n/a	n/a
<b>Age 25 at entry</b>	Male	497	380 751	609	300 589	n/a	n/a
<b>Age 30 at entry</b>		536	458 111	696	306 334	n/a	n/a
<b>Age 35 at entry</b>		653	532 653	915	344 524	n/a	n/a
<b>Age 40 at entry</b>		859	555 599	1 263	400 621	n/a	n/a
<b>Age 50 at entry</b>		1 635	576 756	2 265	500 338	n/a	n/a
<b>Age 60 at entry</b>		n/a	n/a	3 682	523 308	n/a	n/a

The next table compares the initial saving (i.e. if the cheapest initial premium is selected), with the additional lifetime cost of that selection (versus the alternative of initially selecting the highest premium). E.g. a 35 year-old female can initially save R219 per month, but in doing so will spend R209 954 more over her lifetime (66% more than what the more expensive initial premium would have cost over her lifetime), with the initially cheaper option becoming more expensive from year 12.

	Gender	Initial monthly saving	Lifetime extra cost	Extra cost as % of lifetime premium of the most expensive initial premium	Crossover point
<b>Age 25 at entry</b>	Female	90	94 462	36%	From year 17
<b>Age 30 at entry</b>		156	154 291	55%	From year 15
<b>Age 35 at entry</b>		219	209 954	66%	From year 12
<b>Age 40 at entry</b>		355	147 822	39%	From year 11
<b>Age 50 at entry</b>		561	72 975	15%	From year 10
<b>Age 60 at entry</b>		n/a	n/a	n/a	n/a
<b>Age 25 at entry</b>	Male	112	80 161	27%	From year 19
<b>Age 30 at entry</b>		160	151 777	50%	From year 15
<b>Age 35 at entry</b>		262	188 130	55%	From year 12
<b>Age 40 at entry</b>		404	154 978	39%	From year 11
<b>Age 50 at entry</b>		630	76 418	15%	From year 9
<b>Age 60 at entry</b>		n/a	n/a	n/a	n/a

## 4.5 PROVIDER D

The table below shows the initial, monthly premium of each quote, as well as the present value of the total lifetime premiums thereof.

	Gender	Premium pattern D1		Premium pattern D2		Premium pattern D3	
		Initial premium	Lifetime premium	Initial premium	Lifetime premium	Initial premium	Lifetime premium
<b>Age 25 at entry</b>	Female	n/a	n/a	364	669 996	494	623 437
<b>Age 30 at entry</b>		n/a	n/a	423	852 126	631	733 099
<b>Age 35 at entry</b>		549	1 020 430	581	895 347	856	750 154
<b>Age 40 at entry</b>		792	1 004 885	837	885 901	1 209	737 283
<b>Age 50 at entry</b>		1 572	1 023 516	1 657	932 290	2 220	838 064
<b>Age 60 at entry</b>		2 599	987 676	2 712	913 151	3 150	844 223
<b>Age 25 at entry</b>	Male	n/a	n/a	458	631 354	609	594 034
<b>Age 30 at entry</b>		n/a	n/a	502	751 544	746	672 140
<b>Age 35 at entry</b>		627	865 333	672	784 257	990	696 851
<b>Age 40 at entry</b>		895	870 930	956	795 352	1 381	709 295
<b>Age 50 at entry</b>		1 783	873 894	1 895	818 560	2 558	770 494
<b>Age 60 at entry</b>		3 046	777 854	3 199	737 118	3 795	709 325

The next table compares the initial saving (i.e. if the cheapest initial premium is selected), with the additional lifetime cost of that selection (versus the alternative of initially selecting the highest premium). E.g. a 35 year-old male can initially save R362 per month, but in doing so will spend R168 482 more over his lifetime (24% more than what the more expensive initial premium would have cost over his lifetime), with the initially cheaper option becoming more expensive from year 14.

	Gender	Initial monthly saving	Lifetime extra cost	Extra cost as % of lifetime premium of the most expensive initial premium	Crossover point
<b>Age 25 at entry</b>	Female	131	46 560	7%	From year 18
<b>Age 30 at entry</b>		208	119 027	16%	From year 17
<b>Age 35 at entry</b>		308	270 276	36%	From year 14
<b>Age 40 at entry</b>		417	267 603	36%	From year 12
<b>Age 50 at entry</b>		649	185 452	22%	From year 8
<b>Age 60 at entry</b>		551	143 453	17%	From year 8
<b>Age 25 at entry</b>	Male	151	37 320	6%	From year 17
<b>Age 30 at entry</b>		244	79 404	12%	From year 16
<b>Age 35 at entry</b>		362	168 482	24%	From year 14
<b>Age 40 at entry</b>		487	161 635	23%	From year 12
<b>Age 50 at entry</b>		775	103 400	13%	From year 8
<b>Age 60 at entry</b>		749	68 529	10%	From year 8

## 4.6 ALL PROVIDERS COMPARED

### 4.6.1 EXTRA LIFETIME COST

The table below shows the extra cost percentage over the lifetime of the policy for each entry age and gender (i.e. the extra lifetime cost of the cheapest initial premium compared to the lifetime premium of the most expensive initial premium).

	Gender	Provider A	Provider B	Provider C	Provider D
<b>Age 25 at entry</b>	Female	50%	74%	36%	7%
<b>Age 30 at entry</b>		41%	59%	55%	16%
<b>Age 35 at entry</b>		39%	61%	66%	36%
<b>Age 40 at entry</b>		30%	54%	39%	36%
<b>Age 50 at entry</b>		23%	43%	15%	22%
<b>Age 60 at entry</b>		2%	32%	n/a	17%
<b>Age 25 at entry</b>	Male	47%	53%	27%	6%
<b>Age 30 at entry</b>		37%	43%	50%	12%
<b>Age 35 at entry</b>		39%	46%	55%	24%
<b>Age 40 at entry</b>		28%	35%	39%	23%
<b>Age 50 at entry</b>		17%	20%	15%	13%
<b>Age 60 at entry</b>		-3%	11%	n/a	10%

### 4.6.2 CROSSOVER POINT

The next table compares the crossover points between the providers for each entry age and gender (i.e. the point at which the cheapest initial premium becomes more expensive than the most expensive initial premium).

	Gender	Provider A	Provider B	Provider C	Provider D
<b>Age 25 at entry</b>	Female	From year 8	From year 26	From year 17	From year 18
<b>Age 30 at entry</b>		From year 8	From year 21	From year 15	From year 17
<b>Age 35 at entry</b>		From year 9	From year 18	From year 12	From year 14
<b>Age 40 at entry</b>		From year 8	From year 14	From year 11	From year 12
<b>Age 50 at entry</b>		From year 7	From year 10	From year 10	From year 8
<b>Age 60 at entry</b>		From year 15	From year 12	n/a	From year 8
<b>Age 25 at entry</b>	Male	From year 7	From year 24	From year 19	From year 17
<b>Age 30 at entry</b>		From year 8	From year 20	From year 15	From year 16
<b>Age 35 at entry</b>		From year 9	From year 17	From year 12	From year 14
<b>Age 40 at entry</b>		From year 9	From year 14	From year 11	From year 12
<b>Age 50 at entry</b>		From year 7	From year 9	From year 9	From year 8
<b>Age 60 at entry</b>		From year 13	From year 10	n/a	From year 8

## 4.7 VALUE BUILD-UP

Life insurers calculate and hold reserves in order to secure the future rights of their policyholders. The reserve could be viewed as a rough proxy of the implicit value that the policyholder has under the policy at that point<sup>3</sup>.

The value of the reserve at any point in time is calculated as the present value of future benefits, plus the present value of future expenses (that the insurer will incur to administer the policy), less the present value of future premiums. If the value of future premiums exceed the value of future benefits and expenses, the reserve at that point is negative (i.e. the life insurer does not need to hold an asset on its balance sheet to secure the future rights of that policyholder).

As such it follows that the quantum of the reserve is influenced by the increase pattern of future premiums. In this sub-section we assess this premium pattern impact on the reserve build-up<sup>4</sup> (until death & in the presence of lapses). The comparison is between the most and least aggressive premium patterns (from all providers combined) that are available to these entrants.

From the results it is evident that some of the more aggressive increase patterns literally take decades before positive reserves are built up. In contrast thereto, the least aggressive increase patterns develop positive reserves quite early on, i.e. the policyholder has a positive value on the life insurer's balance sheet that backs his/her future rights under that policy.

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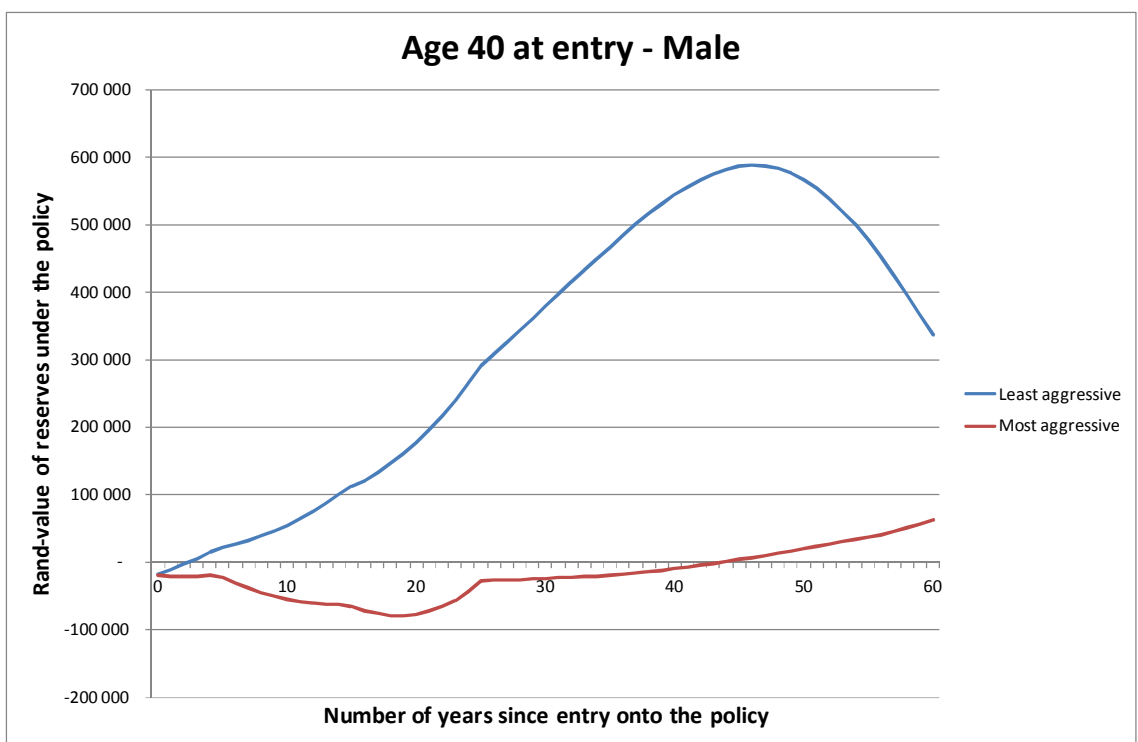
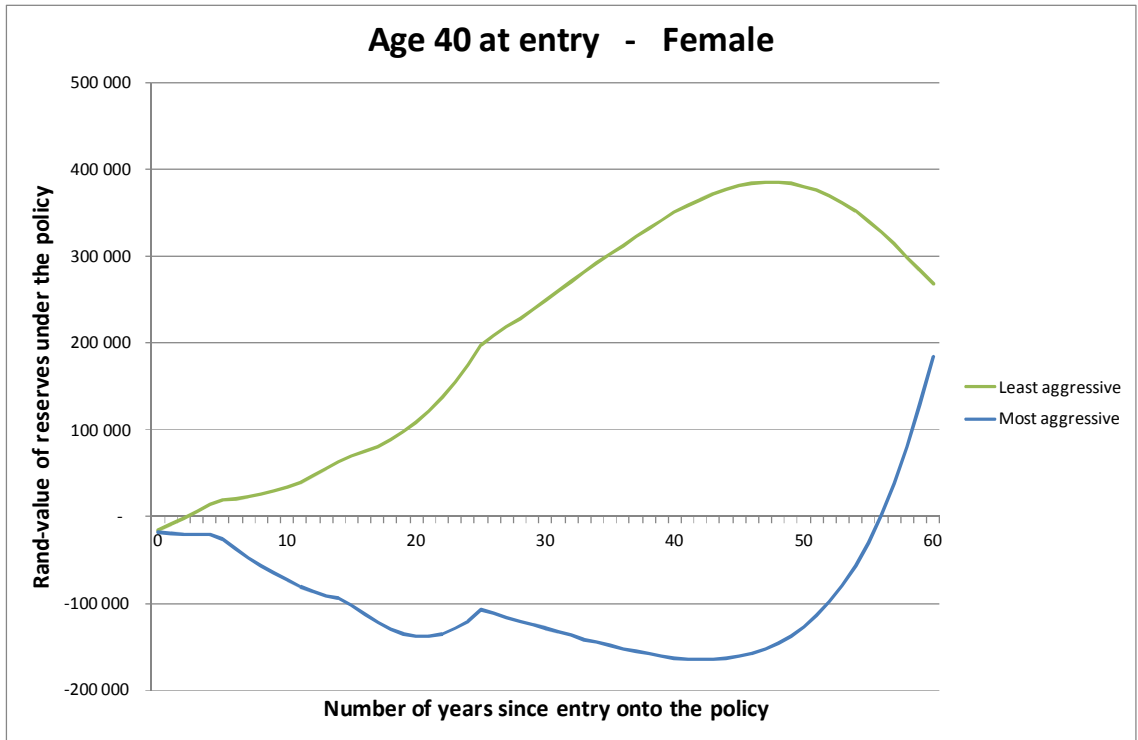
<sup>3</sup> Noting that: this value is not necessarily available as a surrender value.

<sup>4</sup> Using the assumptions as set out in Appendix C

### 4.7.1 ENTRY AT AGE 25



#### 4.7.2 ENTRY AT AGE 40





## 5 SHARE OF WALLET OVER TIME

Many individuals will be naturally inclined to select the premium pattern that offers the lowest initial premium. As seen in the section above, lower starting premiums eventually become more expensive, due to steeper increases.

This section compares the longer-term affordability of the different premium patterns by assessing how much of the insured's income will be spent at various future points in order to maintain the cover<sup>5</sup>.

### 5.1 SUMMARY OF RESULTS

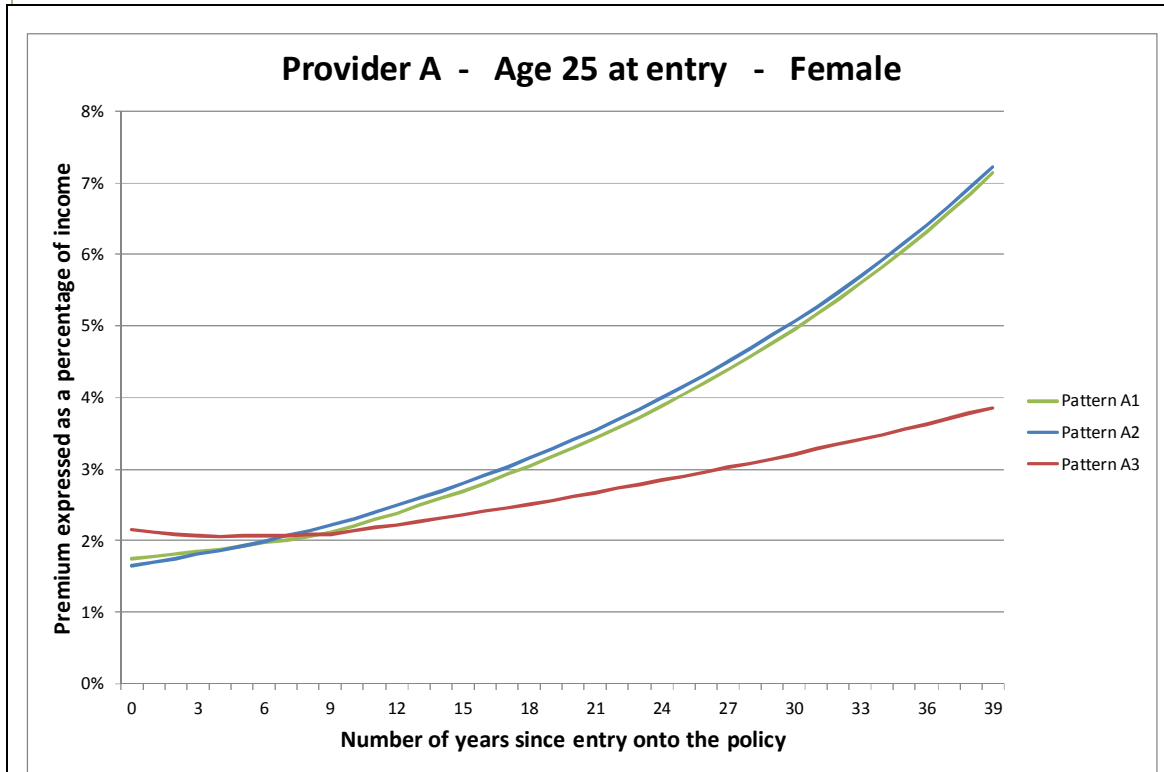
- While the initial premiums are generally within a few percentage points of each other (i.e. as a percentage of the income of the policyholder), the difference becomes significant over time in most instances (comparing funding patterns offered by a provider, not comparing the providers with each other).
- Generally what starts out as a small premium saving on a more aggressive premium pattern, might eventually grow to a much more significant percentage of the policyholder's income. In the extreme, the premium eventually actually exceeds the policyholder's entire income.
- In contrast thereto, the share of wallet of a higher initial premium (with less aggressive future increases), in certain instances even reduces over time (i.e. instances where income progresses more rapidly than the premiums).
- This further highlights the value of proper advice at the outset. If a policyholder simply picks the lowest initial premium (i.e. with more aggressive future increases) the premium might become unaffordable over time, which could lead to a forced lapse. This could be further exacerbated if that individual's health has since deteriorated and he/she is unable to find alternative cover at that point (when it is possibly needed most).

