



**Life Insurance Association
Singapore**

LIFE IS WORTH **PROTECTING**. INVEST IN IT.

2017 Protection Gap Study – Singapore

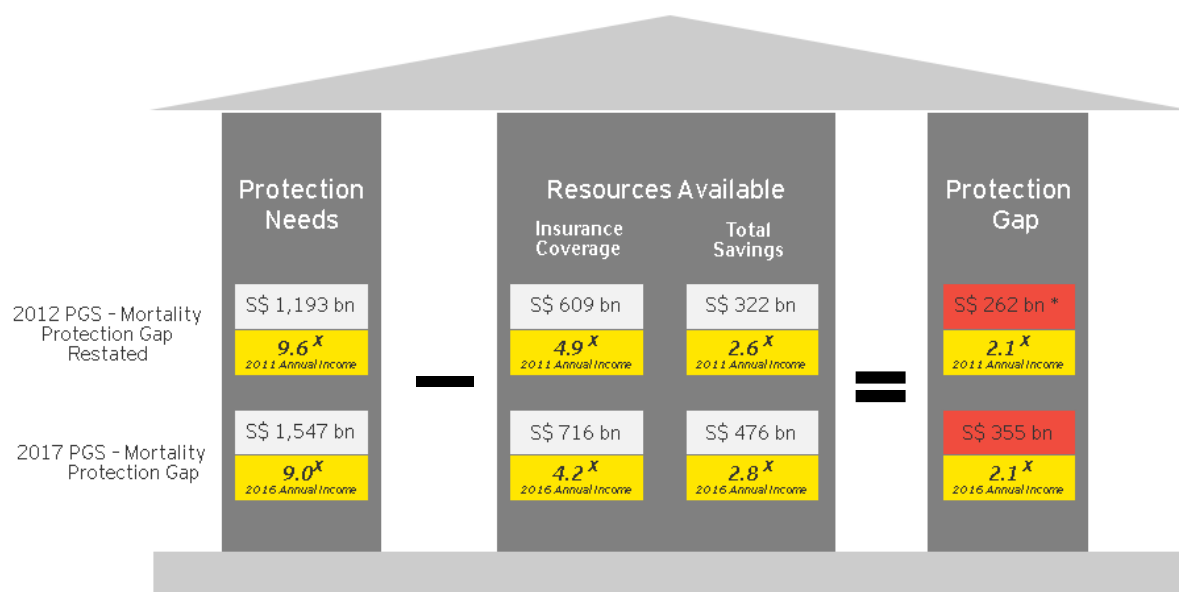
Prepared by Ernst & Young Advisory Pte Ltd

Published on: 26 April 2018

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1. Executive Summary



*The 2012 Mortality Protection Gap has been restated to allow for other savings (cash and deposits) as part of the resources available which is a component newly added in the 2017 Protection Gap Study. Excluding other savings, the total Mortality Protection Gap in the 2012 Protection Gap Study was S\$462 bn.

Mortality Protection Gap

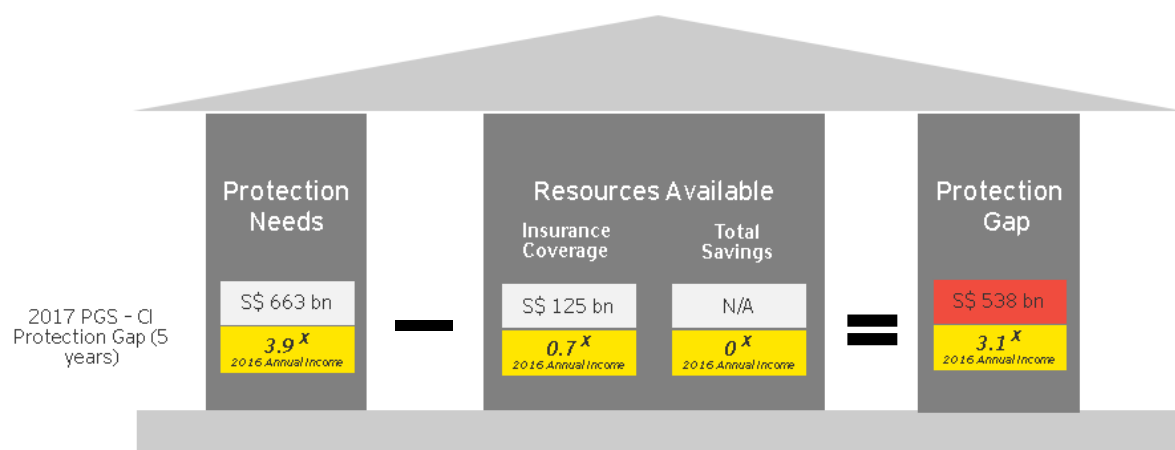
- 1.1 As of 31st December 2016, the Mortality Protection Needs of Economically Active Singaporeans and Permanent Residents is S\$1,547 bn which translated to an overall Protection Need of 9.0x average income. However, it is to be noted that the factor of annual salary to Protection Need varies significantly between the different household profiles and income levels.

S\$1,547 bn
Mortality Protection Needs
- 1.2 The mortality Protection Gap of working adults is S\$355 bn or 2.1x annual income after allowing for insurance and savings. Insurance has played a key role with overall mortality insurance coverage per economically active person of 4.2x annual salary. A further 1.2x annual income to meet the mortality Protection Need was met by existing CPF Savings and another 1.6x annual income by other savings.

S\$716 bn
Life Insurance Coverage
- 1.3 Compared to the previous LIA study conducted at 31st December 2011, there has been an increase in the absolute amount of Protection Needs and Gap. However, the Protection Gap, as a ratio of Average Income has stayed constant, reflecting corresponding increases in wages, savings and insurance coverage. It is important for individuals to continue to review and update their financial planning to reflect changes in insurance needs.

S\$355 bn
Mortality Protection Gap

2.1^x
Annual salary needed to meet the protection gap



Critical Illness Protection Gap

- | | | |
|---|-----|---|
| S\$663 bn
CI Protection Needs | 1.4 | In the 2017 Protection Gap Study, the Critical Illness (CI) Protection Gap has been newly added to the analysis. An approach similar to the mortality protection gap has been used to calculate the CI gap for economically active Singaporeans and Permanent residents at 31 st December 2016, by assuming a five-year CI recovery period. |
| S\$125 bn
CI Insurance Coverage | 1.5 | The overall CI Protection Needs is S\$663 bn which translates to overall Protection Needs of 3.9x average income. This amount represents the financial needs of household expenses, outstanding debt payments and lifestyle maintenance during the period of recovery. Immediate medical expenses are assumed to be covered by Medishield or an Integrated Plan. |
| S\$538 bn
CI Protection Gap | 1.6 | The CI Protection Gap amounts to S\$538 bn or 3.1x average income after allowing for CI insurance coverage of S\$125 bn or 0.7x annual income. |
| 3.1^x
Annual salary needed to meet the protection gap | 1.7 | Since the CI Protection Gap has been calculated for the first time as at 31 st December 2016, no comparison is available against the 2012 position. |
| | 1.8 | The reader is advised to be aware of key limitations arising from the assumptions and data sources used in the calculation of the Mortality and CI Protection Gaps. Furthermore, these results reflect the average across Singapore, whereas each individual's circumstances will be different and specific to the individual. As such, individual protection needs should be analysed separately and professional advice obtained where necessary. |

The 2017 PGS covers the mortality and CI gaps at 31st December 2016.

The 2017 PGS focuses on Singaporeans and Permanent Residents between the ages of 20 to 69, who are economically active (EA) and have at least one dependent

2. Introduction

- 2.1 The Life Insurance Association of Singapore ("LIA") has engaged Ernst & Young Advisory Pte. Ltd. ("EY") to carry out the 2017 Protection Gap Study ("PGS") covering both mortality and Critical Illness (CI). This study was performed on the 31 December 2016 position.
- 2.2 This report summarises the results and approach adopted for the 2017 PGS, including:
 - The methodology used for the calculation of the 2017 protection gap (mortality and CI)
 - The breakdown of the gap into appropriate segments
 - The sources of data used in the PGS
 - Analysis of insurance industry data
- 2.3 Our study adopts a methodology broadly consistent with PGS 2012 and focuses on Singaporeans and Permanent Residents between the ages of 20 to 69 who are Economically Active (EA) and have at least one dependent. Key changes from the previous study include:
 - Calculation of the Critical Illness gap, in addition to the mortality gap
 - Allowance for Other Savings in addition to CPF savings
- 2.4 The reader is advised to be aware of the various key assumptions have been made. Changes in the assumptions will have an impact on the PGS results. The key assumptions that were made in the 2017 PGS include the following:
 - Retirement age is assumed to be 65 in the calculation of spouse's income.
 - Elderly parents are assumed to be the higher of age 65 or 25 years older than the economically active adult, used in calculation of elderly needs and rent.
 - The life expectancy is assumed to be to 87.4 years for all the individuals, in line with the life expectancy of a female in Singapore at 31st December 2016.
 - Future income and expenses are inflated using prospective rates specified in Appendix D, Assumptions and Data Sources. Future income and expenses are discounted at a rate that is based on the yield on the 15 year Singapore Government Bond of 2.74%.
 - The CI recovery period is assumed to be 5 years, and no distinction is made between early and advanced CI coverage.
 - CPF or other savings are not available as resources to meet the CI Protection Needs, as we have assumed that those savings are required for retirement needs.

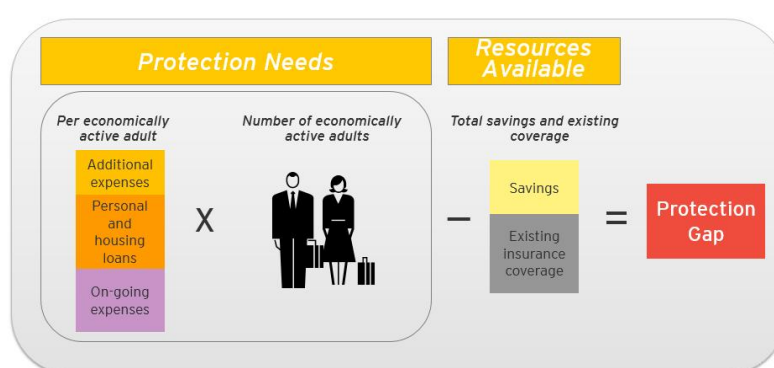
The protection gap is a metric to estimate the lack of protection against the financial consequences of specific events such as death or CI.

The mortality protection gap is the amount of money required by dependents to cover expenses, clear outstanding debt and maintain a reasonable lifestyle less existing savings and insurance coverage for mortality.

3. Definition of the Protection gap

- 3.1 The protection gap is a metric to estimate the lack of protection against the financial consequences of specific events such as death or CI.
- 3.2 Since the approach is not driven by any regulatory requirement worldwide, different methods can be used to estimate the protection gap. In this report, the protection gap has been calculated as the difference between the protection needs (resources required) and the resources available.