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<sup>5</sup> Assuming middle road income progression over time (see Appendix C)

## 5.2 PROVIDER A

### 5.2.1 IMPACT FOR A 25 YEAR-OLD BUYER



## 5.2.2 ALL QUOTES - % SHARE OF WALLET

The table below provides insight into the share of wallet of the different premium patterns at different points in time. E.g. a 40 year-old male selecting the lowest initial premium (with the most aggressive annual increases), will initially spend 4% of income on the premium, increasing to 13% after 40 years. Had he chosen the higher initial premium (with less aggressive annual increases), his initial spend would have been 5% and would still be at that level after 40 years.

	# of years	Female			Male		
	since policy inception	Pattern A1	Pattern A2	Pattern A3	Pattern A1	Pattern A2	Pattern A3
<b>Age 25 at entry</b>	At inception	2%	2%	2%	2%	2%	3%
	5	2%	2%	2%	2%	2%	2%
	10	2%	2%	2%	2%	3%	2%
	20	3%	3%	3%	3%	4%	3%
	40	4%	4%	2%	5%	5%	2%
<b>Age 30 at entry</b>	At inception	2%	2%	3%	2%	2%	3%
	5	2%	2%	3%	3%	3%	3%
	10	3%	3%	3%	3%	3%	3%
	20	4%	5%	3%	4%	4%	3%
	40	4%	4%	2%	6%	7%	3%
<b>Age 35 at entry</b>	At inception	3%	3%	4%	3%	3%	4%
	5	4%	4%	4%	3%	3%	4%
	10	4%	4%	4%	4%	4%	4%
	20	6%	6%	5%	6%	6%	5%
	40	5%	5%	2%	11%	9%	5%
<b>Age 40 at entry</b>	At inception	4%	4%	5%	4%	4%	5%
	5	5%	5%	5%	4%	5%	5%
	10	6%	6%	5%	6%	6%	5%
	20	8%	8%	6%	9%	8%	6%
	40	6%	6%	2%	13%	11%	5%
<b>Age 50 at entry</b>	At inception	6%	7%	9%	7%	7%	10%
	5	8%	8%	8%	9%	9%	9%
	10	10%	9%	8%	11%	11%	9%
	20	6%	6%	4%	10%	10%	7%
	40	13%	10%	4%	26%	19%	8%
<b>Age 60 at entry</b>	At inception	9%	10%	12%	11%	13%	15%
	5	5%	6%	7%	9%	10%	11%
	10	3%	4%	4%	7%	7%	7%
	20	6%	6%	5%	13%	12%	10%
	40	24%	16%	10%	51%	34%	19%

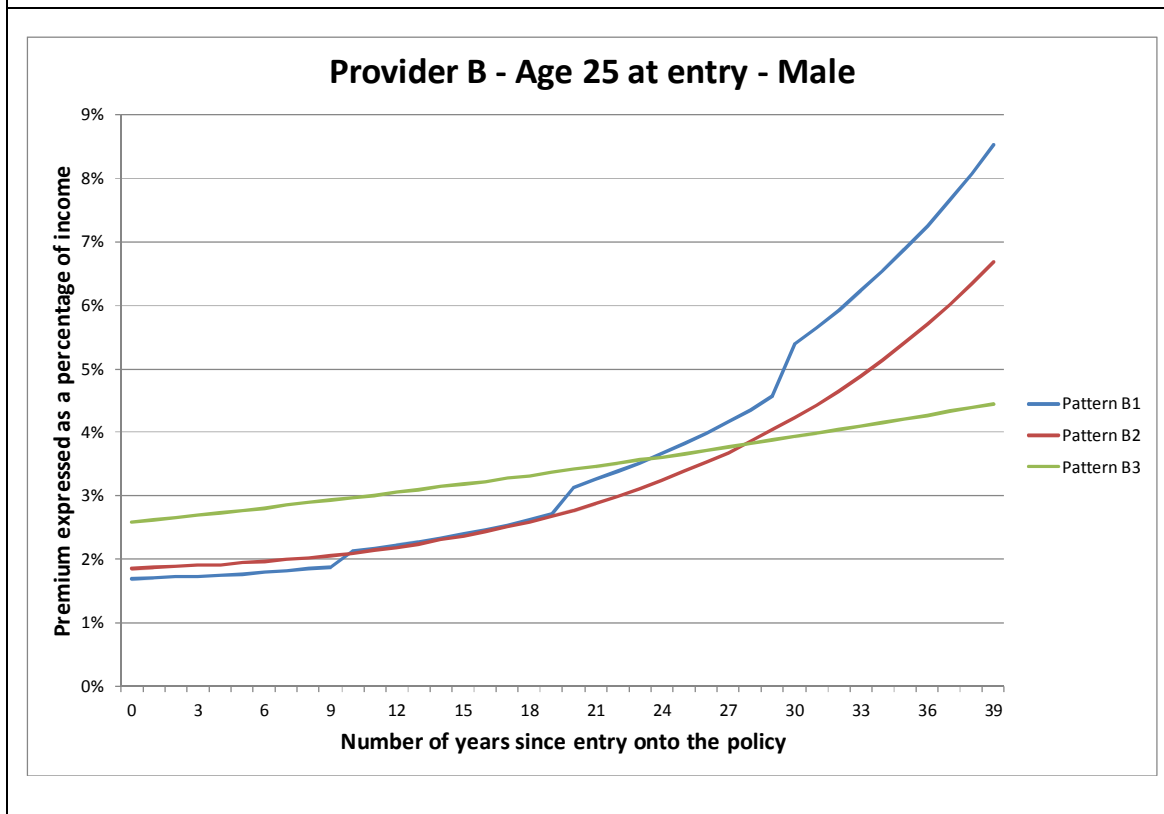
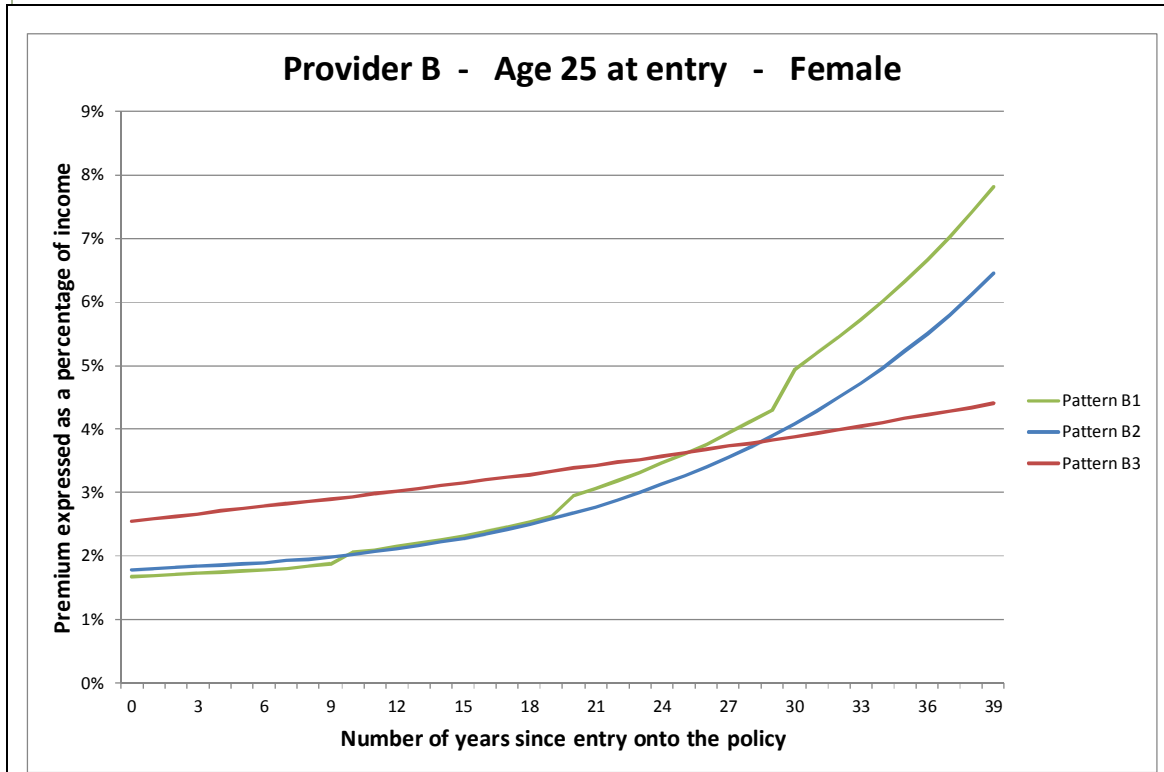
### 5.2.3 CHANGES IN SHARE OF WALLET OVER TIME (PER PATTERN)

The following table shows (separately for each pattern) the change in the share of wallet (relative to the initial share of wallet for that specific pattern). E.g. a 30 year-old male, selecting the lowest initial premium, will experience a 181% increase in portion of his wallet that is consumed by the premiums (after 40 years). Had he chosen the higher initial premium, he would only have experienced a 20% increase in the portion of his wallet consumed by the premiums after 40 years.

	# of years	Female			Male		
	since policy inception	Pattern A1	Pattern A2	Pattern A3	Pattern A1	Pattern A2	Pattern A3
<b>Age 25 at entry</b>	At inception	100%	100%	100%	100%	100%	100%
	5	110%	117%	96%	107%	115%	94%
	10	126%	139%	99%	116%	131%	92%
	20	189%	207%	122%	157%	176%	100%
	40	241%	246%	97%	246%	261%	96%
<b>Age 30 at entry</b>	At inception	100%	100%	100%	100%	100%	100%
	5	115%	120%	99%	111%	118%	97%
	10	140%	147%	105%	132%	140%	100%
	20	206%	219%	127%	188%	204%	119%
	40	201%	215%	82%	281%	311%	120%
<b>Age 35 at entry</b>	At inception	100%	100%	100%	100%	100%	100%
	5	119%	120%	98%	119%	120%	98%
	10	143%	144%	102%	144%	145%	103%
	20	217%	206%	116%	234%	217%	126%
	40	185%	160%	58%	396%	318%	122%
<b>Age 40 at entry</b>	At inception	100%	100%	100%	100%	100%	100%
	5	119%	119%	97%	120%	120%	98%
	10	145%	140%	98%	152%	145%	103%
	20	212%	194%	105%	242%	216%	122%
	40	155%	135%	45%	356%	291%	105%
<b>Age 50 at entry</b>	At inception	100%	100%	100%	100%	100%	100%
	5	124%	118%	96%	126%	119%	97%
	10	153%	137%	94%	161%	142%	98%
	20	90%	81%	45%	147%	127%	71%
	40	210%	149%	47%	382%	257%	85%
<b>Age 60 at entry</b>	At inception	100%	100%	100%	100%	100%	100%
	5	58%	60%	57%	82%	82%	75%
	10	34%	34%	31%	60%	57%	49%
	20	67%	57%	43%	117%	95%	67%
	40	255%	159%	82%	448%	266%	128%

## 5.3 PROVIDER B

### 5.3.1 IMPACT FOR A 25 YEAR-OLD BUYER



### 5.3.2 ALL QUOTES - % SHARE OF WALLET

The table below provides insight into the share of wallet of the different premium patterns at different points in time. E.g. a 40 year-old male selecting the lowest initial premium (with the most aggressive annual increases), will initially spend 4% of income on the premium, increasing to 31% after 40 years. Had he chosen the higher initial premium (with less aggressive annual increases), his initial spend would have been 6% and would still be at that level after 40 years.

	# of years	Female			Male		
	since policy inception	Pattern B1	Pattern B2	Pattern B3	Pattern B1	Pattern B2	Pattern B3
<b>Age 25 at entry</b>	At inception	2%	2%	3%	2%	2%	3%
	5	2%	2%	3%	2%	2%	3%
	10	2%	2%	3%	2%	2%	3%
	20	3%	3%	3%	3%	3%	3%
	40	7%	4%	2%	10%	6%	4%
<b>Age 30 at entry</b>	At inception	2%	2%	4%	2%	2%	3%
	5	2%	3%	4%	2%	2%	3%
	10	3%	3%	4%	3%	3%	4%
	20	5%	4%	5%	4%	4%	4%
	40	9%	5%	3%	13%	8%	4%
<b>Age 35 at entry</b>	At inception	3%	3%	5%	3%	3%	4%
	5	4%	4%	5%	3%	3%	4%
	10	5%	5%	6%	4%	4%	5%
	20	8%	7%	7%	7%	6%	5%
	40	15%	9%	3%	19%	11%	4%
<b>Age 40 at entry</b>	At inception	4%	5%	6%	4%	4%	6%
	5	5%	5%	7%	5%	5%	6%
	10	7%	7%	7%	6%	6%	7%
	20	11%	10%	9%	11%	10%	8%
	40	22%	13%	4%	31%	19%	6%
<b>Age 50 at entry</b>	At inception	7%	7%	10%	8%	9%	12%
	5	8%	9%	10%	10%	11%	13%
	10	12%	11%	11%	14%	14%	14%
	20	10%	8%	6%	15%	13%	9%
	40	48%	29%	8%	77%	47%	13%
<b>Age 60 at entry</b>	At inception	10%	11%	14%	12%	13%	17%
	5	6%	7%	9%	10%	13%	15%
	10	10%	10%	10%	16%	17%	16%
	20	21%	18%	12%	36%	31%	18%
	40	109%	66%	15%	184%	111%	24%

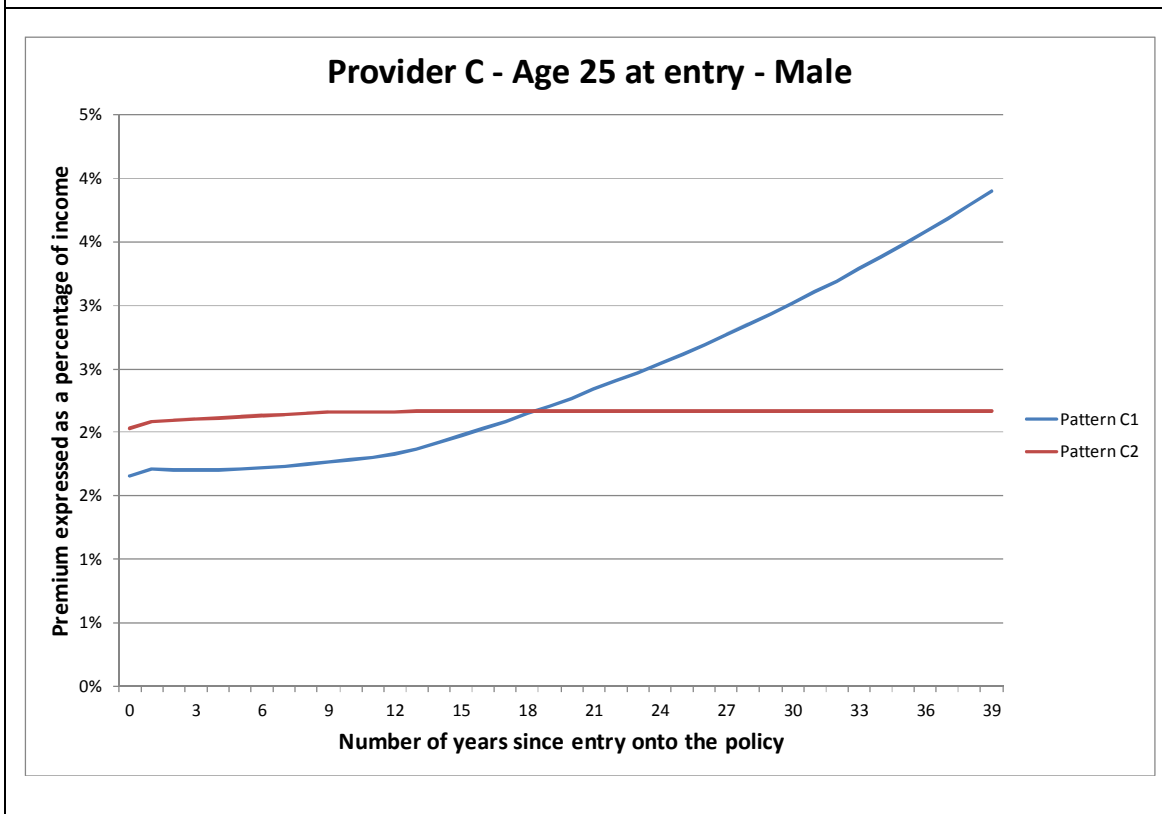
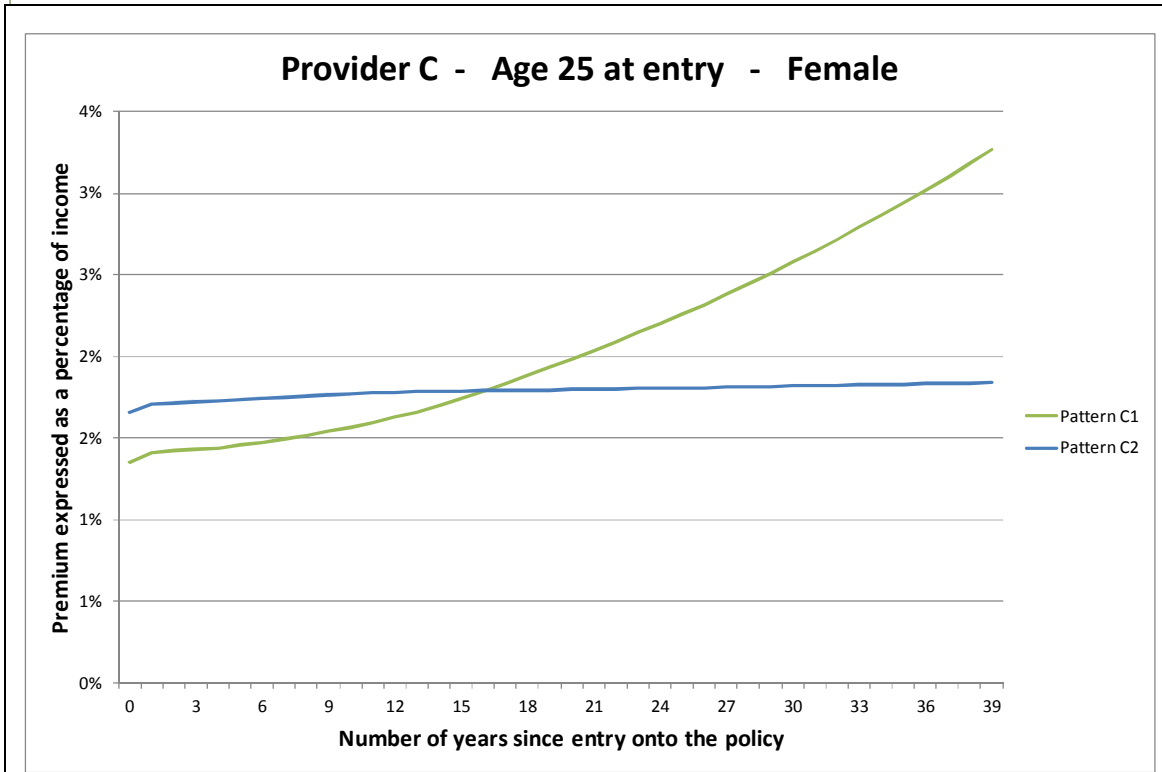
### 5.3.3 CHANGES IN SHARE OF WALLET OVER TIME (PER PATTERN)

The following table shows (separately for each pattern) the change in the share of wallet (relative to the initial share of wallet for that specific pattern). E.g. a 30 year-old male, selecting the lowest initial premium, will experience a 529% increase in portion of his wallet that is consumed by the premiums (after 40 years). Had he chosen the higher initial premium, he would only have experienced a 19% increase in the portion of his wallet consumed by the premiums after 40 years.