Figure 1 Protection Gap

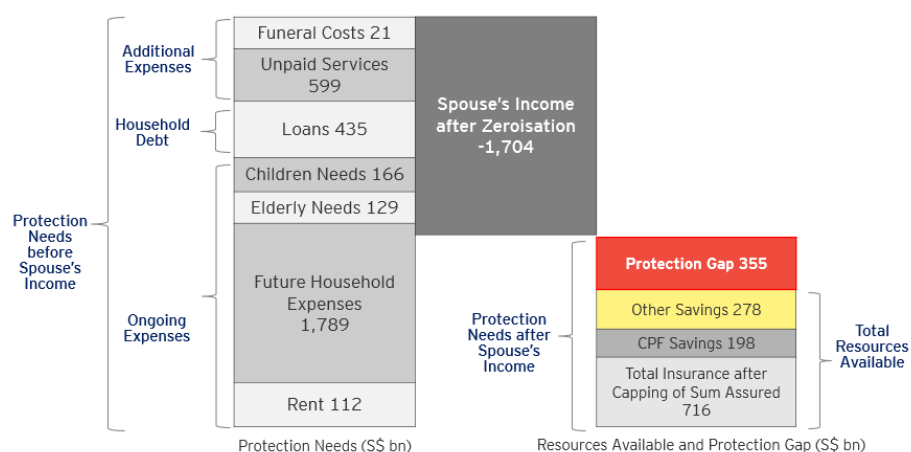


- 3.3 The protection needs include:
- Additional expenses: funeral costs and unpaid services
 - Personal and housing loans
 - Ongoing expenses for dependents: needs of the children, needs of elderly parents, rent and future household expenses, after deduction of the remaining income of spouse
- 3.4 The resources available include:
- Saving: CPF and Other Savings (cash and deposits)
 - Insurance coverage: Group and Individual insurance

Mortality Protection Gap

- 3.5 The mortality protection gap represents the financial gap to cover needs of dependents over a defined period in the event of death. It is the amount of money required by dependents to cover expenses, clear outstanding debt and maintain a reasonable lifestyle less existing savings and insurance coverage for mortality, following the death of a member of the household.

Figure 2 Mortality Protection Gap

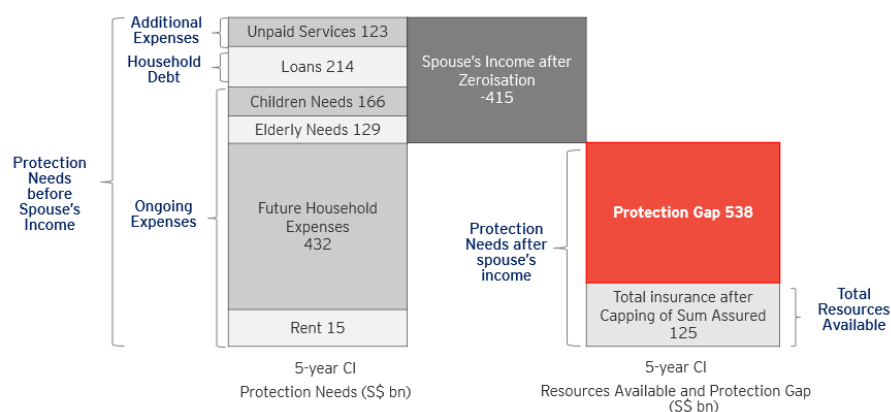


CI Protection Gap

The CI protection gap represents the financial gap to cover family needs during the CI recovery period, until the patient is able to return to work or to adjust his or her lifestyle needs.

- 3.6 The CI protection gap represents the financial gap to cover family needs during the assumed CI recovery period of 5 years, until the insured is able to return to work, or to adjust his or her lifestyle needs. These needs include expenses, outstanding debt payments and lifestyle maintenance less existing insurance coverage for CI.
- 3.7 We have assumed that the direct medical costs for the CI treatments are met by the patients existing Medishield Life or Integrated Shield plans, and CPF Medisave Accounts, reflecting the health financing landscape of Singapore.
- 3.8 We have not counted CPF or other savings as available resources to meet the CI Protection Needs, as we have assumed that those savings are required for retirement needs.
- 3.9 In the 2017 PGS, the CI protection gap is calculated using the same approach as mortality protection gap considering the same components but adapted to the needs of CI. The change in assumptions in CI protection Gap is documented in Section 5 of this report.

Figure 3 Critical Illness Protection Gap



The number of economically active adults is estimated to be 2,093,567 at the end of 2016.

Family profiles

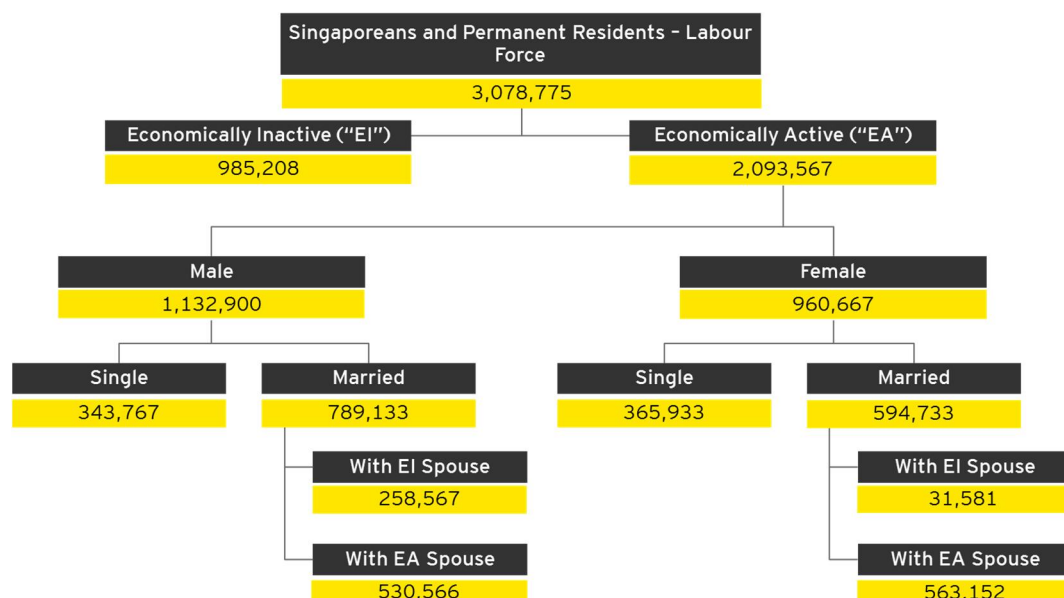
3.10 For both the mortality and CI Protection Needs, we have performed our calculations on the following groupings in order to provide additional insights into the protection gap:

- 6 family profiles depending on the gender and the economic status of the spouse
 - Male Single with Elderly Parent
 - Female Single with Elderly Parent
 - Male Married with Economically Active Spouse
 - Male Married with Economically Inactive Spouse
 - Female Married with Economically Active Spouse
 - Female Married with Economically Inactive Spouse
- 5 Income quintiles
- 10 age bands (20-24,25-29,...,65-69)

3.11 The total number of Economically Active adults as at end of 2016 was estimated to be 2,093,567 persons, representing a 10% increase from the end of 2011. Figure 4 below shows the total numbers of EA in each family profile at 31st December 2016.

3.12 Economically Inactive adults are excluded from the calculation of the Protection Gap, consistent with the previous studies and due to data limitations. This study is therefore focused on the EA adults only.

Figure 4: Family profiles



4. Mortality Protection Gap

- 4.1 The protection gap per Economically Active Adult can be broken down as below.

Table 1: Average Protection Needs and Protection Gap per economically active adult (S\$)

Protection Need after Zeroisation	738,783
Less: CPF Savings	94,566
Less: Other Savings	132,566
Less: Existing Insurance Coverage	341,988
Protection Gap	169,673
Average Annual Income	81,663
Multiple of Annual income	
Protection Need after Zeroisation	9.0x
CPF Savings	1.2x
Other Savings	1.6x
Existing Insurance Coverage	4.2x
Protection Gap	2.1x

- 4.2 The calculation and results of the individual components of the Protection Gap are detailed in the following sections.

Protection Needs - Additional Expenses

- 4.3 Additional expense protection needs consists of funeral costs and unpaid services.

Funeral costs

- 4.4 Funeral costs are the cost of holding a funeral, including all after-funeral costs (e.g. purchasing a niche to store the ashes).
- 4.5 Our desktop research on the cost of a funeral suggest that the cost of funeral would be S\$10,000 per EA. The resulting total protection need for funeral expenses is S\$20.9 billion.

Table 2 : Protection Needs – Funeral costs

Funeral Cost per EA Adult (S\$)	10,000
Number of EA Adults	2,093,567
Total funeral expenses (S\$ bn)	20.9

Unpaid services

- 4.6 Each individual in the household provides a certain amount of manpower in maintaining the living standards of a household including carrying out household chores and accompanying children

The average funeral cost is estimated to be S\$10,000.

The total protection need for funeral cost is estimated to be S\$20.9 bn.

The present value of unpaid services is estimated to be S\$285,922 per economically active adult on average.

The total protection need for unpaid services is estimated to be S\$598.6 bn.

or dependents.

- 4.7 The 2017 PGS valued these unpaid services based on the cost of a part-time helper. We have projected unpaid services until the end of the life expectancy of the dependants.

Table 3 : Annual Cost of a Part-time Helper

Average per hour cost (S\$)	20	The cost of a part-time helper ranges from S\$15 per hour to S\$25 dollars per hour if hired by an employment agency. An average cost of S\$20 has been assumed.
Number of hours per week	9	Allows for 1 hour per day on week days and 2 hours per day on weekends.
Number of weeks per year	52	
Annual Cost (S\$)	9,360	

- 4.8 For single EA, unpaid services are projected until the life expectancy of the dependant elderly parents, whilst for married EA this is projected for the entire lifetime of the surviving spouse. The present value of unpaid services is then calculated allowing for inflation and discount rates.

Table 4: Protection Needs - Unpaid Services

Present value of unpaid services per EA adult (S\$)	285,922
Number of EA Adults	2,093,567
Total unpaid services (S\$ bn)	598.6

Protection Needs - Personal and Housing Loans

- 4.9 Personal and housing loans are the liabilities to be repaid by the family members following the death of the EA.
- 4.10 As at the end of 2016 the total personal and housing loan amounts were S\$75.9 bn and S\$233.2 bn respectively as detailed in the table below.

Table 5: Household sector balance sheet - Personal and Housing Loans (S\$ bn)

Mortgage Loans	233.2
Financial Institutions	194.2
Housing Development Board	39.0
Personal Loans	75.9
Motor Vehicle Loans	9.7
Credit / Charge Cards	10.8
Others	55.3
Total Loans	309.1

Source: Household Sector Balance Sheet (End of Period), 2016, Department of Statistics, Singapore

As an example of the loan methodology, assume a household has 2 EAs and an aggregate \$1m outstanding property loan.

The assumption is that each of the EAs needs insurance coverage of \$1m, so that the surviving EA no longer bears any loan burden. The protection need arising is $\$1m \times 2EAs / 1 \text{ Household} = \$2m$ in total.

Under this methodology, the outstanding personal and housing loans is estimated to be S\$207,630 per economically active adult on average.

The total protection need for outstanding personal and housing loans is estimated to be S\$434.7 bn.

An alternative methodology will be in the example above to assume that each EA's protection need is equal to half of the outstanding loan amount (\$500,000). This approach reduces the aggregate protection need to S\$254 bn.

4.11 As the total loans reflected in the 2016 Household Balance Sheet included loan holdings by foreigners, the value of loans on both personal and housing apart from HDB loans were reduced by 20%, based on the proportion of Singaporean households living in private property to the total number of private properties in Singapore.

4.12 In the event of death of any EA in the household, it is assumed that the entire loan liability of the household will be repaid consistent with the 2012 PGS methodology (refer to the example on the left). To reflect this, the total personal and housing loans after adjustment for foreigners have been increased by the ratio of Number of EAs to Number of households.

Table 6: Private Housing Owned by Singaporeans

Singaporean and resident occupied private housing	240,000
Total number of private properties in Singapore	300,931
% owned by residents	80%

Source: Table 4.2, Yearbook of Statistics 2016, Department of Statistics, Singapore, Resident Households by Type of Dwelling: Urban Redevelopment Authority 4th Quarter 2015 Real Estate Statistics Annex E-1: Stock & Vacancy and Supply in the Pipeline as at the End of 4th Quarter 2015

Table 7: Protection Needs – Personal and Housing Loans

Average outstanding loans per EA Adult (S\$)	207,630
Number of EA Adults	2,093,567
Total personal and housing loans (S\$ bn)	434.7

Protection Needs - Ongoing Expenses

4.13 Ongoing expenses consist of needs of children, needs of elderly parents, needs of surviving adults, after deduction of remaining spouse's income.

Needs of Children

4.14 Needs of children is the ongoing expenses of children, including school fees and all other types of expenses such as tuition/enrichment classes, food and clothing.

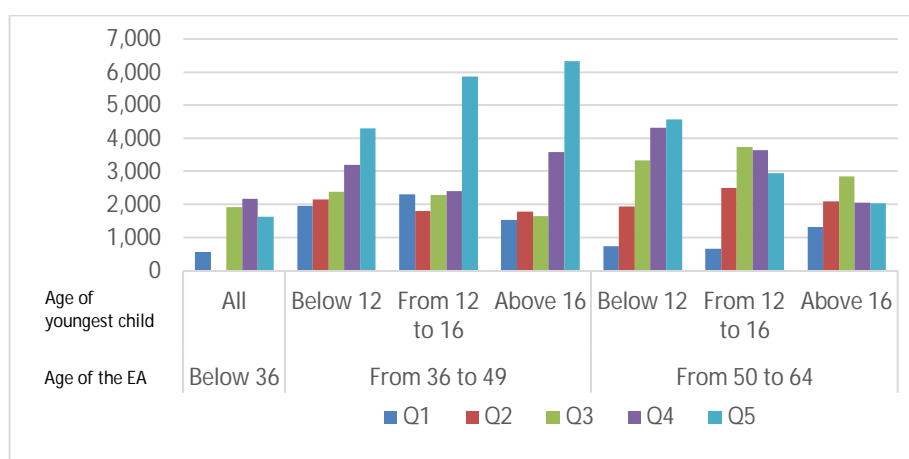
4.15 We have estimated the needs of children by comparing the difference between expenses for households with and without children based on General Household Survey 2015 and Household Expenditure Survey 2015.

4.16 The 7 groups below have been considered based on the age of parent and child:

- Household head aged below 35 years, with children

- Household head aged 35 to 49 years, with youngest child below 12 years
- Household head aged 35 to 49 years, with youngest child aged 12 to 15 years
- Household head aged 35 to 49 years, with youngest child aged 16 years and above
- Household head aged 50 to 64 years, with youngest child below 12 years
- Household head aged 50 to 64 years, with youngest child aged 12 to 15 years
- Household head aged 50 to 64 years, with youngest child aged 16 years and above

Figure 5 Monthly Children Needs of Each Family Groupings and Income Quintiles



The average present value of needs of children is estimated to be S\$79,098 per economically active adult.

The total needs of children is estimated to be S\$165.6 bn.

4.17 The needs of children have been projected for all groups until the youngest child turns 20.

4.18 For each group and income quintile, the average present value of children need is multiplied by the actual number of households to obtain the total needs for children in Singapore.

Table 8: Protection Needs – Needs of the Children

Average children needs per EA Adult (\$\$)	79,098
Number of EA Adults	2,093,567
Total personal and housing loans (\$\$ bn)	165.6

Needs of Elderly Parents

4.19 The needs of elderly parents represent the financial support provided by EA to their elderly parents who are not living in the same household (needs of elderly parents living in the same household as the EA are calculated in the needs of the surviving adults).

The average present value of needs of elderly parents is estimated to be S\$61,678 per economically active adult.

The total needs of elderly parents is estimated to be S\$129.1 bn.

The average present value of rent expenses is estimated to be S\$53,590 per economically active adult.

The total protection need for rent is estimated to be S\$112.2 bn.

4.20 At the end of 2015, there were 240,900 senior citizens who required financial support from children (or 0.197 per household).

4.21 Only the elderly who are financially dependent on the EA adult have been considered. The cost of providing for the needs of an elderly parent is assumed to be comparable to the monthly income of a senior citizen.

4.22 Elderly parents are assumed to be 25 years older than the EA or the age 65, whichever is higher. Elderly needs are projected until 87.4 years, which is the life expectancy of an elderly female. The financial needs of the dependent elderly are determined for each household and it is assumed that the total need is covered by each EA adult.

Table 9: Protection Needs - Needs of Elderly Parents

Present value of needs of elderly parents per household (S\$)	61,678
Number of EA adults	2,093,567
Total needs of elderly parents (S\$ bn)	129.1

Needs of the Surviving Adults

4.23 The needs of surviving adults have two components: rent and future household expenses.

Rent

4.24 Future housing costs relating to rent expense are estimated by projecting actual rent expense by tenants. This is based on actual rent figures over age groups and income quintiles.

4.25 For Single EA with elderly dependent, future rent is considered over the remaining lifetime of elderly dependent whereas for married EA, future rent covers the remaining lifetime of spouse.

Table 10: Protection Needs – Rent

Present value of needs of rent per EA (S\$)	53,590
Number of EA Adults	2,093,567
Total rent (S\$ bn)	112.2

Future Household Expenses

4.26 Future household expenses have been derived based on the average household expenditure allowing for inflation. We have excluded costs related to rent, children and the elderly as these have been separately calculated in other components.

The average present value of future household expenses is estimated to be S\$854,755 per economically active adult.

The total future household expenses is estimated to be S\$1,789.5 bn.

4.27 We have applied factor adjustments to the average household expenditure according to marital status and economic status of the spouse.

- For single families, we have assumed that on average an EA will support 0.3 dependents, therefore household expenditure has been reduced to $0.3/1.3 = 23\%$ after the death of EA.
- For married families, the average household expenditure per member out of average household expenditure was 31%, so household expenditure has been reduced to 69% after the death of EA. It has also been assumed that expenses depends on the number of working persons in the household, and an adjustment has been applied. Double Income household incurred expenses 18% higher than the average while households with only one working persons incurred household expenses 20% lower than the average.

4.28 Future household expenses are projected until the life expectancy of the spouse for married EA and until the life expectancy of elderly parents for singles.

Table 11: Protection Needs – Future Household Expense

Present value of future household expense per EA (S\$)	854,755
Number of EA Adults	2,093,567
Total future household expense (S\$ bn)	1,789.5

Remaining Spouse's Income

4.29 After the death of individuals with an economically active spouse, we have assumed that the remaining spouse will continue to work with salary income. The remaining spouse's income will offset part of the protection needs of the household.

4.30 The spouse's income is assumed to be zero if the spouse is economically inactive, or if the individual is not married. Spouse's income is projected until the retirement age of 65.

4.31 The spouse's income is derived by applying adjustment factors on the average household income, depending on the profile of the individual (i.e. single or double income family and gender).

4.32 The ratios of average household income with one and two working people relative to the overall average are 67% and 112% respectively. For singles and married individuals with economically inactive spouses, the average household income was 33% lower than average. For married individuals with economically active spouses, the average household income was 12% higher than average.

4.33 The average income of the households with two EAs is also split

The average present value of spouse's income is estimated to be S\$942,513 per economically active adult.

The total spouse's income is estimated to be S\$1973.2 bn.

The total effect of zeroisation is estimated to be S\$269.3 bn.

between male and female in a 55:45 ratio. The allocation has been estimated based on the median gross monthly income from work in 2011-2016.

- 4.34 Based on the above assumptions and methodology, the following results have been calculated.

Table 12: Protection Needs – Present Value of Remaining Spouse's Income

Present value of the spouse's income, per EA (\$\$)	942,513
Number of EA Adults	2,093,567
Total remaining spouse's income (S\$ bn)	1,973.2

Effect of Zeroisation

- 4.35 The Protection Needs have been calculated by family profile. For some profiles, the Protection Needs are less than the remaining Spouse's Income, implying that the remaining Spouse's Income is sufficient to meet ongoing household needs. Family profiles with negative Protection Needs generally occur in higher income quintiles with two EA adults.
- 4.36 We have set the negative Protection Needs to zero in order to eliminate cross subsidies between those with excess income and those who have positive Protection Needs.

Table 13: Spouse's Income after Zeroisation (S\$ bn)

Spouse's income before zeroisation of negative needs	1,973.2
Less: zeroised negative Protection Need	(269.3)
Spouse's income after zeroisation of negative needs	1,703.9

Resources Available

- 4.37 In estimating the resources available, we have allowed for insurance and certain savings, but have excluded shares, bonds, property and any overseas investments.

CPF Savings

- 4.38 CPF saving figures were extracted from CPF Annual Report 2016. For EA aged above 20, the average CPF savings is S\$94,566.
- 4.39 The CPF Savings in PGS 2017 is derived by multiplying the average

The average CPF savings is estimated to be S\$94,566 per economically active adult.

The total CPF savings is estimated to be S\$198.0 bn.

The total other savings is estimated to be S\$277.5 bn.

CPF balance with the number of EA adults.

Table 14: Resources Available – CPF Savings

Average CPF Savings per EA (\$\$)	94,566
Number of EA Adults	2,093,567
Total CPF Savings (\$\$ bn)	198.0

Other Savings

- 4.40 The Currency and Deposits account from Household Sector Balance Sheet at the end of Q4 2016 was used for the other savings. To exclude other savings of foreigners, we applied an adjustment factor based on the proportion of Singaporean citizens and PRs out of the total population of Singapore. We are not been able to segregate the EA/EI split of savings, hence assumed that the savings will be fully attributable to the economically active. This may overstate the available Other Savings.

Table 15: Resources Available - Other Savings

Currency & Deposits YE2016 (\$\$ bn)	395.6
Adjustment Factor (Resident population out of total population)	70.15%
Total other savings of resident households YE2016 (\$\$ bn)	277.5

Life Insurance Coverage

- 4.41 For the 2017 PGS, we have collected anonymized insurance coverage information from insurers in Singapore representing 80% of total coverage by Death Coverage. Reconciliation of our total coverage with the industry statistics reported by LIA is shown in Appendix B.
- 4.42 Only insurance coverage from EA are taken into account. We have assumed that all EA between ages 20 to 60 will have a DPS policy and consequently excluded all lives with no corresponding DPS policy. As DPS ceases at age 60, no adjustments were made for lives ages 61 to 69. This adjustment reduced the individual insurance sum assured by 13%.
- 4.43 We have also capped the total sum assured per person at the maximum Protection Need assessed for each age band and gender to remove potential cross-subsidy from those who are over-insured. The maximum sum assured capped for individual private insurance individuals are detailed in the table below:

Total life insurance coverage after the effect of capping sum Assured is estimated to be S\$716.0 bn.