	# of years since policy inception	Female			Male		
		Pattern B1	Pattern B2	Pattern B3	Pattern B1	Pattern B2	Pattern B3
<b>Age 25 at entry</b>	At inception	100%	100%	100%	100%	100%	100%
	5	105%	105%	107%	105%	105%	107%
	10	123%	114%	115%	126%	114%	115%
	20	176%	150%	132%	186%	150%	132%
	40	394%	217%	90%	592%	316%	136%
<b>Age 30 at entry</b>	At inception	100%	100%	100%	100%	100%	100%
	5	108%	108%	107%	108%	108%	107%
	10	130%	122%	115%	133%	122%	115%
	20	200%	174%	132%	210%	174%	132%
	40	409%	227%	79%	629%	341%	119%
<b>Age 35 at entry</b>	At inception	100%	100%	100%	100%	100%	100%
	5	113%	113%	107%	113%	113%	107%
	10	140%	132%	115%	143%	132%	115%
	20	229%	201%	132%	240%	201%	132%
	40	458%	262%	68%	690%	384%	100%
<b>Age 40 at entry</b>	At inception	100%	100%	100%	100%	100%	100%
	5	117%	117%	107%	117%	117%	107%
	10	151%	143%	115%	155%	143%	115%
	20	259%	228%	132%	272%	228%	132%
	40	498%	286%	63%	792%	443%	104%
<b>Age 50 at entry</b>	At inception	100%	100%	100%	100%	100%	100%
	5	125%	125%	107%	125%	125%	107%
	10	173%	160%	115%	174%	160%	115%
	20	143%	118%	64%	186%	151%	79%
	40	719%	411%	84%	936%	528%	105%
<b>Age 60 at entry</b>	At inception	100%	100%	100%	100%	100%	100%
	5	60%	71%	68%	84%	96%	88%
	10	97%	94%	73%	135%	129%	94%
	20	216%	175%	84%	301%	239%	109%
	40	1104%	622%	110%	1542%	847%	143%

## 5.4 PROVIDER C

### 5.4.1 IMPACT FOR A 25 YEAR-OLD BUYER





## 5.4.2 ALL QUOTES - % SHARE OF WALLET

The table below provides insight into the share of wallet of the different premium patterns at different points in time. E.g. a 40 year-old male selecting the lowest initial premium (with the most aggressive annual increases), will initially spend 3% of income on the premium, increasing to 11% after 40 years. Had he chosen the higher initial premium (with less aggressive annual increases), his initial spend would have been 4% and slightly less (at 3%) after 40 years.

	# of years	Female			Male		
	since policy inception	Pattern C1	Pattern C2	Pattern C3	Pattern C1	Pattern C2	Pattern C3
<b>Age 25 at entry</b>	At inception	1%	2%	n/a	2%	2%	n/a
	5	1%	2%	n/a	2%	2%	n/a
	10	2%	2%	n/a	2%	2%	n/a
	20	2%	2%	n/a	2%	2%	n/a
	40	2%	1%	n/a	4%	2%	n/a
<b>Age 30 at entry</b>	At inception	2%	2%	n/a	2%	2%	n/a
	5	2%	2%	n/a	2%	2%	n/a
	10	2%	2%	n/a	2%	2%	n/a
	20	3%	2%	n/a	3%	2%	n/a
	40	4%	1%	n/a	6%	2%	n/a
<b>Age 35 at entry</b>	At inception	2%	3%	n/a	2%	3%	n/a
	5	2%	3%	n/a	3%	3%	n/a
	10	3%	3%	n/a	3%	3%	n/a
	20	4%	3%	n/a	5%	3%	n/a
	40	5%	2%	n/a	9%	2%	n/a
<b>Age 40 at entry</b>	At inception	3%	4%	n/a	3%	4%	n/a
	5	3%	4%	n/a	3%	4%	n/a
	10	4%	4%	n/a	4%	4%	n/a
	20	6%	4%	n/a	7%	4%	n/a
	40	6%	2%	n/a	11%	3%	n/a
<b>Age 50 at entry</b>	At inception	5%	7%	n/a	5%	8%	n/a
	5	6%	7%	n/a	7%	8%	n/a
	10	7%	7%	n/a	8%	8%	n/a
	20	6%	4%	n/a	9%	6%	n/a
	40	10%	4%	n/a	18%	6%	n/a
<b>Age 60 at entry</b>	At inception	n/a	10%	n/a	n/a	12%	n/a
	5	n/a	8%	n/a	n/a	12%	n/a
	10	n/a	8%	n/a	n/a	12%	n/a
	20	n/a	8%	n/a	n/a	13%	n/a
	40	n/a	8%	n/a	n/a	14%	n/a

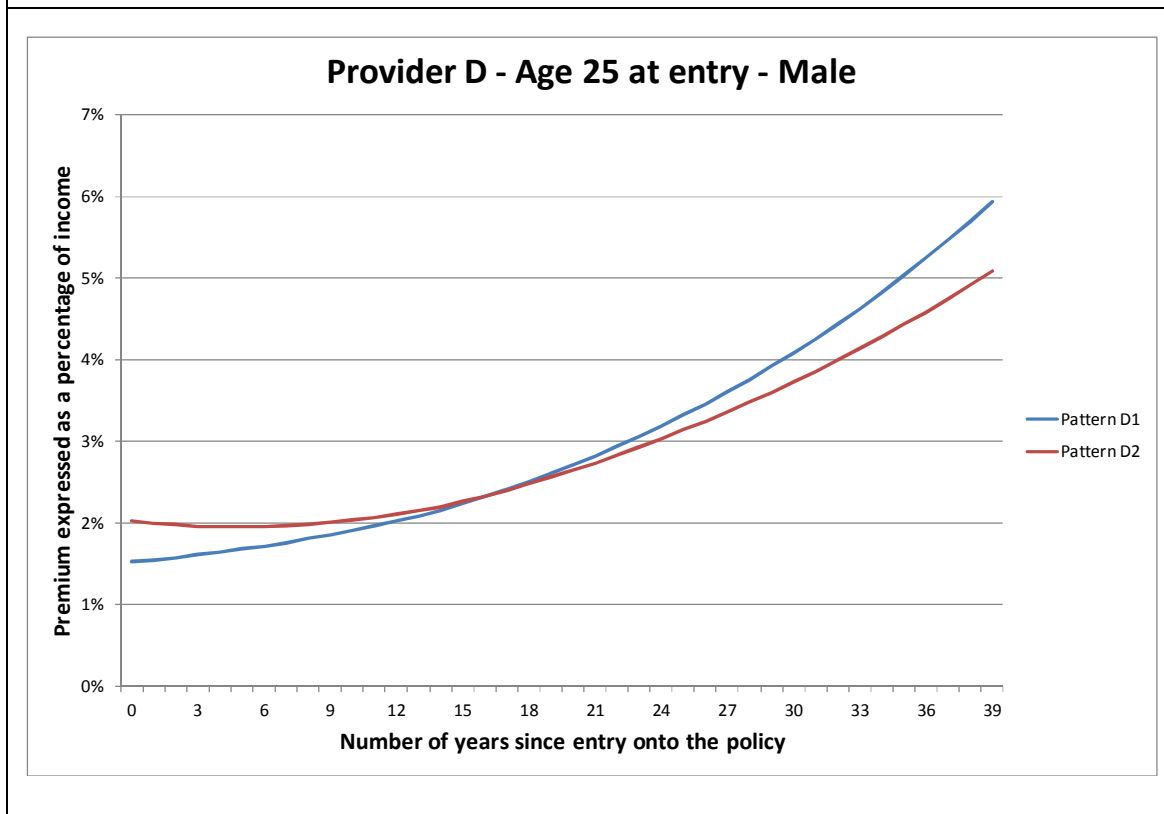
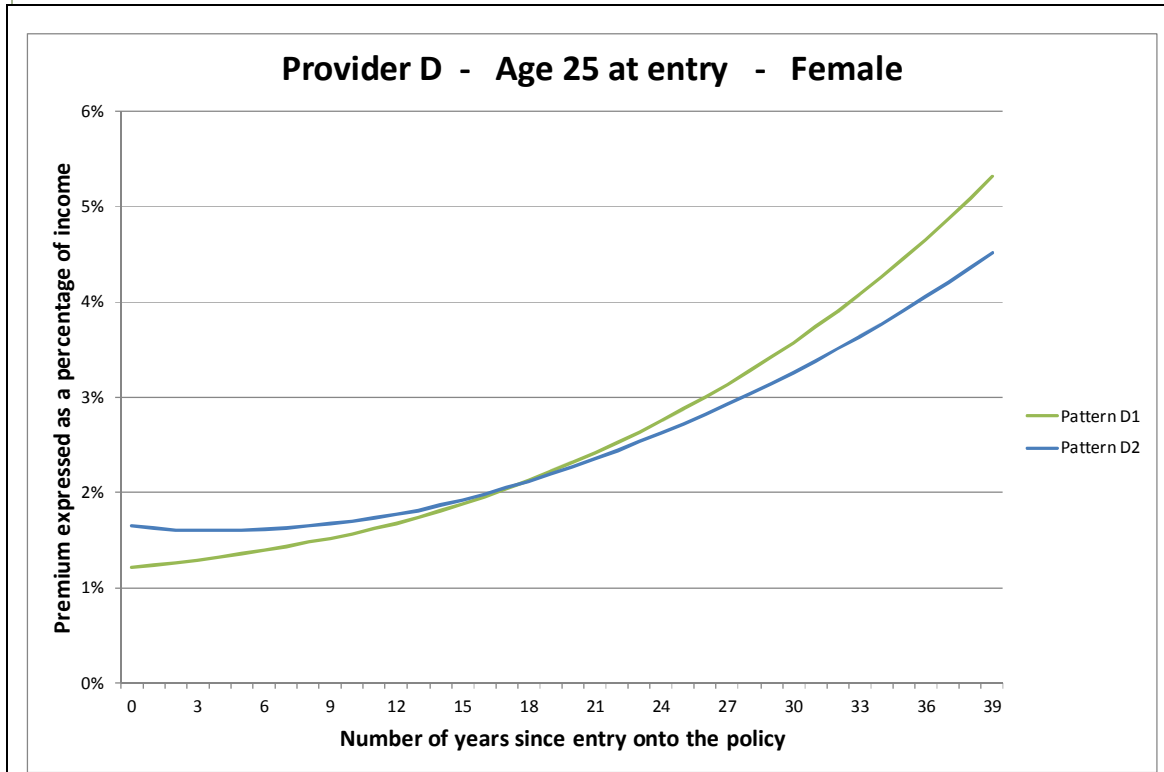
### 5.4.3 CHANGES IN SHARE OF WALLET OVER TIME (PER PATTERN)

The following table shows (separately for each pattern) the change in the share of wallet (relative to the initial share of wallet for that specific pattern). E.g. a 30 year-old male, selecting the lowest initial premium, will experience a 221% decrease in portion of his wallet that is consumed by the premiums (after 40 years). Had he chosen the higher initial premium, he would only have experienced a 14% increase in the portion of his wallet consumed by the premiums after 40 years.

	# of years since policy inception	Female			Male		
		Pattern C1	Pattern C2	Pattern C3	Pattern C1	Pattern C2	Pattern C3
<b>Age 25 at entry</b>	At inception	100%	100%	n/a	100%	100%	n/a
	5	107%	105%	n/a	103%	105%	n/a
	10	116%	107%	n/a	108%	106%	n/a
	20	146%	109%	n/a	137%	107%	n/a
	40	166%	71%	n/a	211%	91%	n/a
<b>Age 30 at entry</b>	At inception	100%	100%	n/a	100%	100%	n/a
	5	111%	105%	n/a	107%	104%	n/a
	10	124%	106%	n/a	120%	106%	n/a
	20	175%	107%	n/a	172%	107%	n/a
	40	232%	61%	n/a	321%	86%	n/a
<b>Age 35 at entry</b>	At inception	100%	100%	n/a	100%	100%	n/a
	5	115%	104%	n/a	115%	103%	n/a
	10	136%	105%	n/a	136%	104%	n/a
	20	208%	107%	n/a	213%	105%	n/a
	40	285%	59%	n/a	393%	77%	n/a
<b>Age 40 at entry</b>	At inception	100%	100%	n/a	100%	100%	n/a
	5	121%	102%	n/a	121%	102%	n/a
	10	147%	103%	n/a	149%	103%	n/a
	20	217%	105%	n/a	228%	104%	n/a
	40	246%	55%	n/a	390%	72%	n/a
<b>Age 50 at entry</b>	At inception	100%	100%	n/a	100%	100%	n/a
	5	122%	102%	n/a	122%	102%	n/a
	10	146%	103%	n/a	147%	103%	n/a
	20	118%	63%	n/a	166%	79%	n/a
	40	212%	65%	n/a	322%	80%	n/a
<b>Age 60 at entry</b>	At inception	n/a	100%	n/a	n/a	100%	n/a
	5	n/a	81%	n/a	n/a	99%	n/a
	10	n/a	82%	n/a	n/a	99%	n/a
	20	n/a	82%	n/a	n/a	104%	n/a
	40	n/a	82%	n/a	n/a	118%	n/a

## 5.5 PROVIDER D

### 5.5.1 IMPACT FOR A 25 YEAR-OLD BUYER



## 5.5.2 ALL QUOTES - % SHARE OF WALLET

The table below provides insight into the share of wallet of the different premium patterns at different points in time. E.g. a 40 year-old male selecting the lowest initial premium (with the most aggressive annual increases), will initially spend 3% of income on the premium, increasing to 18% after 40 years. Had he chosen the higher initial premium (with less aggressive annual increases), his initial spend would have been 5%, increasing to 10% after 40 years.

	# of years	Female			Male		
	since policy inception	Pattern D1	Pattern D2	Pattern D3	Pattern D1	Pattern D2	Pattern D3
<b>Age 25 at entry</b>	At inception	n/a	1%	2%	n/a	2%	2%
	5	n/a	1%	2%	n/a	2%	2%
	10	n/a	2%	2%	n/a	2%	2%
	20	n/a	2%	2%	n/a	3%	3%
	40	n/a	3%	3%	n/a	4%	4%
<b>Age 30 at entry</b>	At inception	n/a	1%	2%	n/a	2%	2%
	5	n/a	2%	2%	n/a	2%	2%
	10	n/a	2%	2%	n/a	2%	3%
	20	n/a	3%	3%	n/a	4%	4%
	40	n/a	5%	4%	n/a	7%	6%
<b>Age 35 at entry</b>	At inception	2%	2%	3%	2%	2%	3%
	5	2%	2%	3%	3%	3%	3%
	10	3%	3%	3%	3%	3%	4%
	20	5%	4%	4%	5%	5%	5%
	40	9%	8%	6%	13%	11%	8%
<b>Age 40 at entry</b>	At inception	3%	3%	4%	3%	3%	5%
	5	3%	3%	4%	4%	4%	5%
	10	4%	4%	4%	5%	5%	5%
	20	6%	6%	5%	7%	7%	6%
	40	13%	10%	7%	18%	15%	10%
<b>Age 50 at entry</b>	At inception	5%	6%	7%	6%	6%	9%
	5	6%	7%	7%	7%	8%	8%
	10	8%	8%	7%	9%	9%	8%
	20	8%	7%	7%	12%	11%	10%
	40	27%	23%	17%	39%	32%	24%
<b>Age 60 at entry</b>	At inception	9%	9%	11%	10%	11%	13%
	5	7%	7%	8%	10%	11%	12%
	10	10%	9%	9%	14%	14%	13%
	20	19%	17%	15%	27%	24%	21%
	40	72%	61%	49%	97%	82%	63%

### 5.5.3 CHANGES IN SHARE OF WALLET OVER TIME (PER PATTERN)

The following table shows (separately for each pattern) the change in the share of wallet (relative to the initial share of wallet for that specific pattern). E.g. a 30 year-old male, selecting the lowest initial premium, will experience a 339% increase in portion of his wallet that is consumed by the premiums (after 40 years). Had he chosen the higher initial premium, he would only have experienced a 142% increase in the portion of his wallet consumed by the premiums after 40 years.