Table 16: Individual sum assured caps by gender and by age band (\$\$ m)

Age Band	Male	Female
20 - 24	3.7	3.0
25 - 29	3.8	3.4
30 - 34	3.8	3.5
35 - 39	3.6	3.3
40 - 44	3.1	2.8
45 - 49	2.7	2.4
50 - 54	1.9	1.8
55 - 59	1.8	1.7
60 - 64	1.4	1.4
65 - 69	1.0	1.0

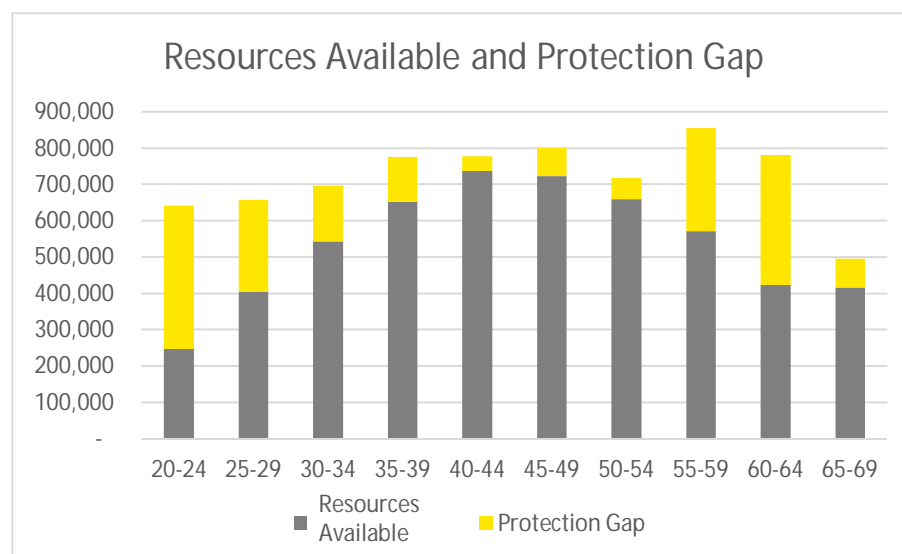
4.44 We have also included Group Insurance coverage in our calculations based on the amounts provided by insurers.

Table 17: Existing Life Insurance Coverage (\$\$ bn)

Group Insurance	198.9
Individual Insurance	550.1
Effect of Capping Sum Assured	(33.0)
Total Existing Life Insurance Coverage	716.0

Graphical representation of the Protection Gap and Resources Available

Figure 6 Protection Needs and Resources Available



- 4.45 The Protection Need for age band 55-64 is higher than adjacent age bands. This is driven by the individuals married to an economically active spouse in the higher income quintiles. The adults in these profiles suffer a large drop in income, and their income decrease at a faster rate than the household expense (refer to Appendix C for the visual representation of the protection needs).

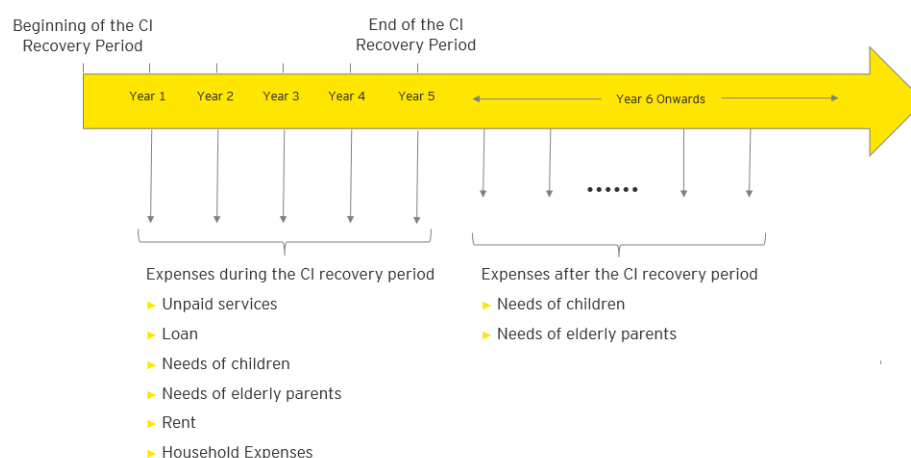
Table 18: Number of EA and average income (S\$)

Age Band	Number of EA	Average Income (S\$)
20 - 24	152,133	51,391
25 - 29	228,833	74,660
30 - 34	236,200	91,132
35 - 39	251,200	98,067
40 - 44	259,800	103,857
45 - 49	251,500	86,824
50 - 54	255,525	82,838
55 - 59	220,125	80,197
60 - 64	157,325	64,293
65 - 69	80,925	26,571

5. Critical Illness Protection gap

- 5.1 The CI protection gap is a newly added analysis in the 2017 PGS. The CI protection gap represents the financial gap to cover family needs during the assumed CI recovery period of 5 years, until the insured is expected to return to work, or to adjust his or her lifestyle needs. These needs include expenses, outstanding debt payments and lifestyle maintenance less existing insurance coverage for CI as represented in the figure below. CIs cover a variety of conditions with different recovery periods, as such our assumption of 5 years is a key area of judgment.

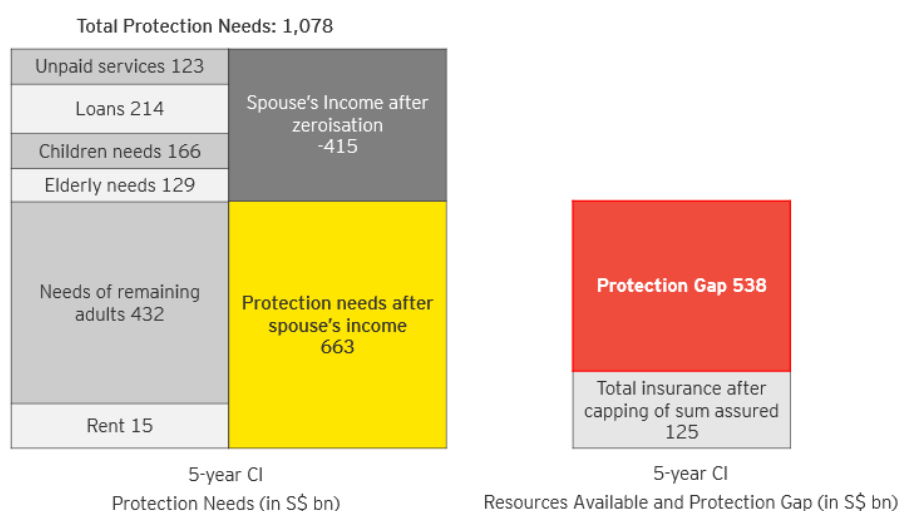
Figure 7 Protection Needs for the CI Protection Gap



- 5.2 We have adopted an approach similar to the Mortality Gap with adjustments to calculate the financial resources required during a CI recovery period of 5 years. The overall CI protection gap is represented below.

Figure 8 CI Protection Gap

The total CI protection gap is estimated to be S\$538 bn



- 5.3 At 31st December 2016, The CI protection gap per Economically Active Adult can be broken down as below.

At 31st December 2016, the 5-year CI protection gap is estimated to be S\$537.9 bn which translates into 3.1x Annual Income

Table 19: Average Protection Needs and Protection Gap per economically active adult (in S\$)

Protection Need after Zeroisation	316,603
Less: Existing Insurance Coverage	59,776
Protection Gap	256,826
Average Annual Income	81,663
Multiple of Annual Incomes	
Protection Need after Zeroisation	3.9 x
Existing Insurance Coverage	0.7 x
Protection Gap	3.1 x

- 5.4 At 31st December, the CI protection gap per economically active adult is S\$256,826 which translates into 3.1x Annual Income.
- 5.5 The detailed calculation of the CI protection gap is detailed in the following sections

Protection Needs - Additional Expenses

Medical Needs

- 5.6 We have assumed that in the event of CI, the immediate hospitalization and surgery expenses of the Singaporean citizens and Permanent Residents will be adequately covered by Medishield Life, Medisave and/or an Integrated Shield Plan in line with the Singaporean health financing landscape. Therefore we have not allowed for any additional expenses arising from immediate medical costs in the event of CI.

Unpaid Services

- 5.7 To estimate the costs of unpaid services, a methodology in line with the mortality protection gap study has been used, reducing the projection period to the CI period. It has also been assumed that the part-time domestic helper will spend 12 hours per week (instead of 9 in the mortality protection gap study) to reflect the additional needs of the critically ill patient.
- 5.8 With the above assumption, the total annual cost of unpaid services increases to S\$12,480. We note that this is very similar to the annual cost of hiring a full time domestic helper, which is S\$12,410 according to our desk research¹.
- 5.9 We have only projected the needs of unpaid services for 5 years during the CI recovery period.

¹ <https://sg.finance.yahoo.com/news/average-cost-hiring-domestic-help-203822919.html>
<http://www.asiaone.com/singapore/are-there-cheaper-alternatives-hiring-domestic-helper>

The present value of unpaid services during the CI recovery period is estimated to be S\$58,851 per economically active adult on average.

The total protection need for unpaid services is estimated to be S\$123.2 bn.

The outstanding personal and housing loans during the CI recovery period is estimated to be S\$58,851 per economically active adult on average.

The total protection need for outstanding personal and housing loans is estimated to be S\$123.2 bn.

Table 20: CI Protection Needs – Unpaid Services

Present value of unpaid services per EA (\$)	58,851
Number of EA Adults	2,093,567
Total unpaid services (\$ bn)	123.2

Protection Needs - Personal and Housing Loans

5.10 To estimate the costs of personal and housing loans, a methodology in line with the mortality protection gap study has been used, but with the projection period reduced to the CI recovery period.

5.11 The average tenure for new residential property loan is 29 years², and assuming that an average EA has paid half of loan and remaining loan tenure for mortgage loan is 15 years. Since the CI period taken in the 2017 PGS is 5 years, one third of the full amount has been considered in our analysis. Cost of interest has been excluded for simplicity.

5.12 Similarly for personal loans, the average tenure for motor vehicle financing and personal loans is 7 years³, so it assumed that the remaining loan tenure for personal loans is 4 years. Since the CI period taken in the 2017 PGS is 5 years, the full amount has been considered in our analysis.

Table 21: CI Protection Needs – Personal and Housing Loans

Average outstanding loans per EA Adult (\$)	58,851
Number of EA Adults	2,093,567
Total personal and housing loans (\$ bn)	123.2

Protection Needs - Ongoing expenses

Needs of the Children

5.13 We have not adjusted the needs of children from the Mortality Protection Gap Study. As CI conditions vary and can result in significantly impaired future earning ability, we have taken the full needs of dependent children till adulthood to ensure full protection under all eventualities.

² <http://www.mas.gov.sg/news-and-publications/media-releases/2012/mas-restricts-loan-tenure-for-residential-properties.aspx>

³ <http://www.mas.gov.sg/News-and-Publications/Media-Releases/2016/MAS-Eases-Rules-on-Motor-Vehicle-Financing.aspx>

The total needs of children is estimated to be S\$165.6 bn for the CI Protection Gap, unchanged from the mortality Protection Gap.

The total needs of elderly parents is estimated to be S\$129.1 bn for the CI Protection Gap, unchanged from the mortality Protection Gap.

The average present value of rent expenses during the CI recovery period is estimated to be S\$7,029 per economically active adult.

The total protection need for rent is estimated to be S\$14.7 bn.

The average present value of future household expenses is estimated to be S\$206,235 per economically active adult.

Table 22: CI Protection Needs – Needs of Children

Average children needs per EA Adult (\$\$)	79,098
Number of EA Adults	2,093,567
Total needs of children (\$\$ bn)	165.6

Needs of Elderly Parents

- 5.14 The needs of elderly parents are also unchanged from the Mortality Protection Gap Study. Similar to the assumption made for the needs of children, we have taken the full needs of dependant elderly parents till the expected life expectancy to ensure full protection for dependants.

Table 23: CI Protection Needs - Needs of Elderly Parents

Present value of needs of elderly parents per household (\$\$)	61,678
Number of EA adults	2,093,567
Total needs of elderly parents (\$\$ bn)	129.1

Needs of the Surviving Adults

- 5.15 The needs of surviving adults during the CI period have two component: rent and future household expenses.

Rent

- 5.16 To estimate the costs of rent, a methodology in line with the mortality protection gap study has been used, reducing the projection period to the CI recovery period.

Table 24: CI Protection Needs - Rent

Present value of needs of rent per EA (\$\$)	7,029
Number of EA Adults	2,093,567
Total rent (\$\$ bn)	14.7

Future Household Expenses

- 5.17 To estimate the future expenses (excluding rent) to the household, a methodology in line with the mortality protection gap study has been used, reducing the projection period to the CI recovery period.
- 5.18 In mortality gap study, it is assumed that the household expenses will be reduced due to the death of a household member. In CI gap study, however, the critically ill patients are still alive and the full amount of household expenses are used.

The total present value of future household expenses is estimated to be S\$431.8 bn.

The average present value of spouse's income is estimated to be S\$212,597 per economically active adult.

The total present value of spouse's income is estimated to be S\$445.1 bn.

Total effect of zeroisation in CI protection gap is estimated to be S\$29.7 billion.

Table 25: CI Protection Needs – Future Household Expense

Present value of future household expense per EA (S\$)	206,235
Number of EA Adults	2,093,567
Total future household expense (S\$ bn)	431.8

Spouse's Income

- 5.19 To estimate the spouse's Income, a methodology in line with the mortality protection gap study has been used, reducing the projection period to the CI recovery period.

Table 26: CI Protection Needs – Present Value of Remaining Spouse's Income

Present value of the spouse's income, per EA (S\$)	212,597
Number of EA Adults	2,093,567
Total remaining spouse's income (S\$ bn)	445.1

Effect of Zeroisation

- 5.20 Similar to the mortality protection gap, the negative Protection Needs have been set to zero in order to eliminate cross subsidies between those with positive and negative protection needs.

Table 27: Spouse's Income after Zeroisation (S\$ bn)

Spouse's income before zeroisation of negative needs	445.1
Less: zeroised negative Protection Need	(29.7)
Spouse's income after zeroisation of negative needs	415.4

Resources Available

- 5.21 In estimating the resources available, only CI insurance coverage had been assumed.
- 5.22 CPF savings are not included as we have assumed that Medisave account is only used to offset the immediate medical needs, and the remaining CPF account balance cannot be withdrawn due to CI.
- 5.23 Other savings are not included as we have assumed that the patient will still require savings to maintain a reasonable lifestyle in the later stages of life such as retirement needs.

Critical Illness Insurance Coverage

- 5.24 Only CI insurance coverage from EA is taken into account. Using a methodology in line with the Mortality Protection Gap Study, only individuals having a DPS policy will be considered EA for ages up to 60. As DPS provides a coverage only until the age 60, we have assumed that Singaporeans and PRs with an insurance policy from ages 61 to 69 are EA.

Total CI insurance coverage after the effect of capping sum Assured is estimated to be S\$125.1 bn.

- 5.25 Sum Assured has also been capped with the same methodology as applied for the Mortality Protection Gap Study. The maximum sum assured capped for individual private insurance individuals are detailed in the table below.

Table 28: Individual sum assured caps by gender and by age band (\$ m)

Age Band	Male	Female
20 - 24	1.6	0.7
25 - 29	1.1	0.7
30 - 34	1.1	0.8
35 - 39	1.1	0.9
40 - 44	1.1	0.8
45 - 49	1.0	0.8
50 - 54	0.6	0.6
55 - 59	0.6	0.6
60 - 64	0.5	0.5
65 - 69	0.3	0.4

- 5.26 We have also included Group Insurance coverage in our calculations based on the amounts provided by insurers.

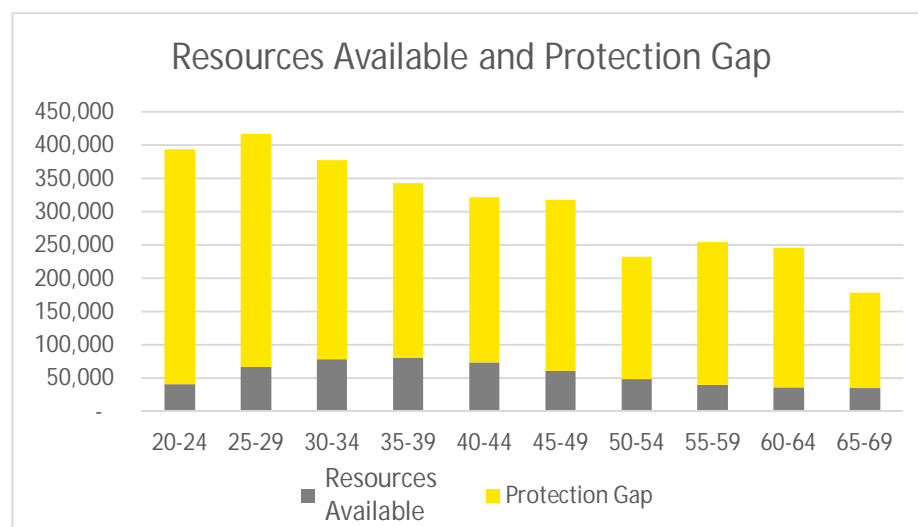
- 5.27 Overall, the Critical Illness Insurance coverage is presented in the table below.

Table 29: Existing Critical Illness Insurance Coverage (\$ bn)

Group Insurance	20.6
Individual Insurance	105.3
Effect of Capping Sum Assured	(0.8)
Total Existing CI Insurance Coverage	125.1

Graphical representation of the Protection Gap and Resources Available

Figure 9 Protection Needs and Resources Available



5.28 The Protection Need for age band 50-69 is lower than younger age bands because these groups have lower needs of children and elderly parents than younger age bands (refer to Appendix C for the visual representation of the protection needs).

6. Insurance Data Analysis

- 6.1 As part of the 2017 PGS, insurance data for Singaporeans and Permanent Residents as at the end of 2016 were collected for analysis.

Table 30: Insurance Data Received

	Number of Basic Policies	Number of Riders	Number of Policyholders	Life Insurance Coverage (\$ bn)	CI Insurance Coverage (\$ bn)
Received	7,968,775	919,540	2,794,375	709.3	153.8
After removing DPS	6,090,533	919,540	2,135,631	616.3	153.8
After removing DPS, Products with Mortality Coverage	5,622,661	255,367	2,124,525	616.3	-
After removing DPS, Products with CI Coverage	945,627	835,043	1,193,616	-	153.8

- 6.2 In the analysis, we have removed 1,878,242 DPS policies worth a total Life Insurance coverage of \$92,964,219,450 so that the purchasing behaviour of individual insurance could be observed. Benefits were further split into mortality coverage and CI coverage, which are considered separately in our analysis, with detailed tables presented in Appendix.
- 6.3 The comments below therefore apply only to individual insurance policies, excluding Group Insurance and DPS.

Key findings

- 6.4 54% of Singaporeans and PRs own at least one insurance policy.
- 6.5 On average, insured persons purchase 2.85 policies excluding riders.
- 6.6 Of the policies with mortality coverage, the average number of life insurance policies (excluding rider) per person is 2.65 and the average life insurance coverage per person (including rider) is S\$290,086.
- 6.7 Of the policies with CI Insurance coverage, the average number of CI policies (excluding rider) per person is 0.79 and the average CI insurance coverage per person (including riders) is S\$128,861. Riders account for 46.9% of CI insurance policies in terms of policy count and 43.4% in terms of CI insurance coverage.
- 6.8 The coverage for children is dominated by Whole of Life policies, followed by Endowments.
- 6.9 Within the working population, Whole of Life and Term Insurance products are dominant as these are protection oriented products that meet protection needs. Particularly striking is the increase in term insurance coverage compared to PGS 2012, reflecting an increasing focus on insurance protection in Singapore. Life Insurance coverage of Term products as a percentage of total Life Insurance cover has increased from 17% in PGS 2012 to 23% in PGS 2017.
- 6.10 We also note that the amount of universal life coverage has increased by 7 times from S\$3 billion in PGS 2012 to S\$23 billion in PGS 2017, reflecting its popularity in the preceding years. Universal life coverage accounts for 3.71% of total Life Insurance coverage in 2017 with an average sum assured and median age significantly higher than for other policies.
- 6.11 Critical Illness coverage are generally WOL policies or Riders with CI on top of other main life insurance policies.

7. Reliance and Limitations

Reliance

7.1 In producing this report, reliance was placed on, but not limited to the general accuracy and completeness of:

- The following listed reports as shared by the Life Insurance Association (“LIA”)
 - “2012 Protection Gap Study – Singapore “ dated 28 August 2012 in a file entitled “LIA_Protection_Gap_Study_2012_Report_28Aug12.pdf”
 - “2012 Protection Gap Study – Singapore “ dated 15 August 2012 in a file entitled “FR120815_Protection Gap_Internal_Ref_sent.pdf”, which is the internally-circulated version of the 2012 protection gap report

We have relied on the LIA for having ensured that no previous agreements and Intellectual Property rights have been breached by sharing with EY a copy of these reports.

- The life insurance data collected from the industry and the consistency of interpretation of the required data from company to company.
- Data and information, written and verbal, supplied by the Life Insurance Association, Singapore via tele-conversations or over email.

7.2 While we have reviewed some of the information provided for overall reasonableness and consistency with our knowledge of the life insurance industry, we have not carried out independent checks of the data and other information supplied to us, nor have we checked all the formulae and calculation used to produce the results. The conclusion set out in this report are dependent on the accuracy and completeness of the information provided to us.

7.3 In preparing this report we have relied on a variety of publicly available reports, documents and press articles. Although we have attempted to review all such information for reasonableness, we have not independently verified all information. Reliance is therefore placed on the accuracy of such information as obtained by us.

7.4 EY will owe no responsibility or liability to third parties in respect of the Protection Gap Study 2017, and accordingly if such other persons choose to rely upon any of the contents of the Report they do so at their own risk.

Limitations

7.5 This report and the opinions and conclusions contained herein are for the use of the LIA and is not intended for use by any third party (where third parties include member companies who are legally distinct from the LIA) and has been prepared by EY on an agreed basis to meet the specific purposes of the LIA. This report must not be relied upon for any other purpose.