	# of years	Female			Male		
	since policy inception	Pattern D1	Pattern D2	Pattern D3	Pattern D1	Pattern D2	Pattern D3
<b>Age 25 at entry</b>	At inception	n/a	100%	100%	n/a	100%	100%
	5	n/a	112%	97%	n/a	110%	96%
	10	n/a	130%	103%	n/a	125%	100%
	20	n/a	191%	138%	n/a	178%	131%
	40	n/a	250%	169%	n/a	277%	190%
<b>Age 30 at entry</b>	At inception	n/a	100%	100%	n/a	100%	100%
	5	n/a	118%	98%	n/a	118%	98%
	10	n/a	145%	107%	n/a	144%	106%
	20	n/a	229%	147%	n/a	225%	144%
	40	n/a	376%	209%	n/a	439%	242%
<b>Age 35 at entry</b>	At inception	100%	100%	100%	100%	100%	100%
	5	124%	120%	99%	125%	120%	99%
	10	157%	148%	108%	159%	148%	108%
	20	254%	232%	143%	259%	232%	145%
	40	498%	396%	207%	606%	473%	247%
<b>Age 40 at entry</b>	At inception	100%	100%	100%	100%	100%	100%
	5	124%	120%	99%	125%	120%	99%
	10	156%	147%	106%	159%	148%	107%
	20	242%	218%	129%	250%	222%	133%
	40	475%	369%	181%	598%	458%	226%
<b>Age 50 at entry</b>	At inception	100%	100%	100%	100%	100%	100%
	5	124%	119%	97%	125%	119%	97%
	10	150%	140%	98%	154%	141%	99%
	20	153%	133%	89%	197%	170%	112%
	40	522%	411%	233%	659%	512%	284%
<b>Age 60 at entry</b>	At inception	100%	100%	100%	100%	100%	100%
	5	83%	81%	77%	103%	99%	92%
	10	112%	103%	86%	139%	127%	103%
	20	215%	188%	143%	262%	226%	166%
	40	829%	675%	467%	960%	767%	501%

## 6 APPENDIX A - OVERVIEW OF THE QUOTES

### 6.1 COVER & NUMBER OF QUOTES

The table below provides a high-level overview of the different quotes that were obtained and used for this analysis:

	Provider A	Provider B	Provider C	Provider D
<b>Annual income</b>	R300K	R360K		
<b>Life cover</b>	R2m lump sum			
<b>Disability cover</b>	R1.6m lump sum			
<b>Income continuation</b>	R20K per month			
<b>Total # of quotes</b>	36	36	22	32
<b>Age 25 at entry</b>	M+F, 3 premium patterns	M+F, 3 premium patterns	M+F, 2 premium patterns	M+F, 2 premium patterns
<b>Age 30 at entry</b>				M+F, 3 premium patterns
<b>Age 35 at entry</b>				
<b>Age 40 at entry</b>			M+F, 1 pattern	
<b>Age 60 at entry</b>				

### 6.2 COMPARING THE QUOTES: PROVIDER A

The table below shows the different initial, monthly premiums quoted to each of the hypothetical lives by Provider A:

	Gender	Premium pattern A1	Premium pattern A2	Premium pattern A3
<b>Age 25 at entry</b>	Female	436	413	538
<b>Age 30 at entry</b>		532	520	685
<b>Age 35 at entry</b>		738	749	984
<b>Age 40 at entry</b>		1 003	1 038	1 361
<b>Age 50 at entry</b>		1 583	1 721	2 182
<b>Age 60 at entry</b>		2 333	2 566	3 008
<b>Age 25 at entry</b>	Male	536	501	647
<b>Age 30 at entry</b>		569	551	721
<b>Age 35 at entry</b>		692	707	934
<b>Age 40 at entry</b>		931	976	1 291
<b>Age 50 at entry</b>		1 693	1 873	2 404
<b>Age 60 at entry</b>		2 841	3 166	3 782

### 6.3 COMPARING THE QUOTES: PROVIDER B

The table below shows the different initial, monthly premiums quoted to each of the hypothetical lives by Provider B:

	Gender	Premium pattern B1	Premium pattern B2	Premium pattern B3
Age 25 at entry	Female	504	536	768
Age 30 at entry		687	722	1 065
Age 35 at entry		986	1 040	1 481
Age 40 at entry		1 304	1 367	1 934
Age 50 at entry		2 008	2 115	2 850
Age 60 at entry		2 955	3 160	4 127
Age 25 at entry	Male	507	555	776
Age 30 at entry		616	664	957
Age 35 at entry		823	891	1 220
Age 40 at entry		1 164	1 254	1 771
Age 50 at entry		2 480	2 651	3 588
Age 60 at entry		3 583	3 930	5 025

### 6.4 COMPARING THE QUOTES: PROVIDER C

The table below shows the different initial, monthly premiums quoted to each of the hypothetical lives by Provider C:

	Gender	Premium pattern C1	Premium pattern C2	Premium pattern C3
Age 25 at entry	Female	407	496	n/a
Age 30 at entry		455	611	n/a
Age 35 at entry		574	793	n/a
Age 40 at entry		760	1 115	n/a
Age 50 at entry		1 435	1 997	n/a
Age 60 at entry		n/a	3 036	n/a
Age 25 at entry	Male	497	609	n/a
Age 30 at entry		536	696	n/a
Age 35 at entry		653	915	n/a
Age 40 at entry		859	1 263	n/a
Age 50 at entry		1 635	2 265	n/a
Age 60 at entry		n/a	3 682	n/a

## 6.5 COMPARING THE QUOTES: PROVIDER D

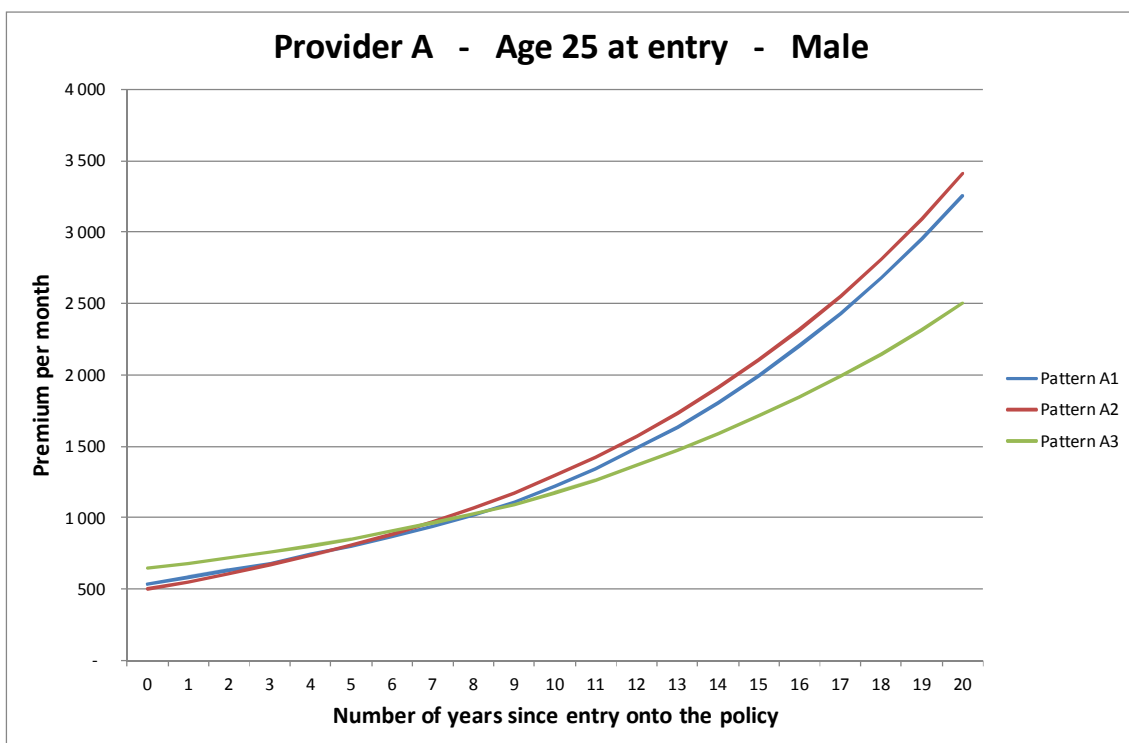
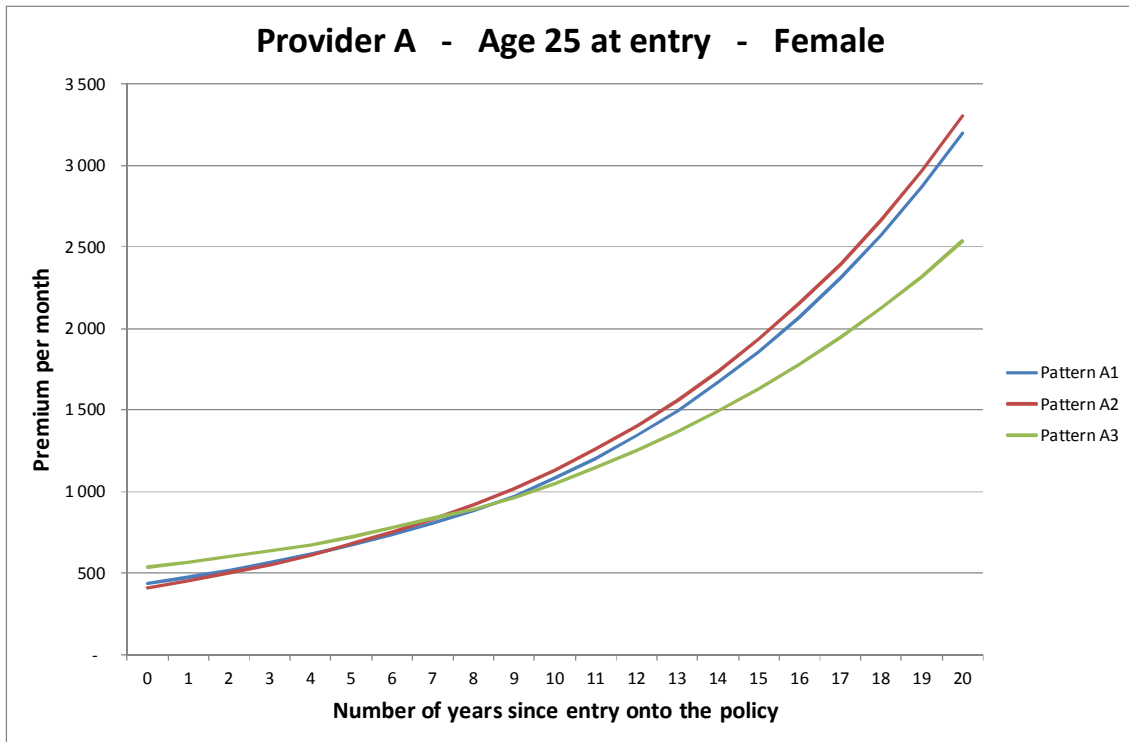
The table below shows the different initial, monthly premiums quoted to each of the hypothetical lives by Provider D:

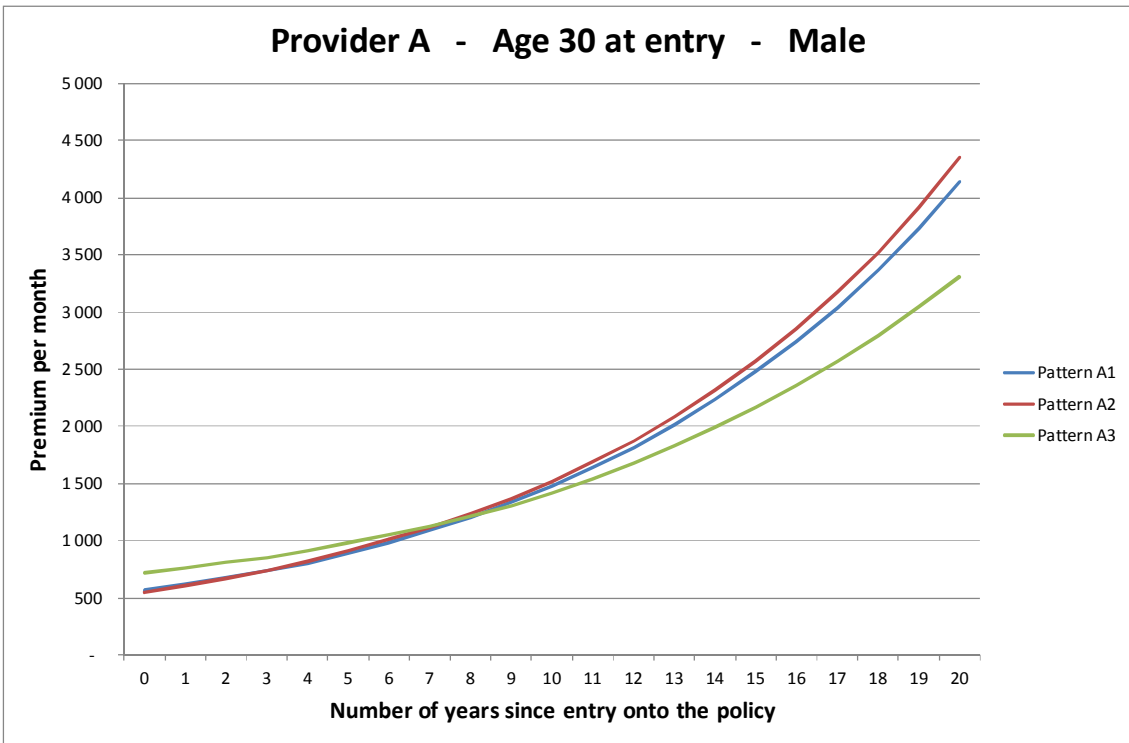
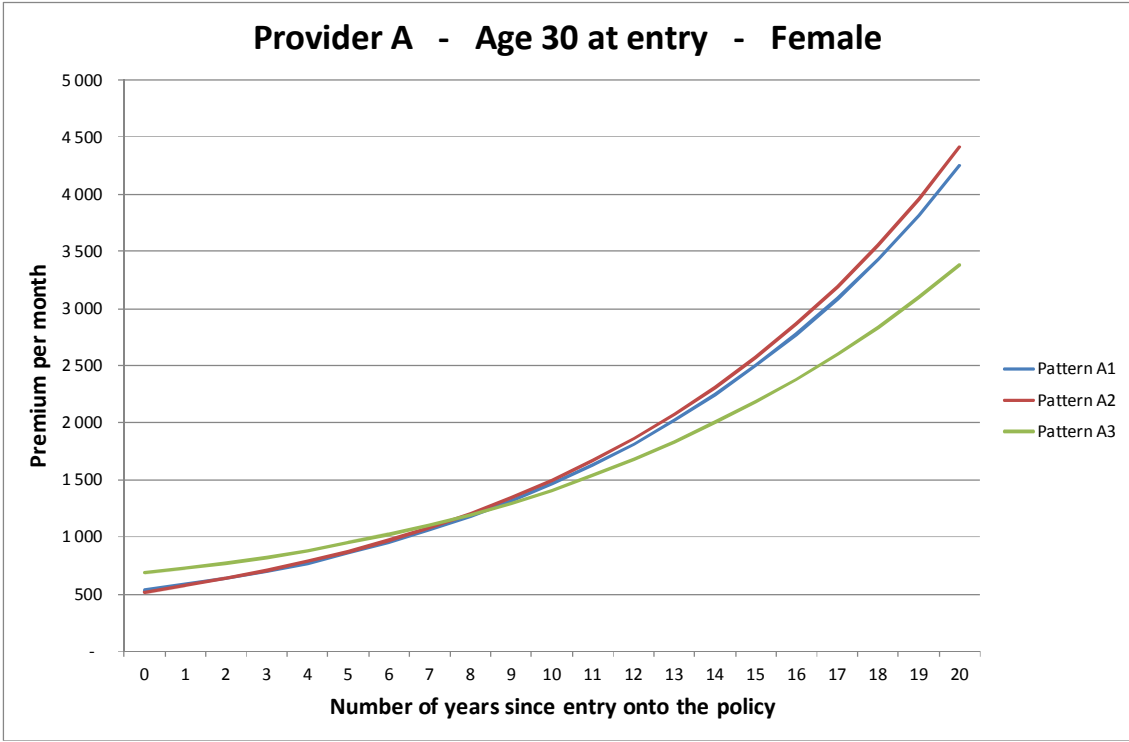
	Gender	Premium pattern D1	Premium pattern D2	Premium pattern D3
<b>Age 25 at entry</b>	Female	n/a	364	494
<b>Age 30 at entry</b>		n/a	423	631
<b>Age 35 at entry</b>		549	581	856
<b>Age 40 at entry</b>		792	837	1 209
<b>Age 50 at entry</b>		1 572	1 657	2 220
<b>Age 60 at entry</b>		2 599	2 712	3 150
<b>Age 25 at entry</b>	Male	n/a	458	609
<b>Age 30 at entry</b>		n/a	502	746
<b>Age 35 at entry</b>		627	672	990
<b>Age 40 at entry</b>		895	956	1 381
<b>Age 50 at entry</b>		1 783	1 895	2 558
<b>Age 60 at entry</b>		3 046	3 199	3 795

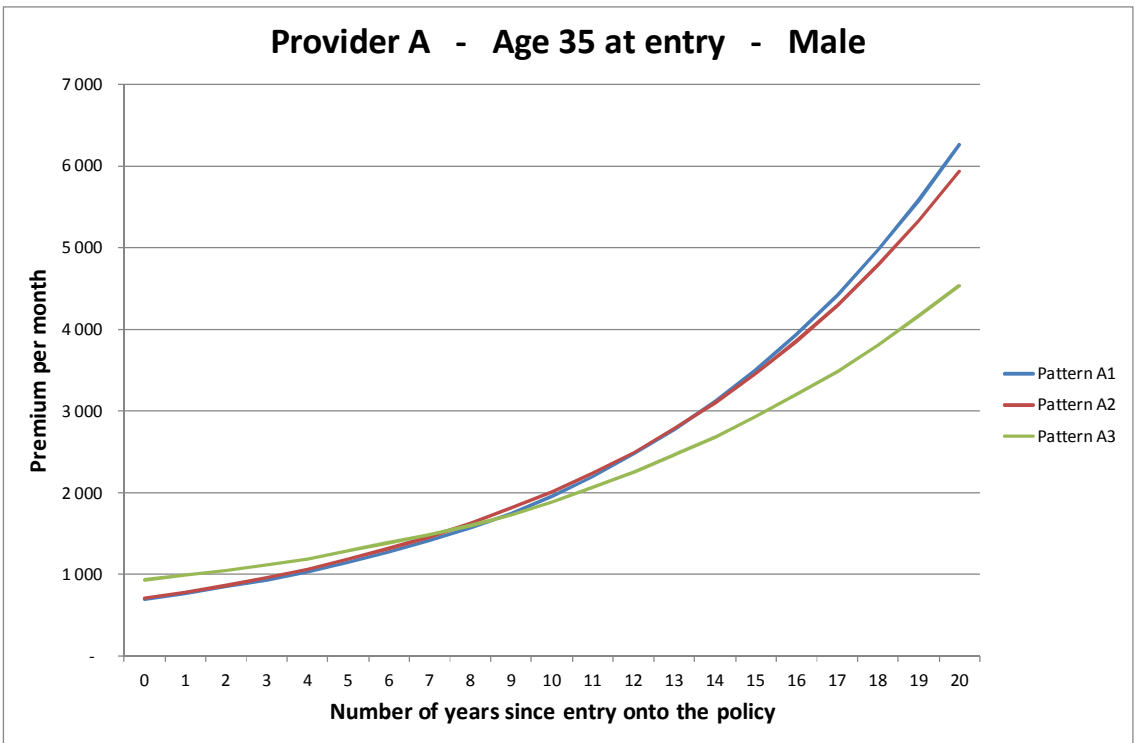
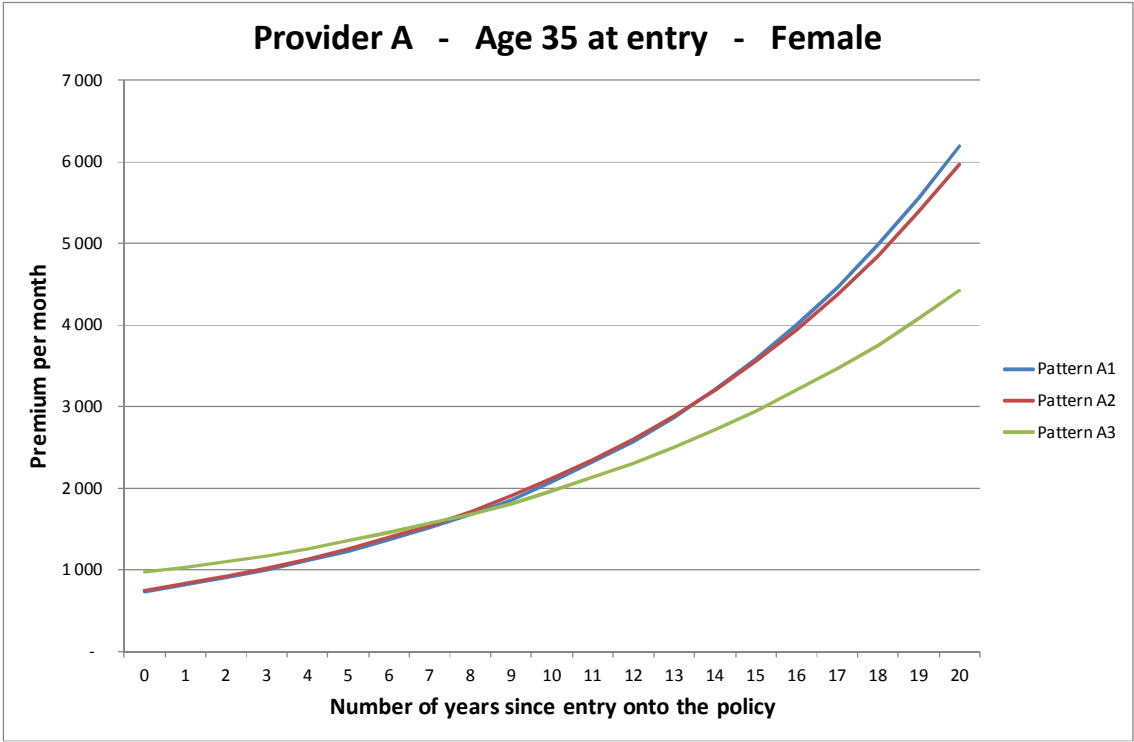


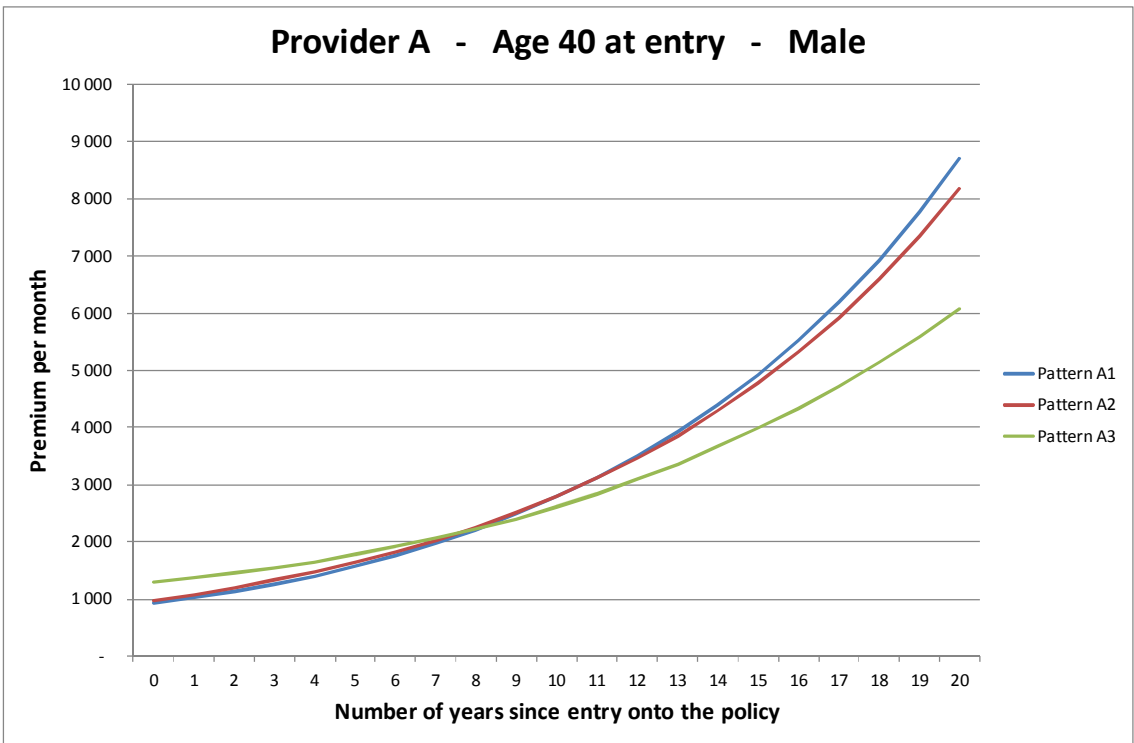
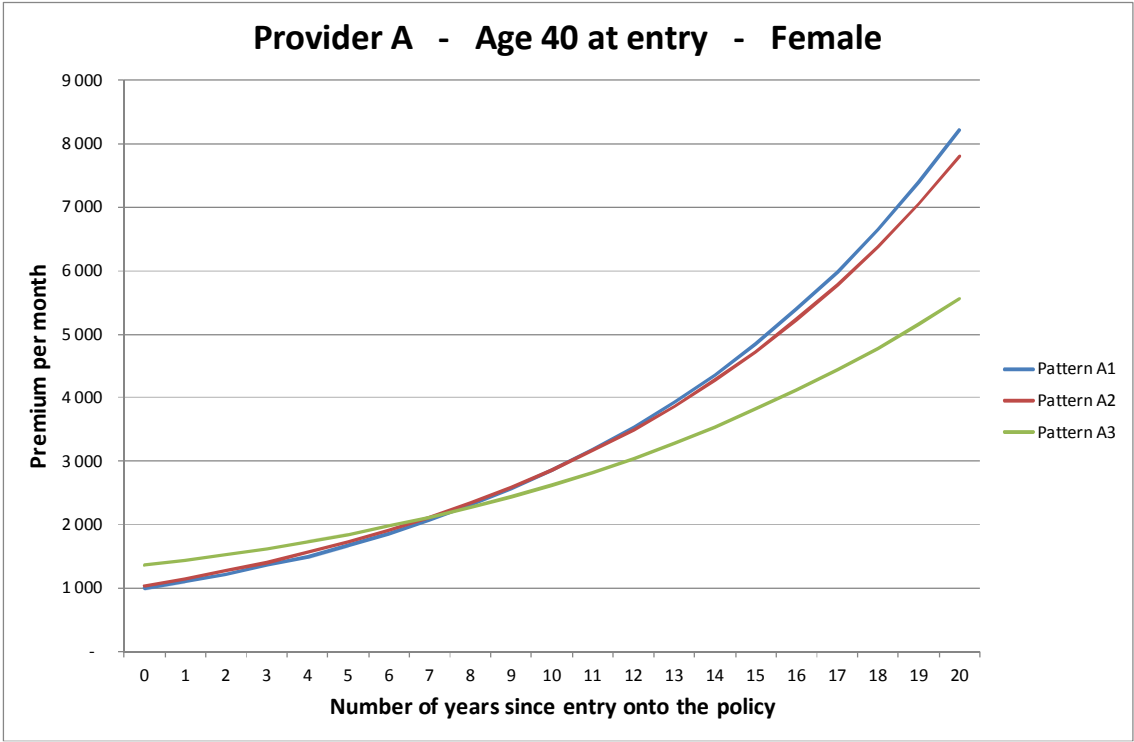
## 7 APPENDIX B – OVERVIEW OF PREMIUM PROGRESSION

### 7.1 PROVIDER A

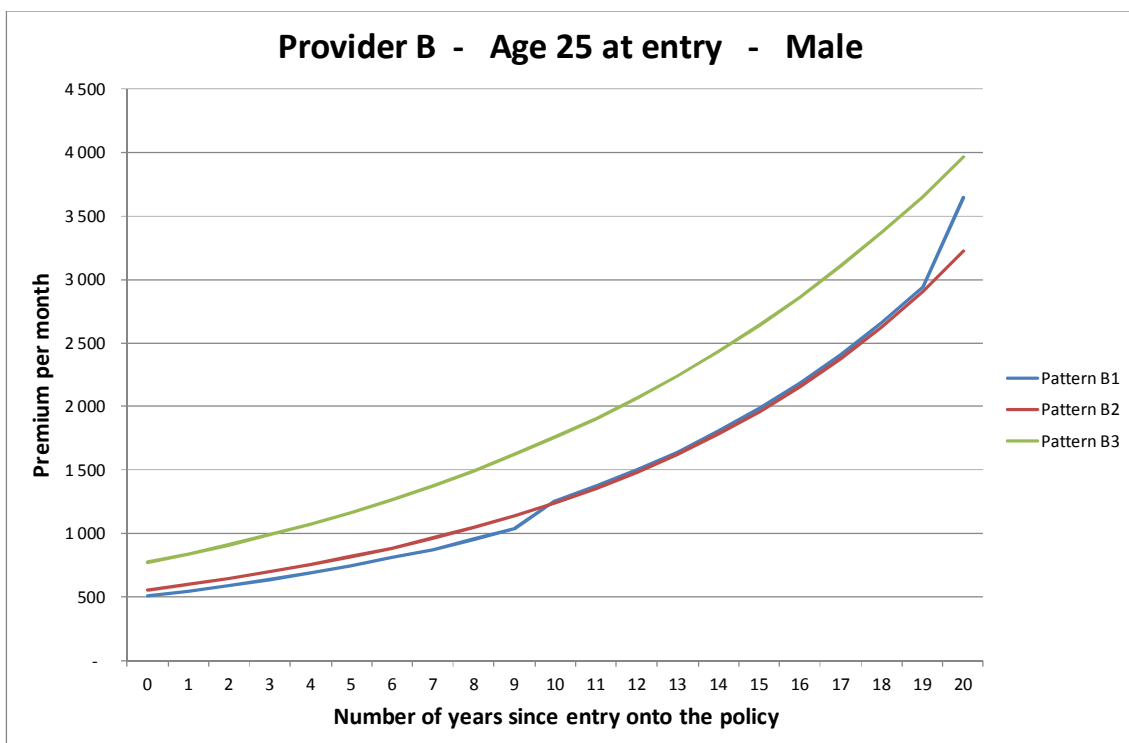
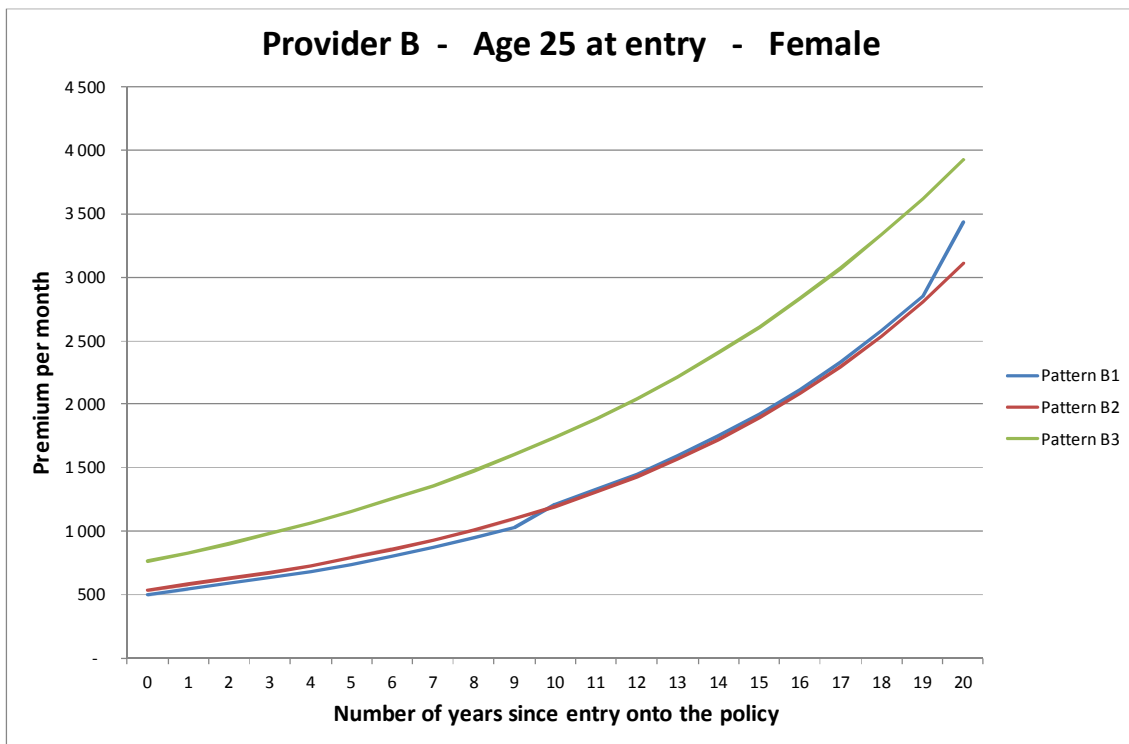