7.6 EY gives no warranties as to the suitability of these reports for any purpose other than that for which they were originally provided and accept no responsibility or liability for any actions and/or decision made by any third parties and/or member companies as a result. Accordingly, if any third parties and/or member companies choose to rely upon any of the contents of the Report they do so at their own risk. The LIA must make all third parties and/or member companies aware of this provision.

- 7.7 EY has prepared this report in conformity with its intended utilisation by a person technically competent in the areas addressed. Judgements in respect of the statements made in this report should be made only after studying this report in its entirety, as the conclusions reached by a review of a section or sections on an isolated basis may be incorrect. Further, members of EY staff are available to explain and/or amplify and matter presented herein, and it is assumed that the user of this letter will seek such explanation and/or amplification as to any matter in question. If you have and queries or questions regarding the above, please do not hesitate to contact us.
- 7.8 The reader and LIA recognises that our liability is restricted in respect of the following matter:
- The future protection gap will vary from the results estimated as shown in the report. The calculated protection gap has been based on certain assumptions and parameters; deviations from the assumptions and parameter used would alter the protection gap results significantly. These assumptions and parameter include those which may be influenced by external factors such as inflation rates, the general economic environment and changes in demographic patterns, government policies and taxation.
 - The protection gap for each of the profiles studies in this report is intended to represent the average protection requirement for that profile. The actual protection need and protection gap of an individual is likely to vary depending on the individual's specific circumstances for that profile.

Appendix A Summary statistics on individual insurance

As of the end of 2016, there are 8,888,315 policies in-force and 2,794,375 unique policyholders worth S\$709,259,373,553 of Life Insurance coverage and S\$153,810,439,320 of CI coverage, including the 1,878,242 DPS policies.

Excluding the DPS, we have 7,010,073 policies and 2,135,631 unique policyholders (S\$616,295,154,103 of Life Insurance Sum Assured), implying that 658,744 people only possess DPS and no other coverage.

The S\$616 bn of Life Insurance coverage comes from 5,877,928 policies (5,622,661 basic policies and 255,367 riders) and 2,124,525 unique policyholders, which implies that 11,106 policyholders only possess CI coverage. The S\$153 bn of CI coverage comes from 1,780,670 policies (945,627 basic policies and 835,043 riders) and 1,193,616 unique policyholders.

Our summary statistics on individual insurance include the following analyses:

Table 31 Number of Singaporeans and Permanent Residents by number of policies and age band

Table 32 Average number of policies by age band and gender of those with insurance

Table 33 Average life insurance coverage by age band and gender (S\$)

Table 34 Average CI insurance coverage by age band and gender (S\$)

Table 35 Total life insurance coverage by age band and gender (S\$ m)

Table 36 Total CI insurance coverage by age band and gender (S\$ m)

Table 37 Total life insurance coverage by age band and product type (S\$ m)

Table 38 Total CI insurance coverage by age band and product type (S\$ m)

Table 39 Average life insurance coverage per life insured by age band and product type (S\$)

Table 40 Average CI insurance coverage per life insured by age band and product type (S\$)

Table 41 Total number of lives covered by life insurance by age band and product type

Table 42 Total number of lives covered by CI insurance by age band and product type

Table 43 Number of policies per life insured within each product type by age band

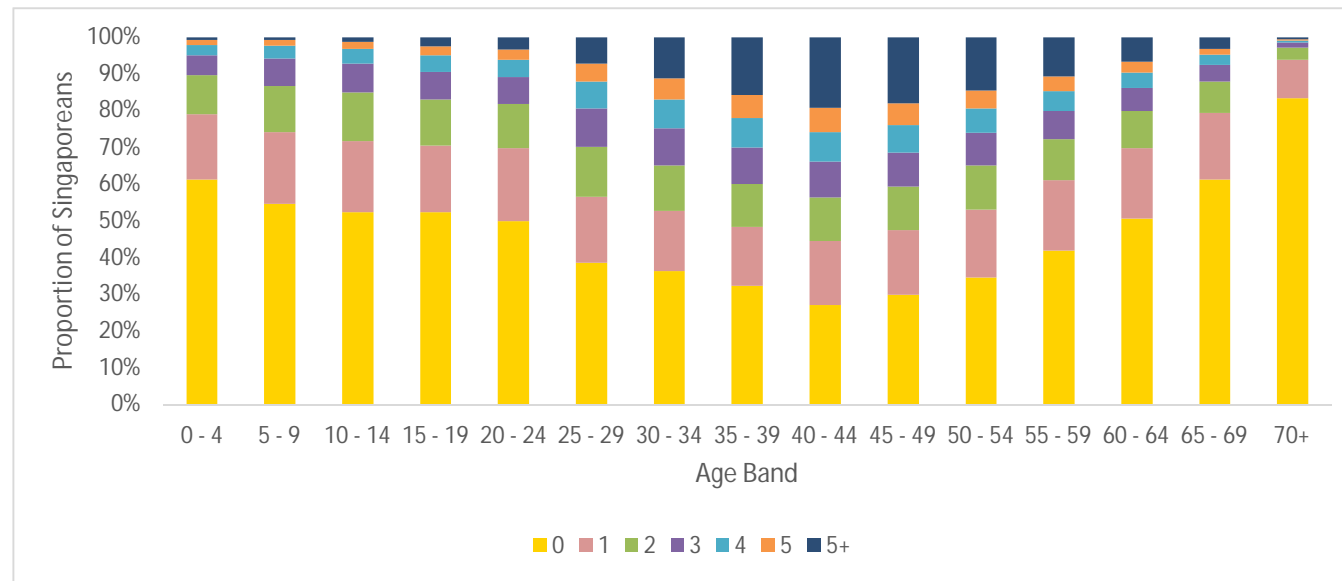
Table 44 CI insurance - number of policies per life insured within each product type by age band

Table 45 Number of policies and lives insured by sum assured band

I. Proportion of Singaporeans and PRs with at least one individual insurance policy

The chart below shows the proportion of people with varying number of insurance policies. Overall, 46% of the total population do not have a single insurance policy.

Figure 10 Number of Singaporeans and Permanent Residents by number of policies and age band



We have included the data table for the graph above for reference.

Table 31 Number of Singaporeans and Permanent Residents by number of policies and age band

	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70+
0	114,629	110,175	108,433	125,544	130,330	108,071	103,845	97,339	85,083	89,837	108,929	125,539	127,561	121,229	241,384
1	33,276	39,288	40,148	43,604	51,883	50,096	46,510	48,473	54,243	53,191	58,334	57,427	47,990	36,002	30,352
2	19,824	25,320	27,792	29,777	30,936	38,284	35,242	35,307	37,064	35,642	38,109	33,453	25,530	16,779	9,379
3	10,096	15,072	15,948	17,982	19,187	28,971	29,019	29,873	30,567	28,017	27,967	22,736	15,903	9,068	3,920
4	5,329	7,080	8,511	10,916	12,471	20,668	22,575	24,697	25,538	22,454	20,873	16,565	10,548	5,311	1,856
5	2,654	2,960	3,966	5,861	7,336	13,426	16,270	18,859	20,360	17,845	15,729	11,805	7,226	3,149	979
5+	1,352	1,614	2,697	6,087	8,711	20,472	32,083	47,450	60,590	54,197	45,657	32,066	17,095	6,482	1,680
Total	187,160	201,509	207,495	239,771	260,854	279,988	285,544	301,998	313,445	301,183	315,598	299,591	251,853	198,020	289,550

II. Average number of insurance policies for people who have at least 1 policy (excluding riders)

Figure 11 Average number of policies by age band and gender of those with insurance

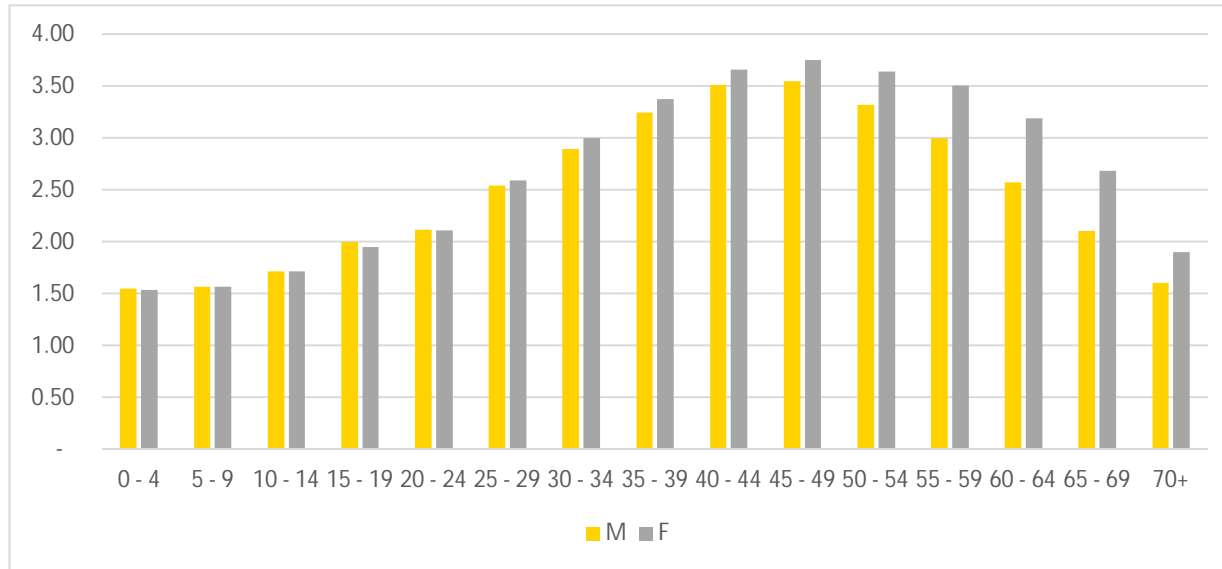


Table 32 Average number of policies by age band and gender of those with insurance (excluding riders)

	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70+
M	1.55	1.57	1.71	2.00	2.11	2.54	2.89	3.24	3.51	3.55	3.32	3.00	2.58	2.10	1.60
F	1.53	1.57	1.71	1.95	2.11	2.59	3.00	3.38	3.66	3.75	3.64	3.50	3.19	2.68	1.90

III. Average insurance coverage

Although females are more likely to possess more policies, males are likely to have greater coverage per policy. Coverage per policy exceeds \$300,000 between ages 30 to 49 for both sexes.