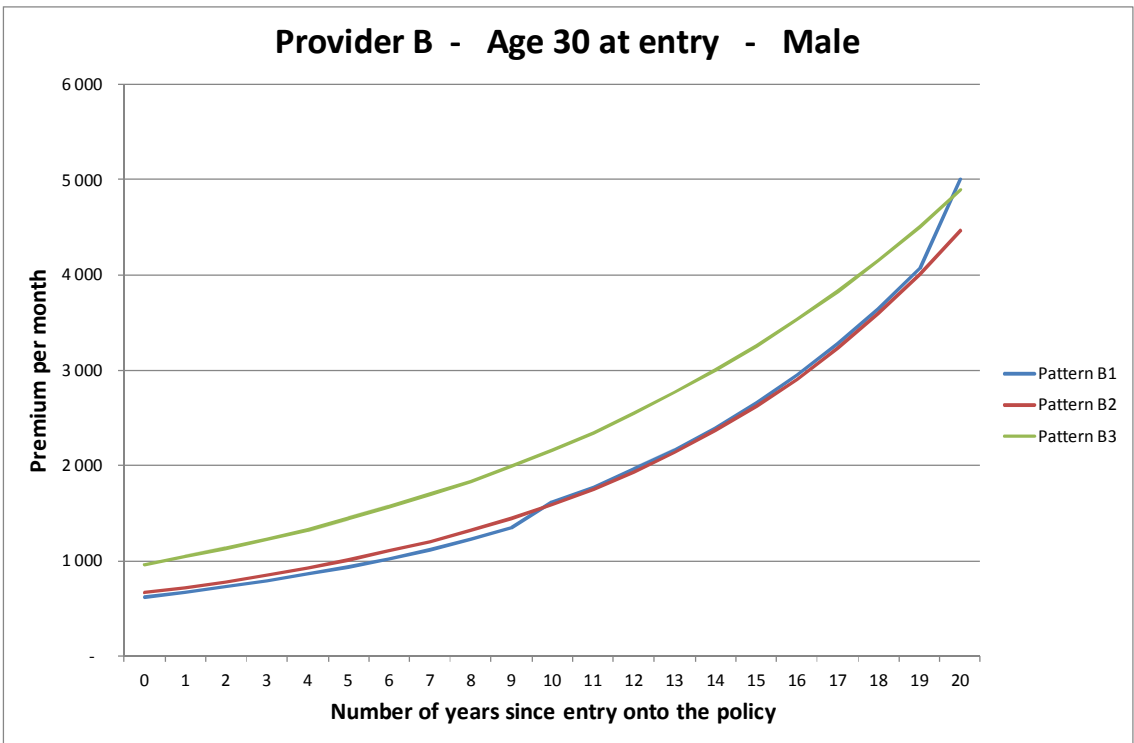
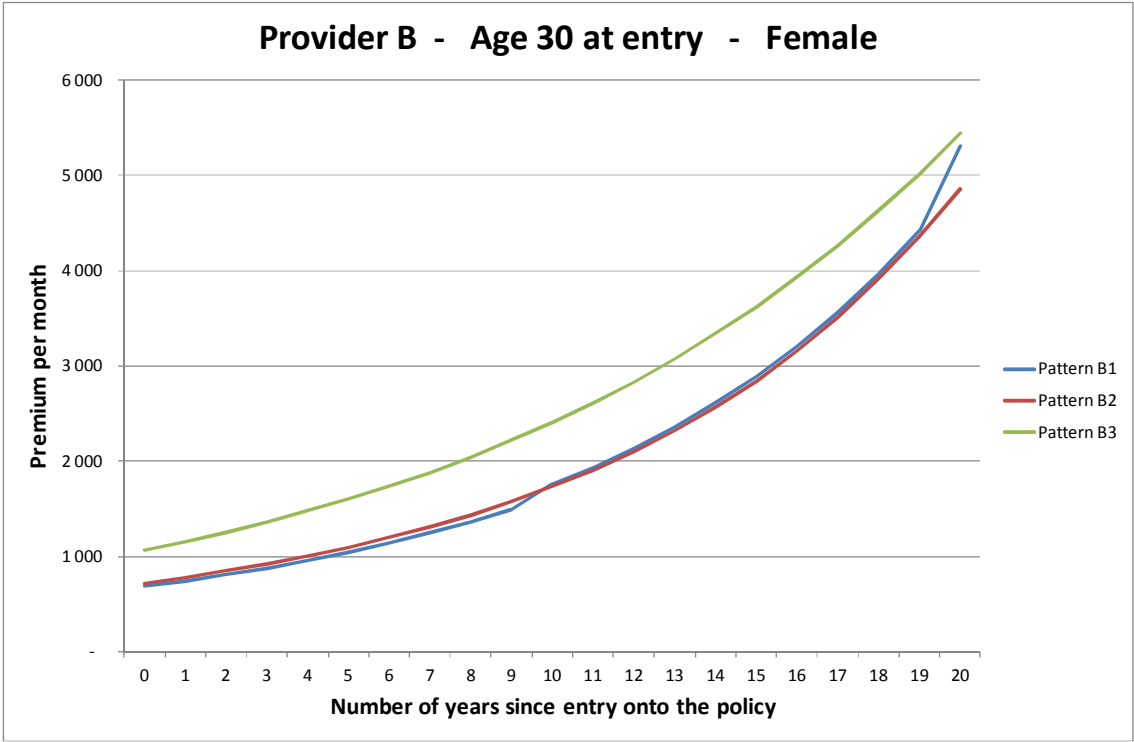


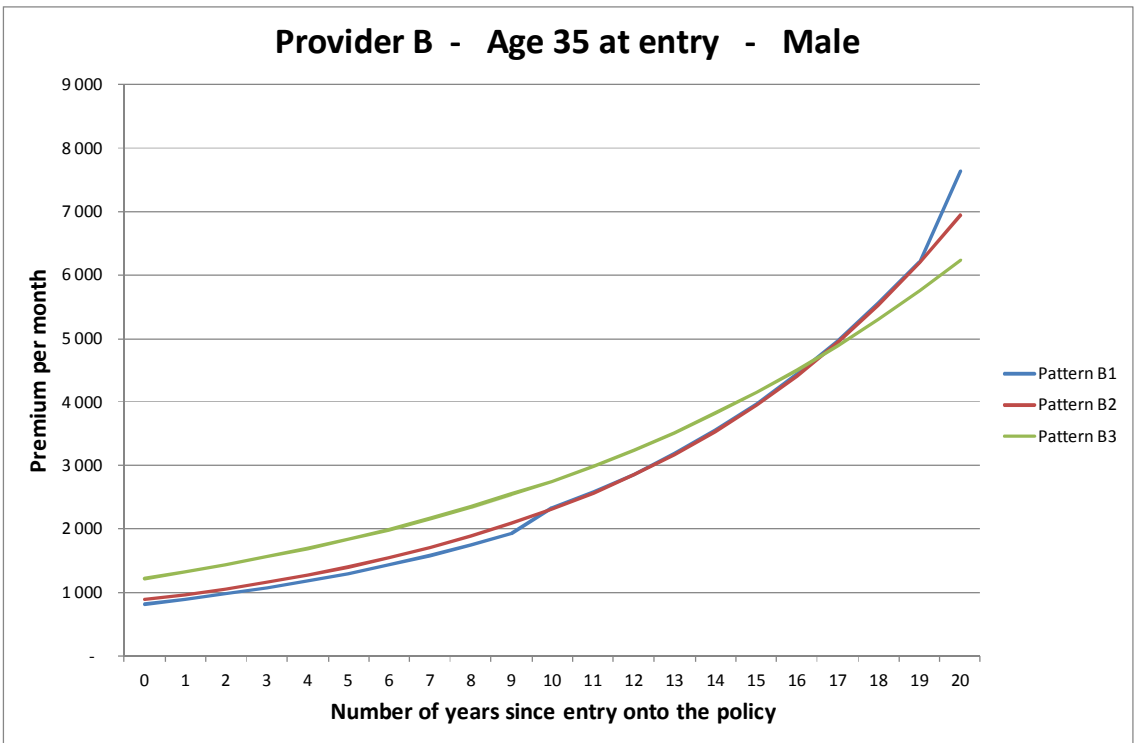
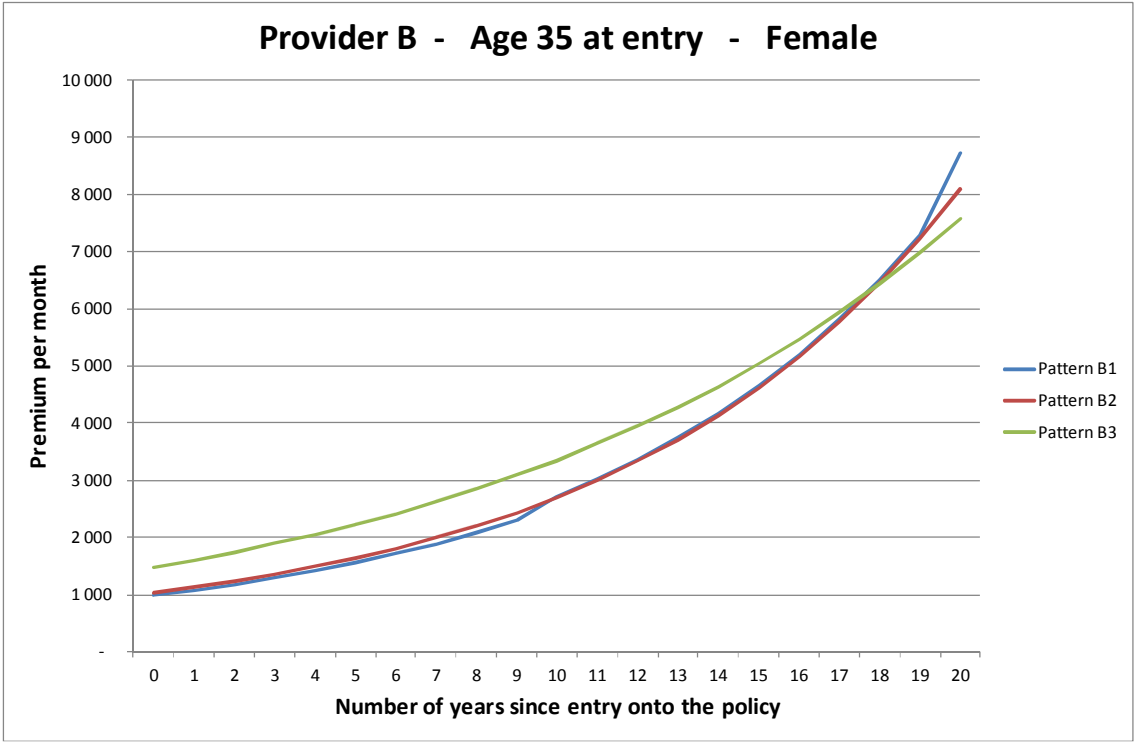


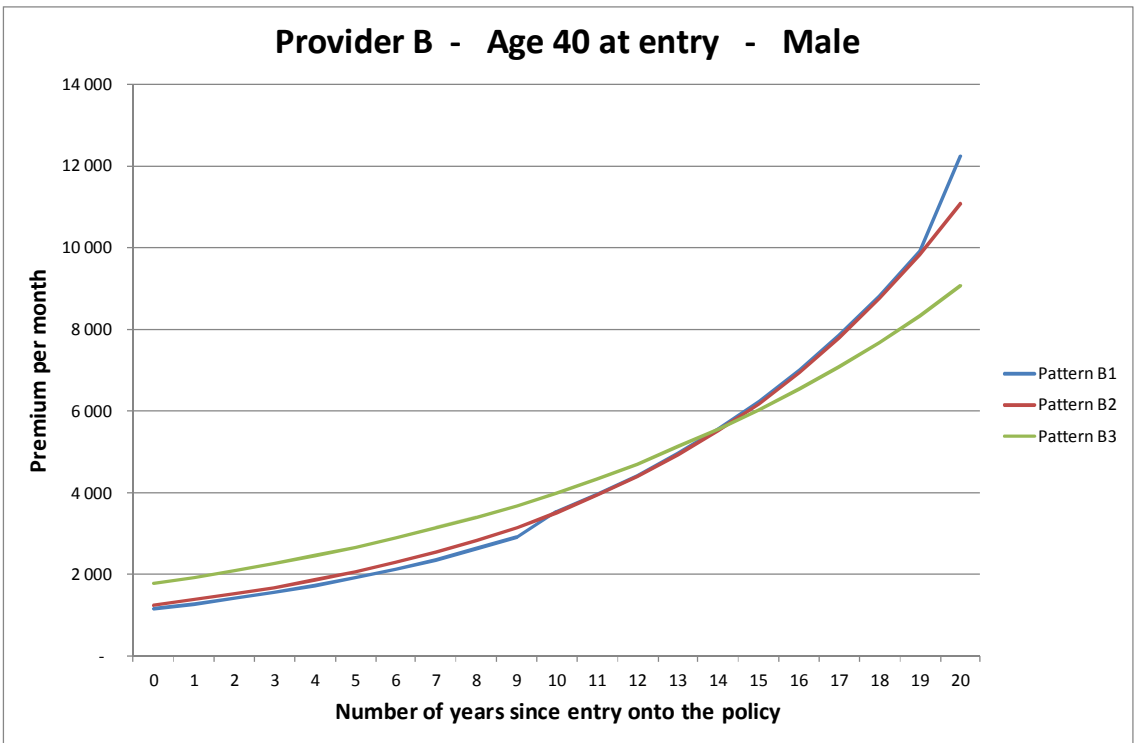
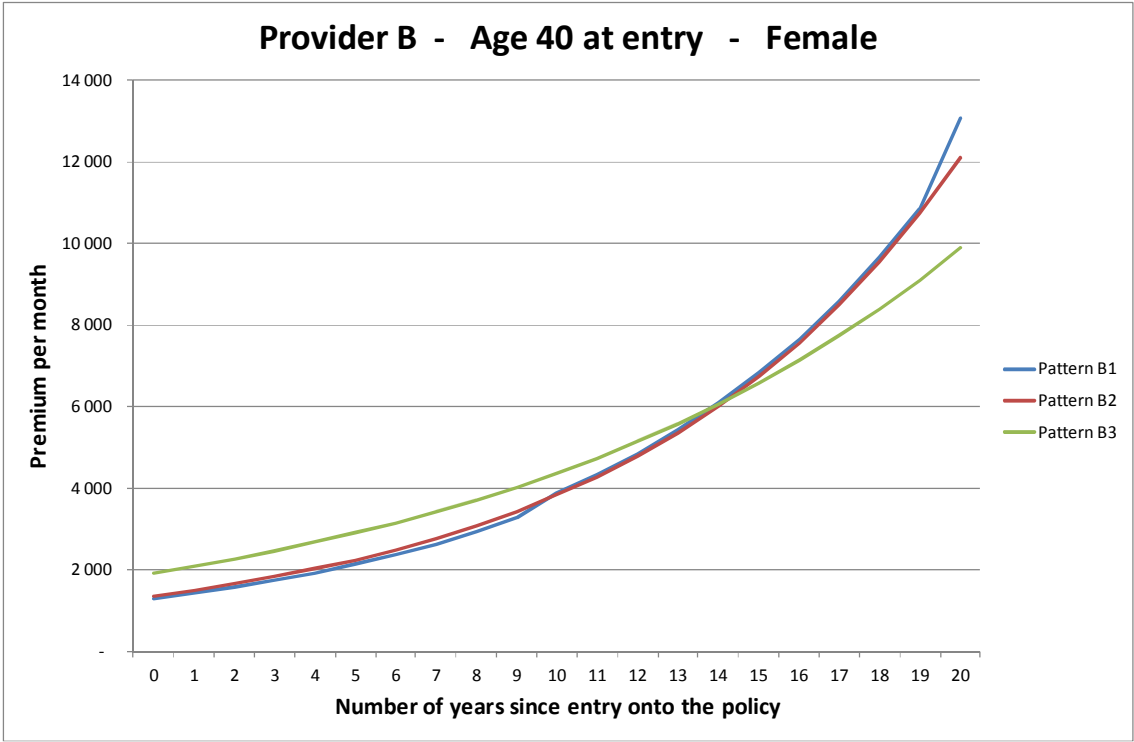


## 7.2 PROVIDER B



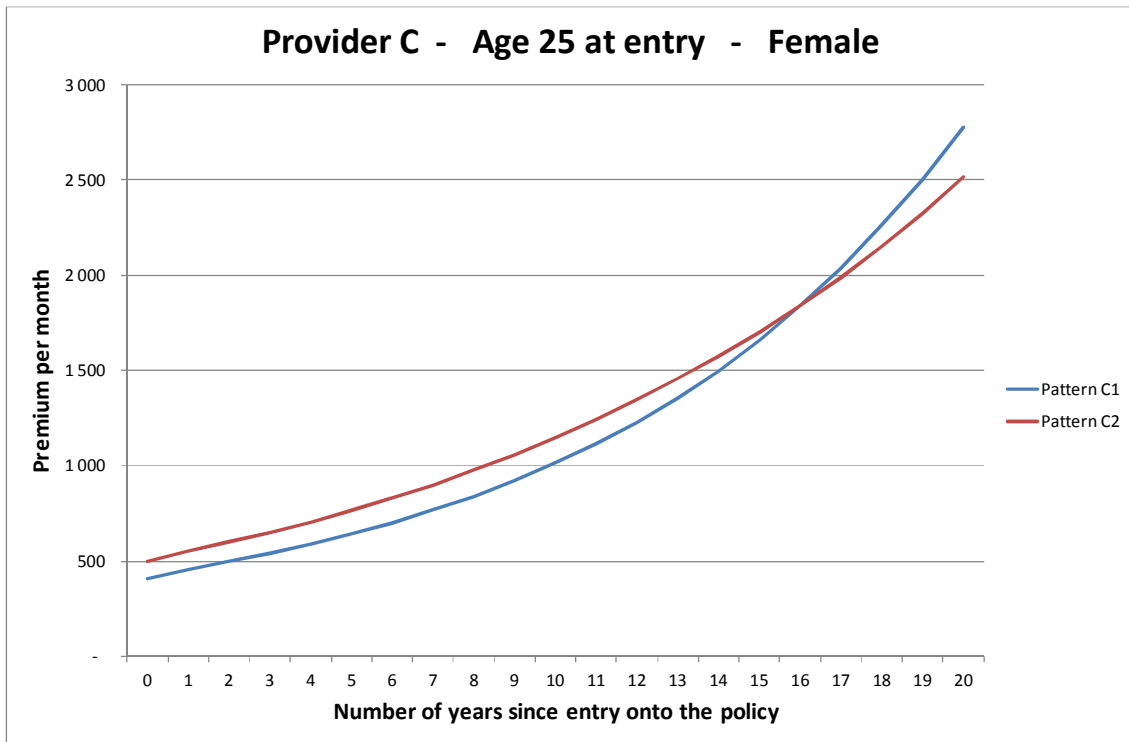


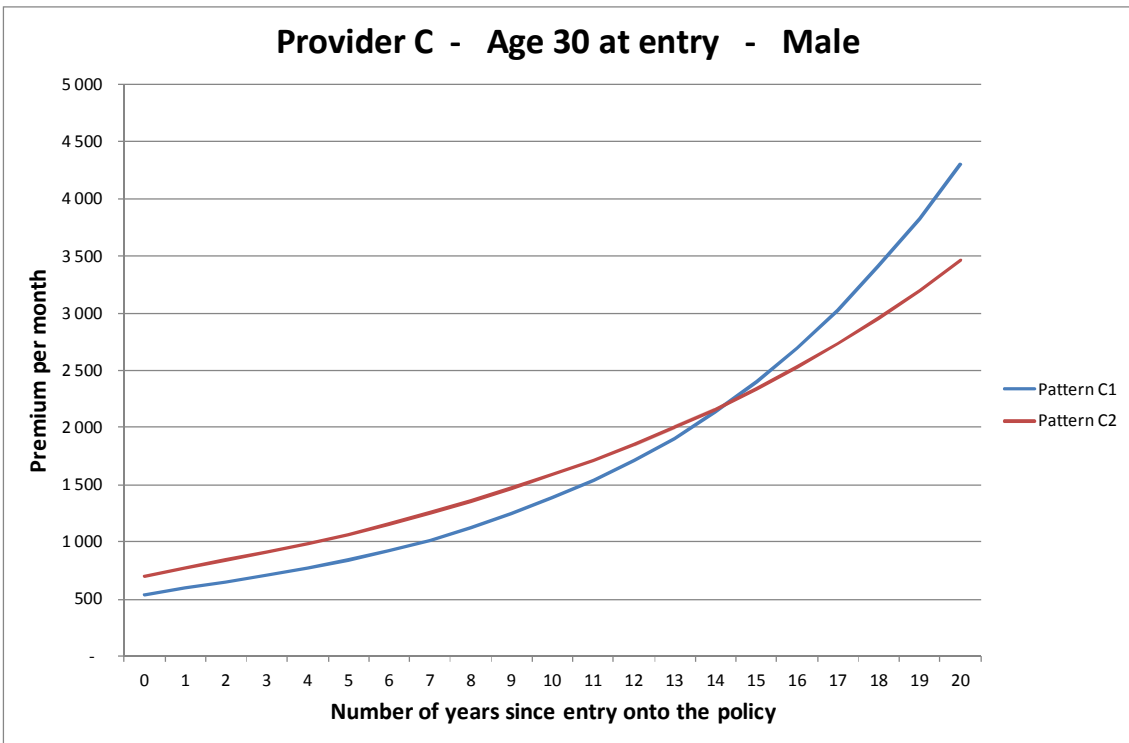
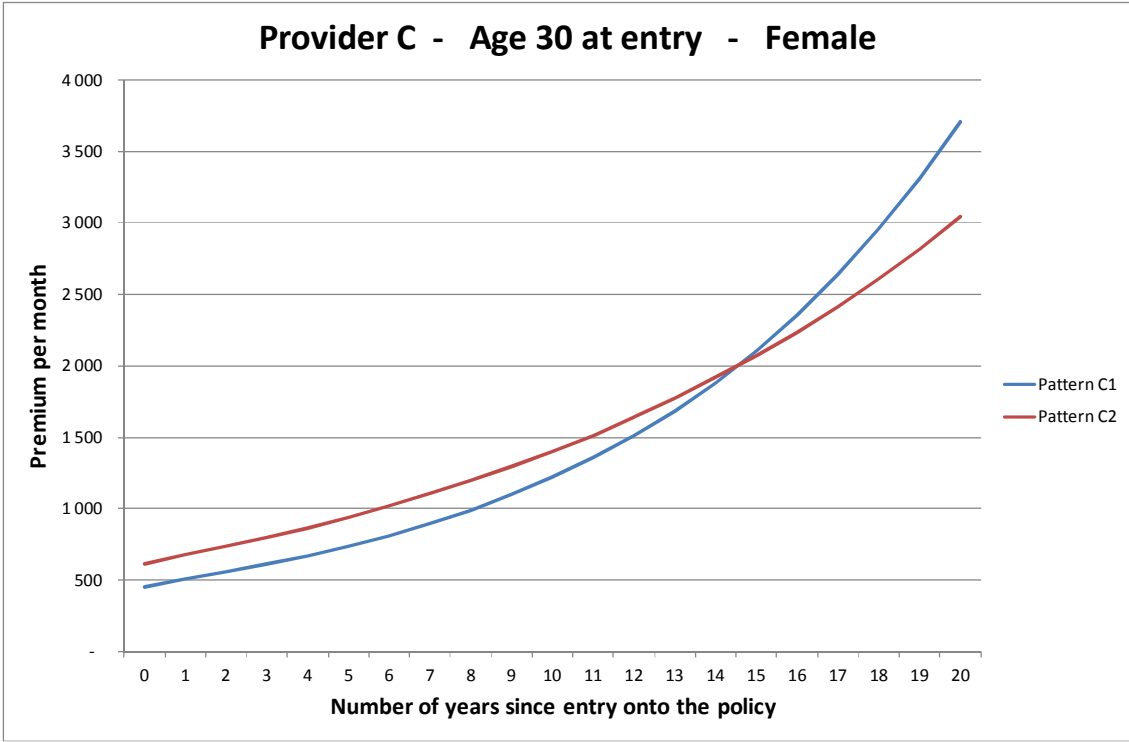


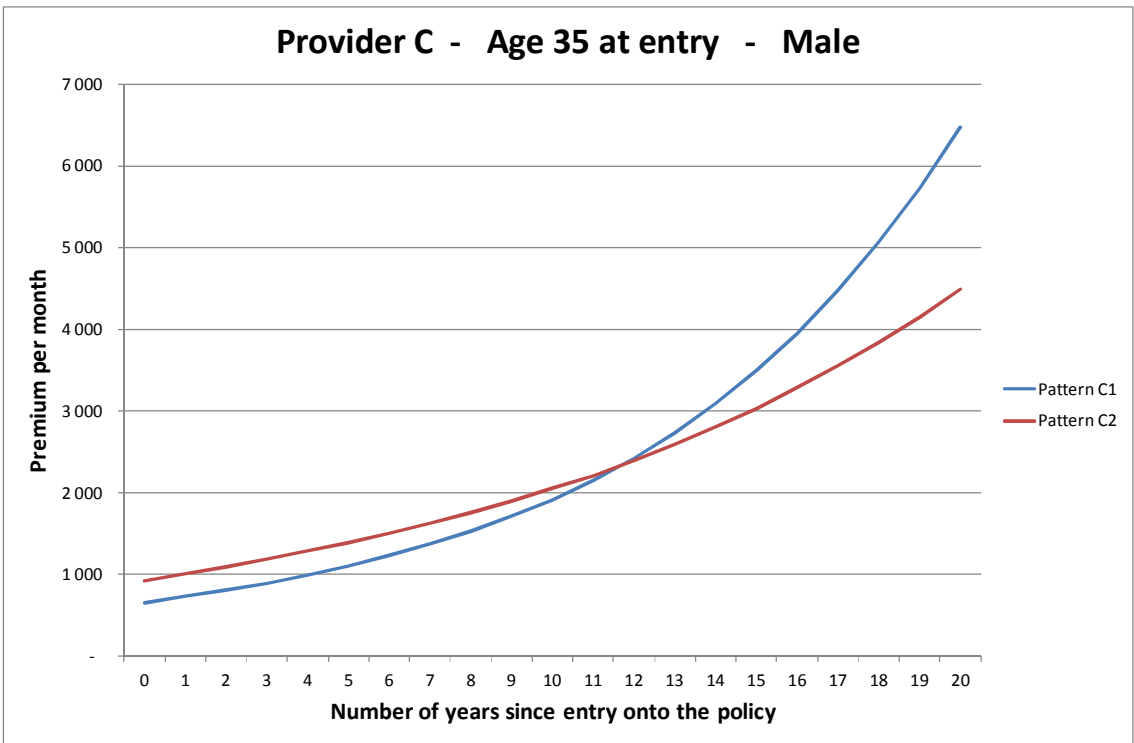
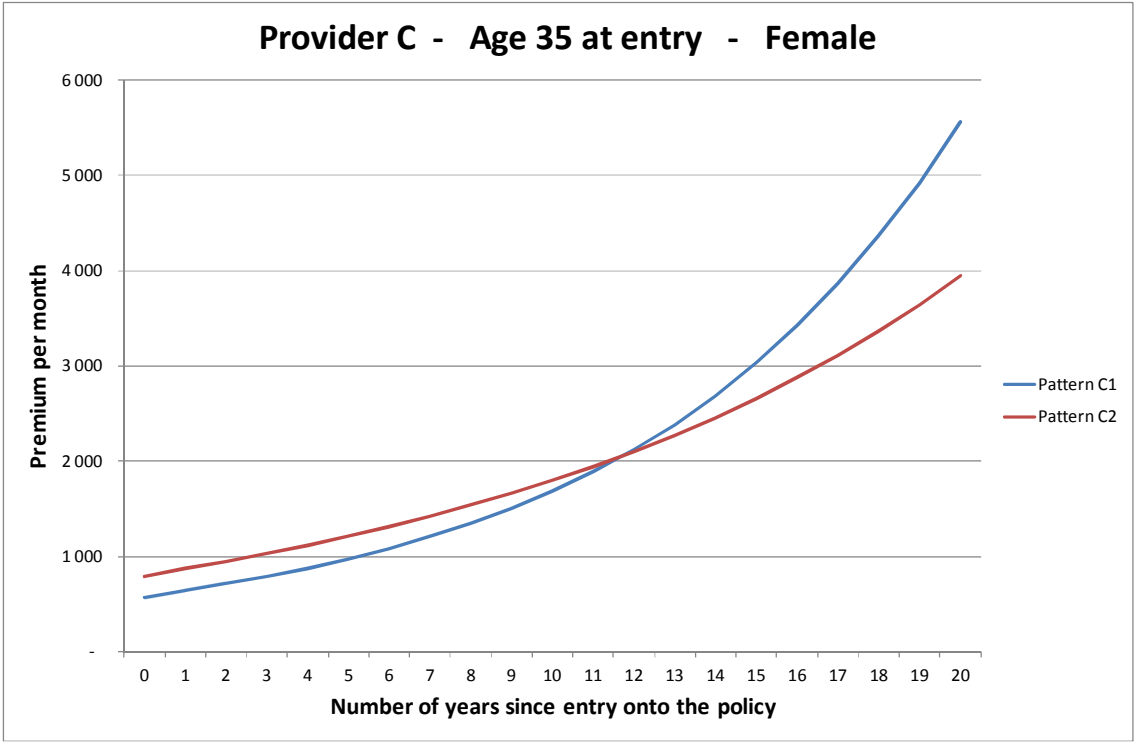


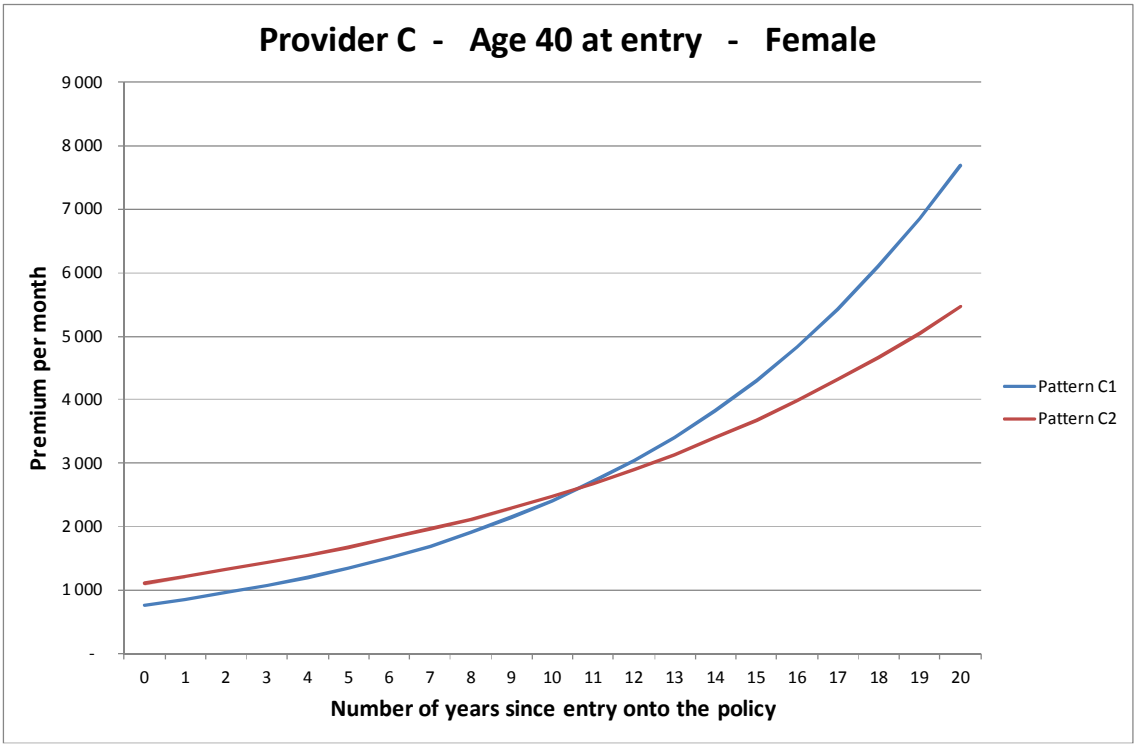


### 7.3 PROVIDER C

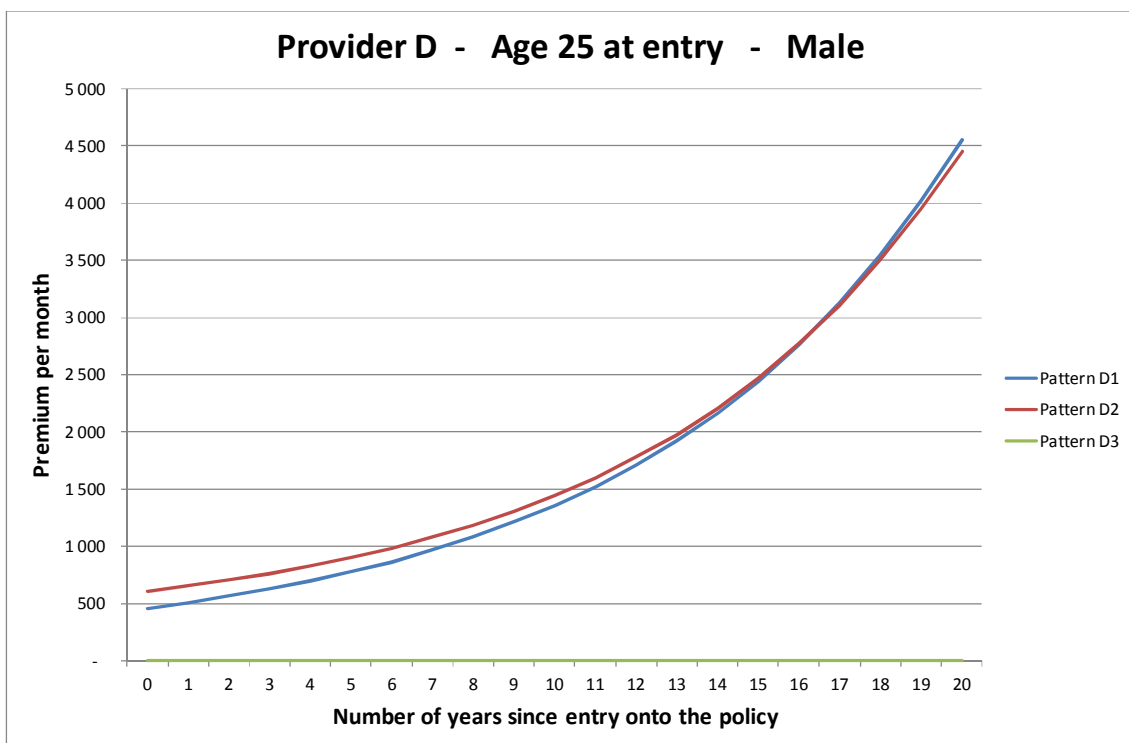
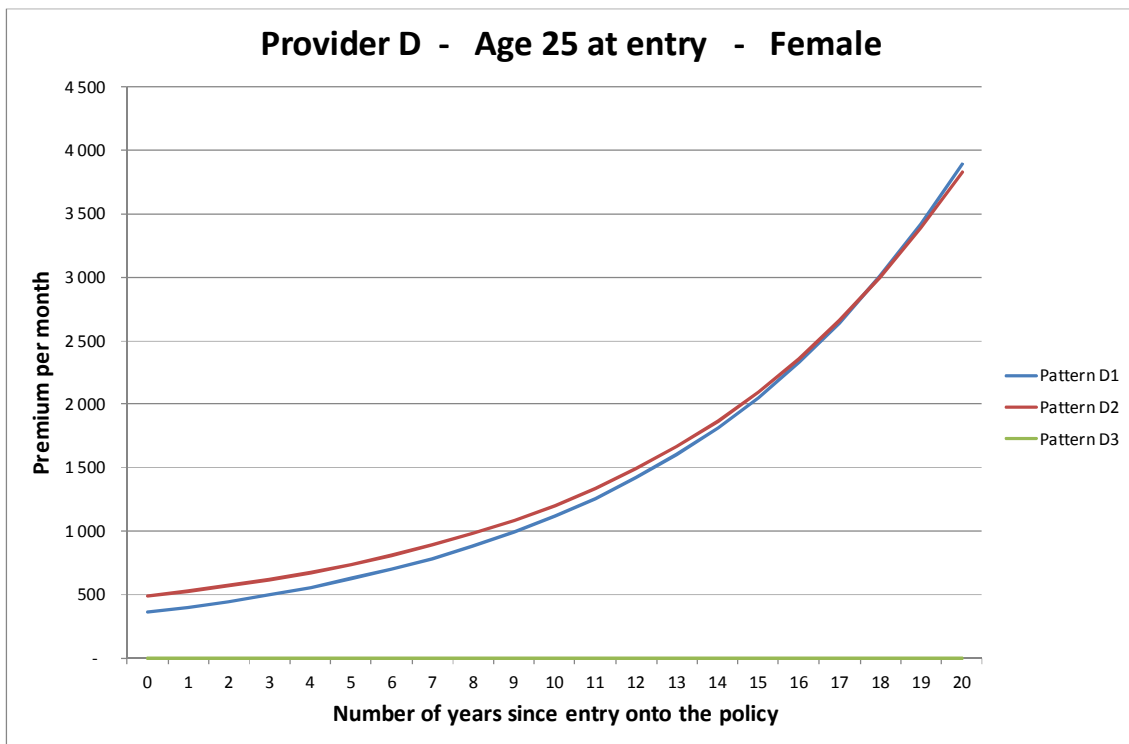