Figure 12 Average life insurance coverage by age band and gender (S\$)

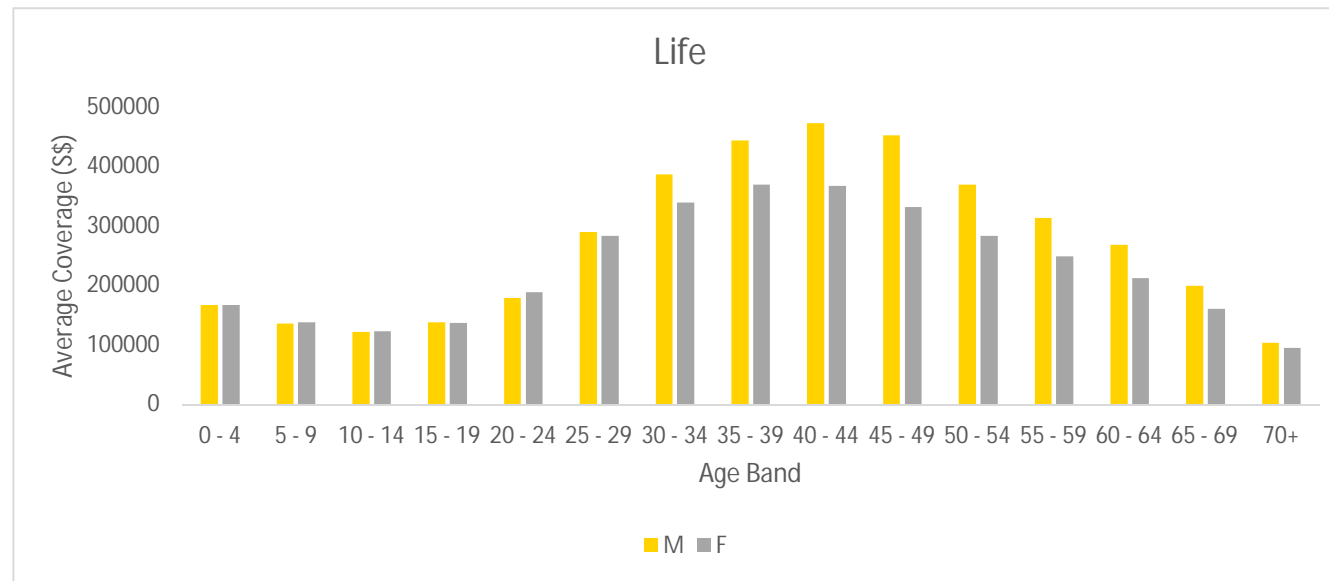


Table 33 Average life insurance coverage by age band and gender (S\$)

	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70+
M	167,440	135,587	122,188	138,432	178,928	289,406	386,783	443,640	472,024	451,523	369,602	312,905	268,300	199,156	103,693
F	167,299	138,105	123,153	137,331	188,138	282,955	338,729	369,517	367,157	331,504	283,427	249,063	212,197	160,791	94,701

The amount of CI coverage per person is substantially lower than the life insurance coverage, and generally higher for ages 25-39.

Figure 13 Average CI insurance coverage by age band and gender (S\$)

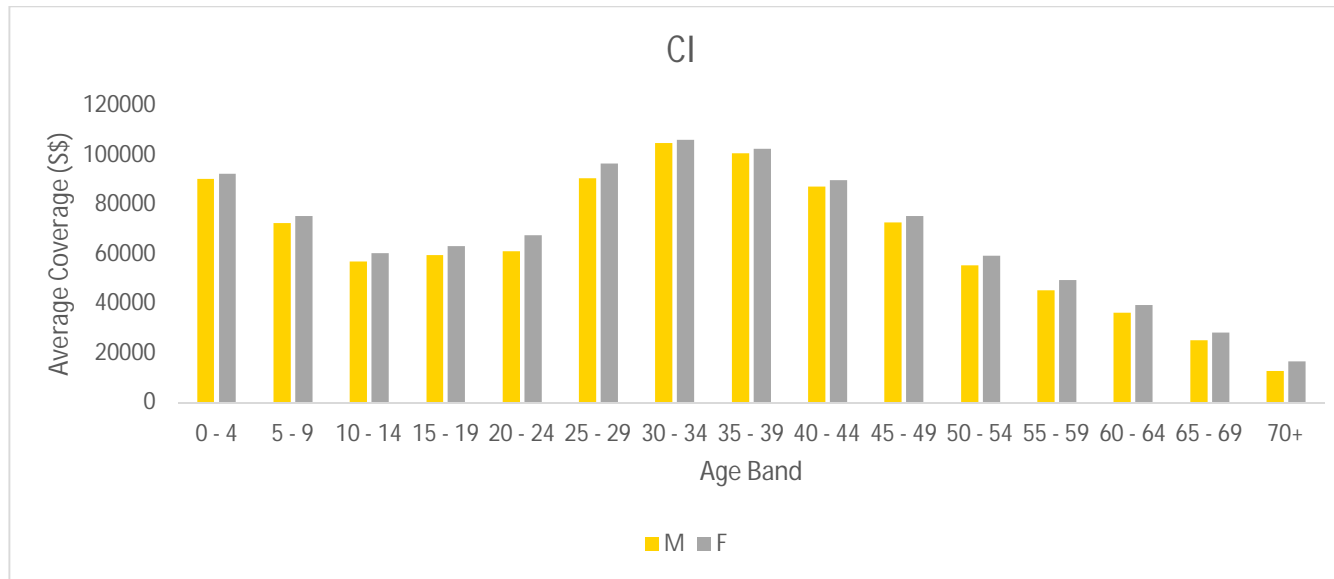


Table 34 Average CI insurance coverage by age band and gender (S\$)

	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70+
M	90,063	72,350	56,905	59,306	60,868	90,346	104,562	100,562	87,160	72,595	55,354	45,268	36,269	25,131	12,631
F	92,211	75,071	60,293	63,044	67,349	96,328	105,815	102,329	89,551	75,236	59,177	49,425	39,346	28,101	16,675

IV. Total life insurance coverage

Males have a greater amount of life insurance coverage compared to females, especially for ages 35 – 54.

Figure 14 Total life insurance coverage by age band and gender (\$\$ m)

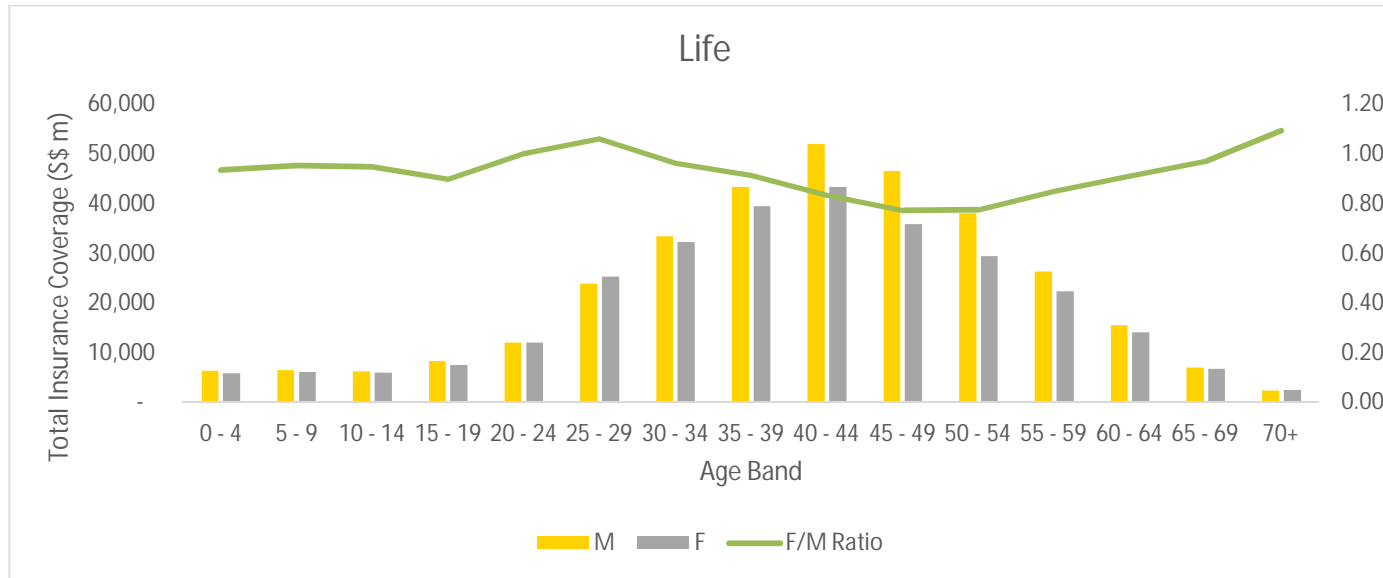


Table 35 Total life insurance coverage by age band and gender (\$\$ m)

	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70+
M	6,280	6,399	6,242	8,304	11,965	23,880	33,468	43,334	52,051	46,543	38,035	26,344	15,496	6,947	2,273
F	5,860	6,096	5,908	7,449	11,976	25,297	32,237	39,531	43,358	35,891	29,409	22,381	14,119	6,739	2,486

For CI, it appears that females are more covered than males across all ages.

Figure 15 Total life insurance coverage by age band and gender (S\$ m)

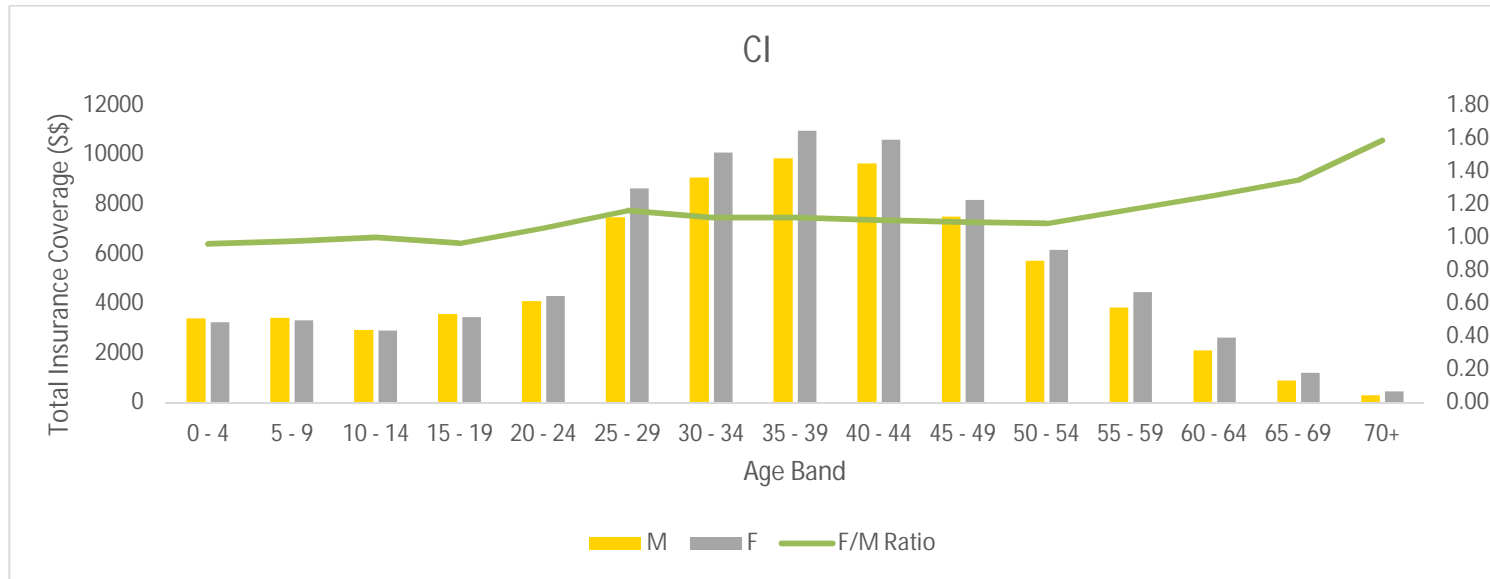


Table 36 Total CI insurance coverage by age band and gender (S\$ m)

	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70+
M	3,378	3,415	2,907	3,558	4,070	7,455	9,048	9,823	9,611	7,483	5,696	3,811	2,095	877	277
F	3,230	3,314	2,893	3,420	4,287	8,612	10,070	10,947	10,575	8,145	6,140	4,441	2,618	1,178	438
F/M Ratio	0.96	0.97	1.00	0.96	1.05	1.16	1.11	1.11	1.10	1.09	1.08	1.17	1.25	1.34	1.58

V. Total insurance coverage by product type

Whole of Life policies dominate the total coverage during tender years, with term products becoming more dominant during the working years. Endowments are particularly large for teenage years, likely to be fuelled by parents purchasing the endowments for their children's student loans, and for the retirees who have bought the endowments when they first entered the work force 20 years ago.