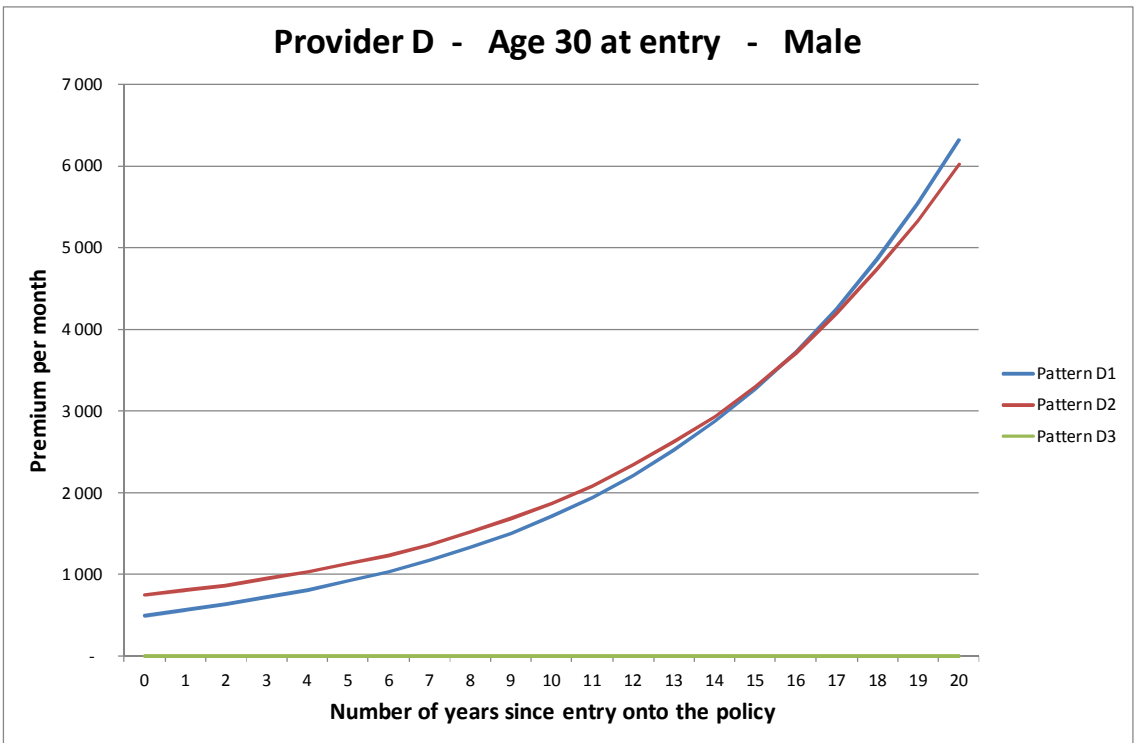
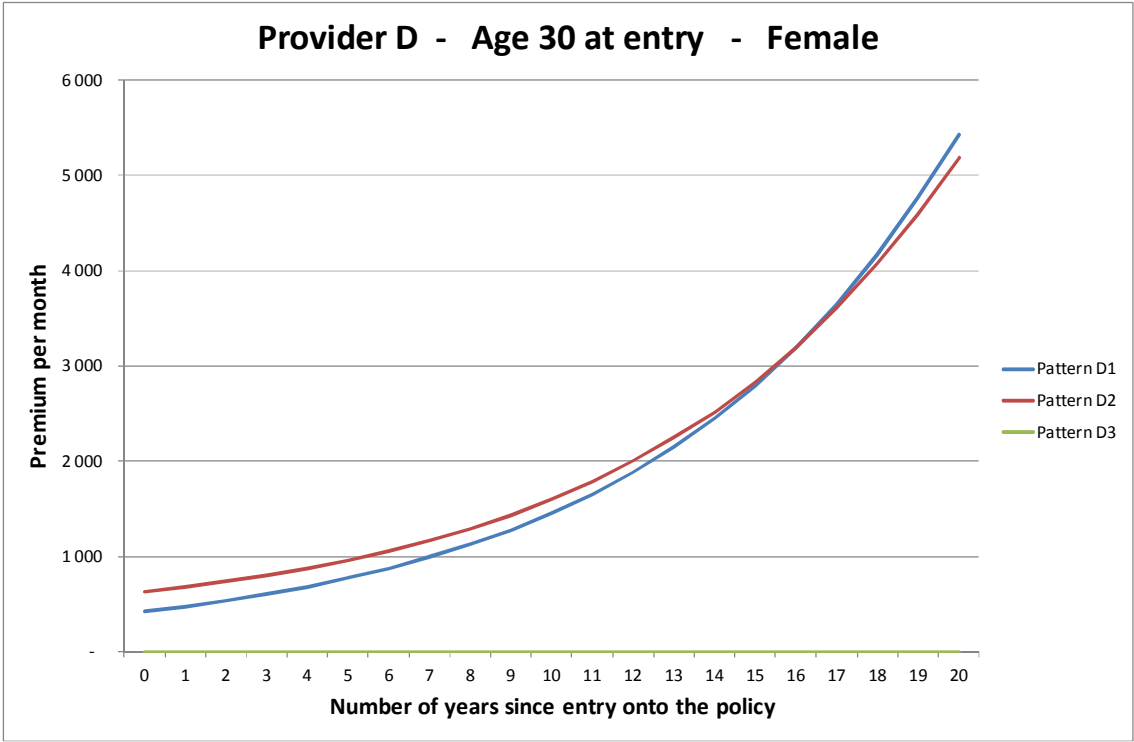


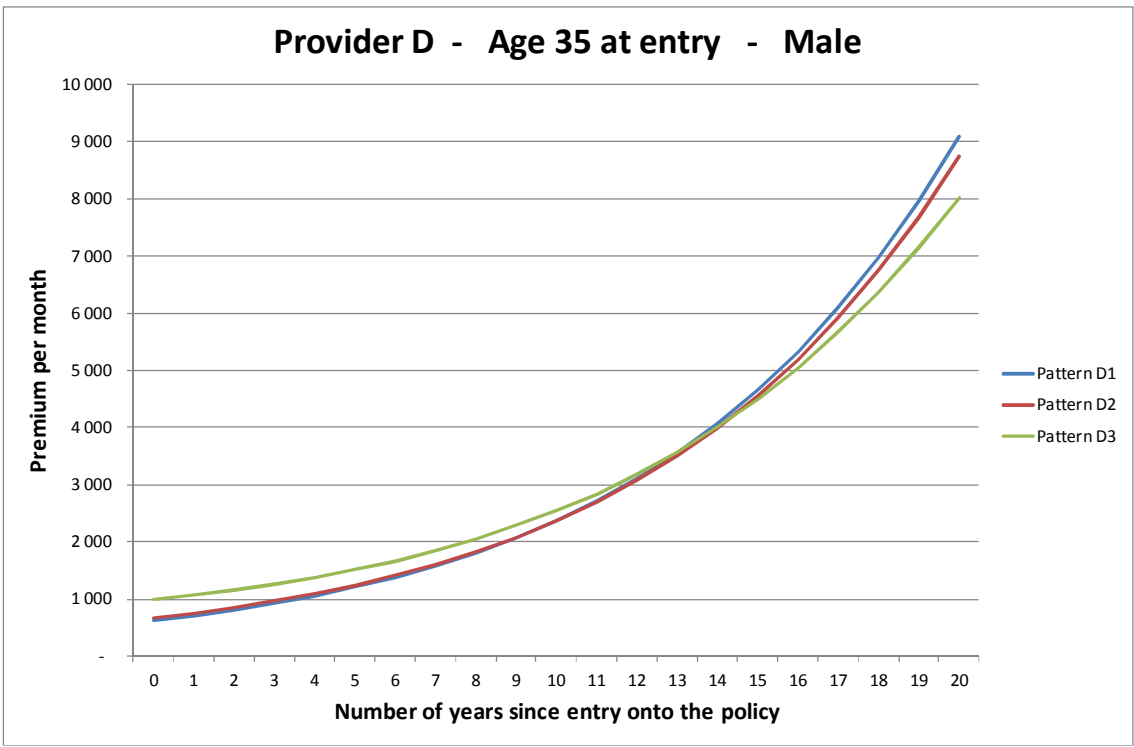
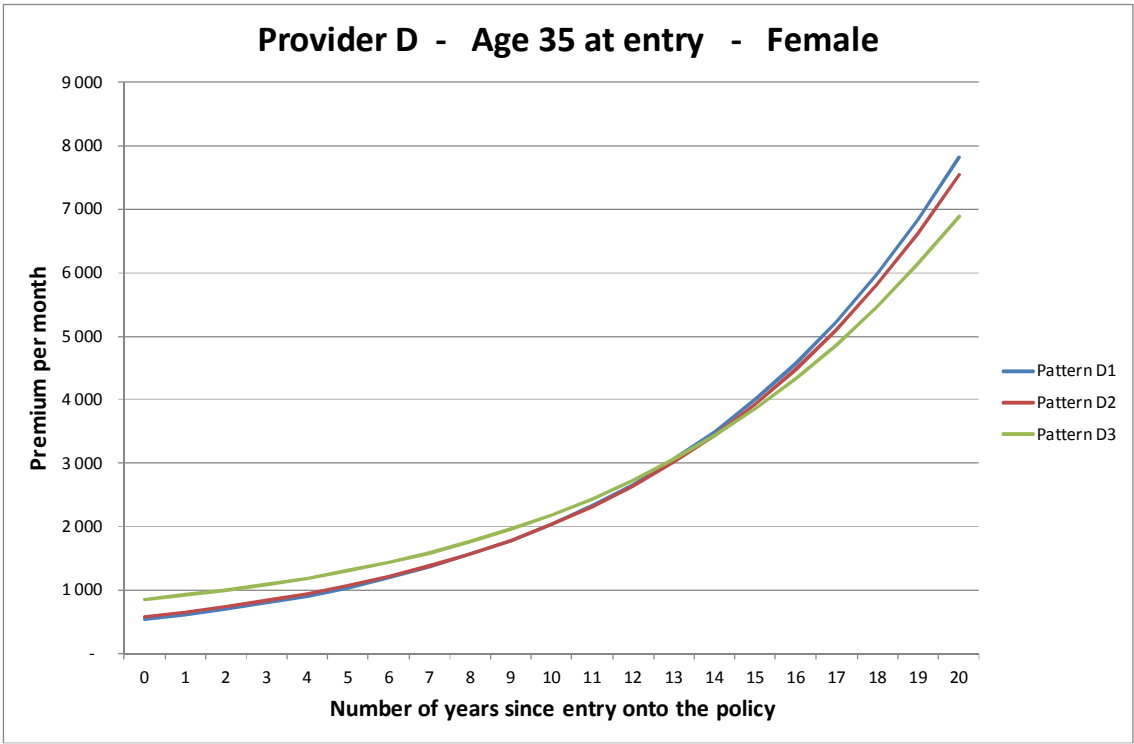


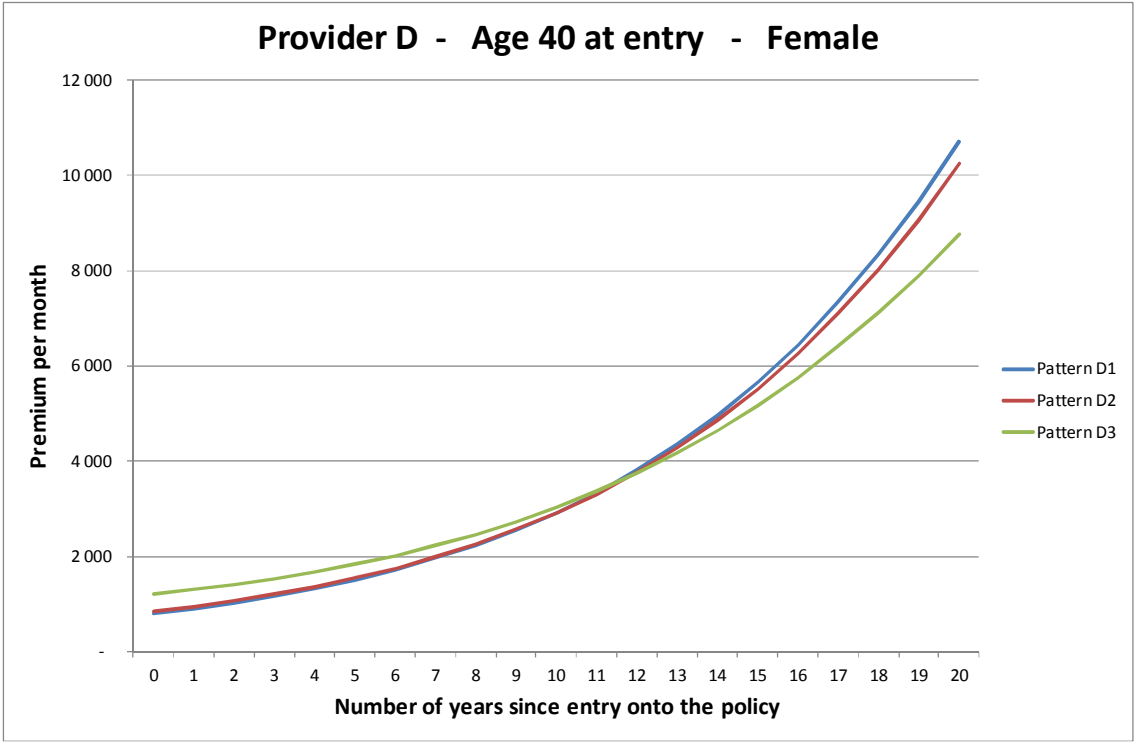


## 7.4 PROVIDER D











## 8 APPENDIX C – ASSUMPTIONS

The main assumptions used for our analysis is set out below (alphabetically).

### 8.1 DECREMENTS

#### 8.1.1 MORTALITY

For use in the population development (lx-table) and the valuation of the life cover benefit, a % of SA85-90 (Light), which varies by model point, was used.

For the derivation of annuity factors, post an income continuation event, 100% of A55 was used across all four providers.

#### 8.1.2 DISABILITY & INCOME CONTINUATION

For use in the valuation of the disability cover benefit a % of the ASSA 1995-1999 crude disability rates (Table 5, Own occupation definition, Professional classification), which varies by model point, was used.

For valuation of income continuation, a factor (that varies over age and gender) of the disability factor was used:

Age at entry	Factor of Disability % used for the Income Continuation benefit	
	Male	Female
25	3.28	3.92
30	3.65	4.68
35	3.76	5.10
40	3.53	4.58
50	2.87	2.63
60	1.09	1.03

#### 8.1.3 SETTING THE DECREMENT FACTORS

The factors applying to the decrement tables (as above) was set to ensure a 7.5% (net of tax) new business margin for each model point.

## 8.2 DISCOUNT RATE

Discount rate at 8.3% (level of R186 Government Bond at the time hereof).

## 8.3 INCOME GROWTH OVER TIME

In order to express premiums as a share of wallet the following income scenarios were used.

	Annual income growth	Replacement factor at retirement
Low road	CPI	50%
Middle road	CPI+2%	60%
High road	CPI+5%	75%

## 8.4 INFLATION

Inflation rates apply to the benefit increases, renewal expense increases and (in some instances) premium increases. It also applies to income growth (as mentioned above). It varied by provider in a tight range around 6%.

## 8.5 LAPSES

A base lapse rate of 5% per annum, which is increased in any given year depending on the excess of the percentage premium increase at that point over the percentage benefit increase:

- 120% of the base lapse rate if  $0\% < \text{excess} < 5\%$ ;
- 150% of the base lapse rate if  $5\% \leq \text{excess} < 10\%$ ;
- 200% of the base lapse rate if  $10\% \leq \text{excess}$ .

## 8.6 POLICY EXPENSES

Renewal and initial expenses were derived from the FSB's feedback on 2009 valuation bases in the industry, updated to 2011 with inflation.

- Renewal at R231/annum (2009 monetary value) increasing annually with 5% inflation up to 2011. Future increases as mentioned above.
- Initial at R517 (2009 monetary value) increasing annually with 5% inflation up to 2011.
- Underwriting expenses (at point of sale) at R1 000 (2011 monetary value) per model point.
- Commission per the Long-Term Insurance Act.