Figure 16 Total life insurance coverage by age band and product type

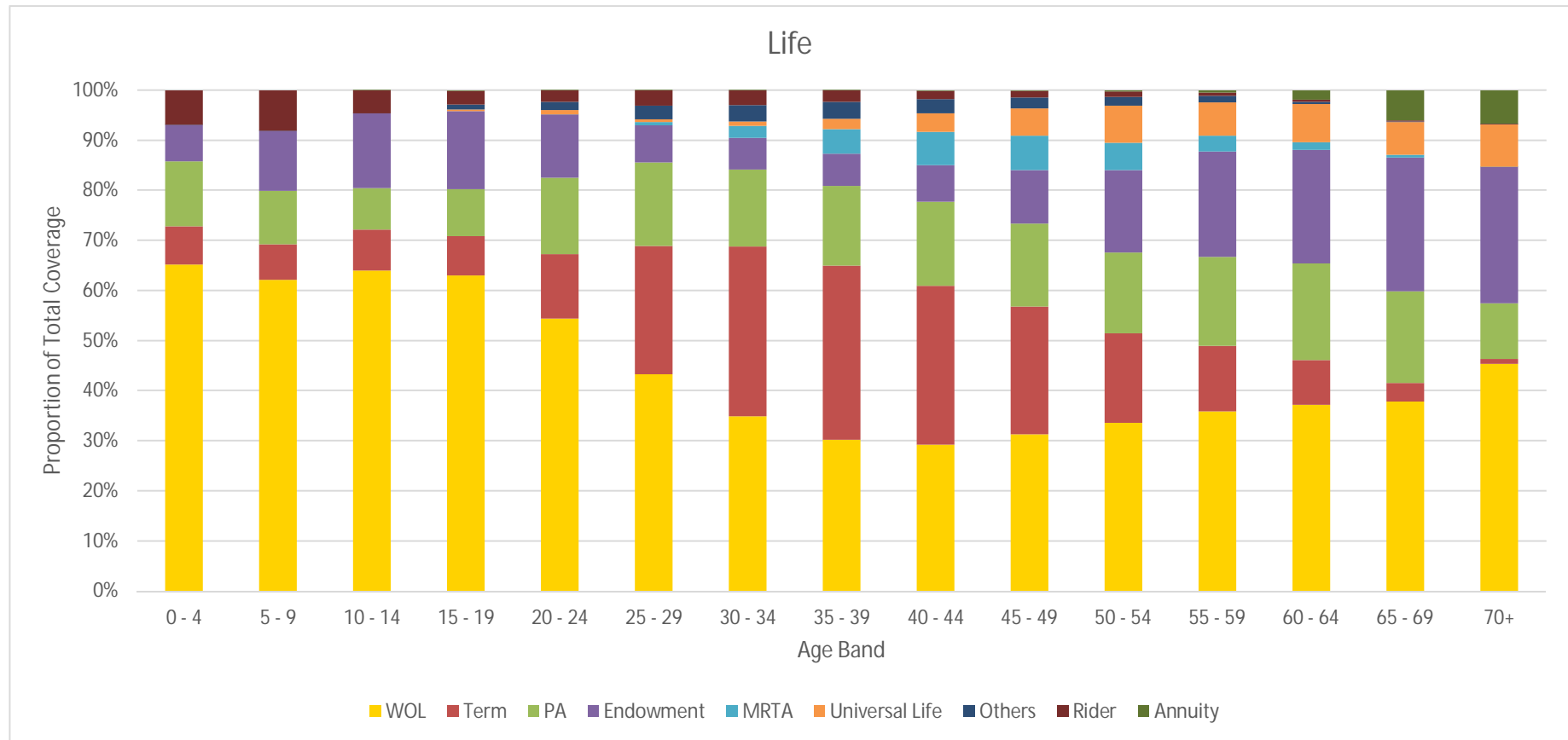


Table 37 Total life insurance coverage by age band and product type (\$\$ m)

	WOL	Term	PA	Endowment	MRTA	Universal Life	Others	Rider	Annuity
0 - 4	7,815	918	1,542	875	-	-	0	830	-
5 - 9	7,733	883	1,328	1,480	-	-	0	1,008	-
10 - 14	7,729	987	1,005	1,803	-	-	2	548	1
15 - 19	9,960	1,239	1,483	2,459	-	43	170	429	13
20 - 24	13,094	3,077	3,672	3,033	7	217	395	545	3
25 - 29	21,325	12,619	8,239	3,658	295	304	1,343	1,478	13
30 - 34	22,958	22,238	10,087	4,128	1,576	605	2,169	1,894	16
35 - 39	24,911	28,705	13,139	5,279	4,037	1,724	2,812	1,827	33
40 - 44	27,685	30,120	15,900	6,884	6,277	3,573	2,656	1,592	67
45 - 49	25,958	21,182	13,691	8,930	5,665	4,503	1,852	1,066	88
50 - 54	22,763	12,137	10,891	11,186	3,637	5,070	1,151	763	135
55 - 59	17,547	6,348	8,721	10,241	1,534	3,275	609	343	213
60 - 64	11,071	2,640	5,760	6,713	481	2,245	123	142	557
65 - 69	5,231	507	2,543	3,694	64	911	14	36	823
70+	2,154	46	525	1,291	4	401	1	7	314

CI coverage are generally riders or WOL policies with CI on top of the usual life insurance coverage.

Figure 17 Total CI insurance coverage by age band and product type

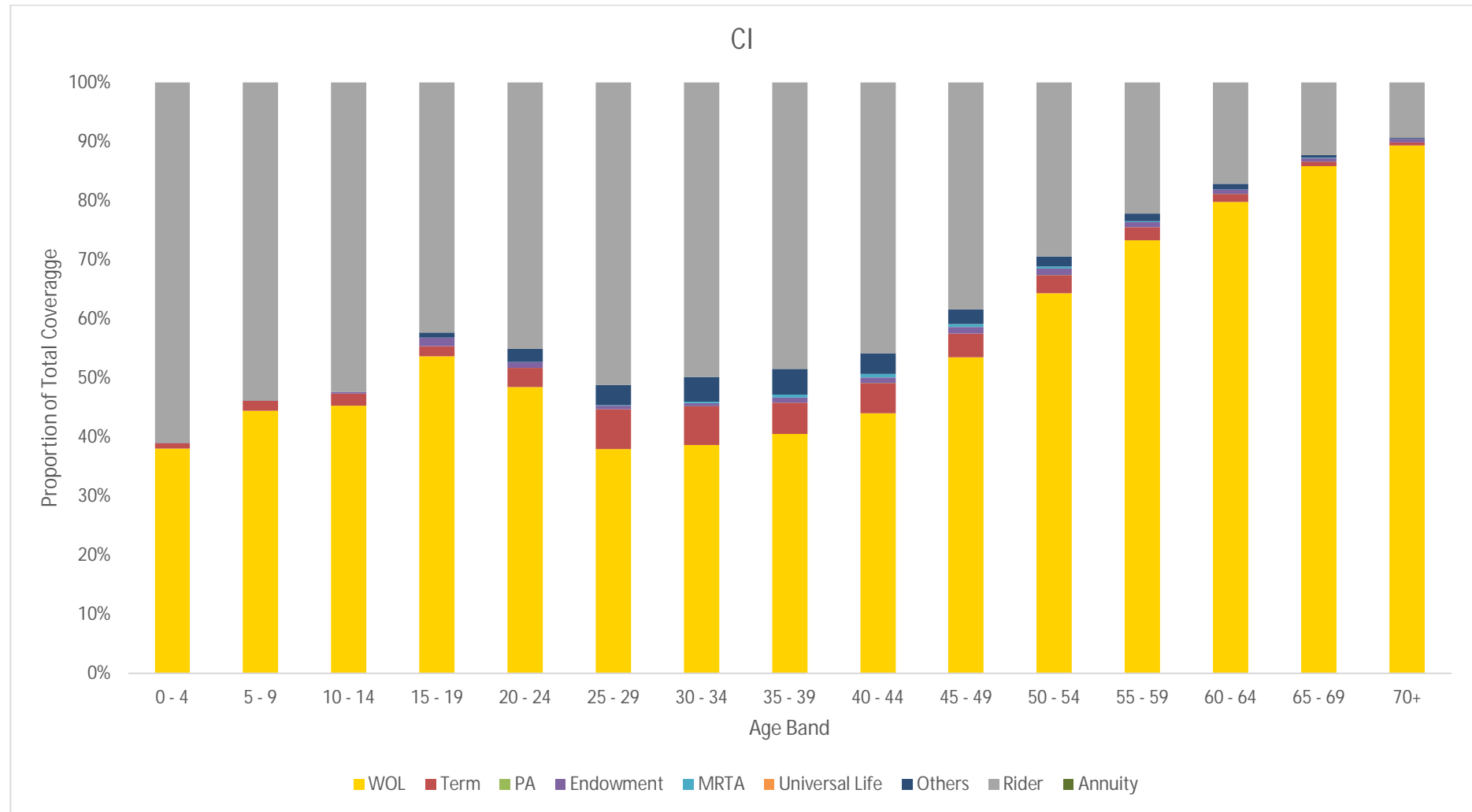


Table 38 Total CI insurance coverage by age band and product type (\$\$ m)

	WOL	Term	PA	Endowment	MRTA	Universal Life	Others	Rider	Annuity
0 - 4	2,487	64	-	1	-	-	-	3,990	-
5 - 9	2,969	114	-	5	-	-	-	3,598	-
10 - 14	2,610	117	-	13	-	-	-	3,018	-
15 - 19	3,760	121	-	103	-	-	61	2,965	-
20 - 24	4,044	266	-	87	0	-	187	3,758	-
25 - 29	6,075	1,077	-	89	15	-	543	8,195	-
30 - 34	7,349	1,238	-	100	55	-	784	9,475	-
35 - 39	8,359	1,093	-	165	105	-	907	9,987	-
40 - 44	8,872	1,024	-	204	121	-	704	9,230	-
45 - 49	8,506	632	-	176	80	-	402	6,100	-
50 - 54	7,680	365	-	138	37	-	205	3,510	-
55 - 59	6,103	188	-	71	12	-	108	1,844	-
60 - 64	3,786	66	-	34	3	-	42	815	-
65 - 69	1,786	17	-	13	0	-	10	255	-
70+	643	3	-	5	-	-	1	68	-

VI. Average insurance coverage by product type

Universal life and MRTA dominates the coverage per product and is left out of the chart. Term policies and PA, unsurprisingly, provide larger coverage per policy compared to endowments and whole of life.

Figure 18 Average life insurance coverage per life insured by age band and product type (S\$)

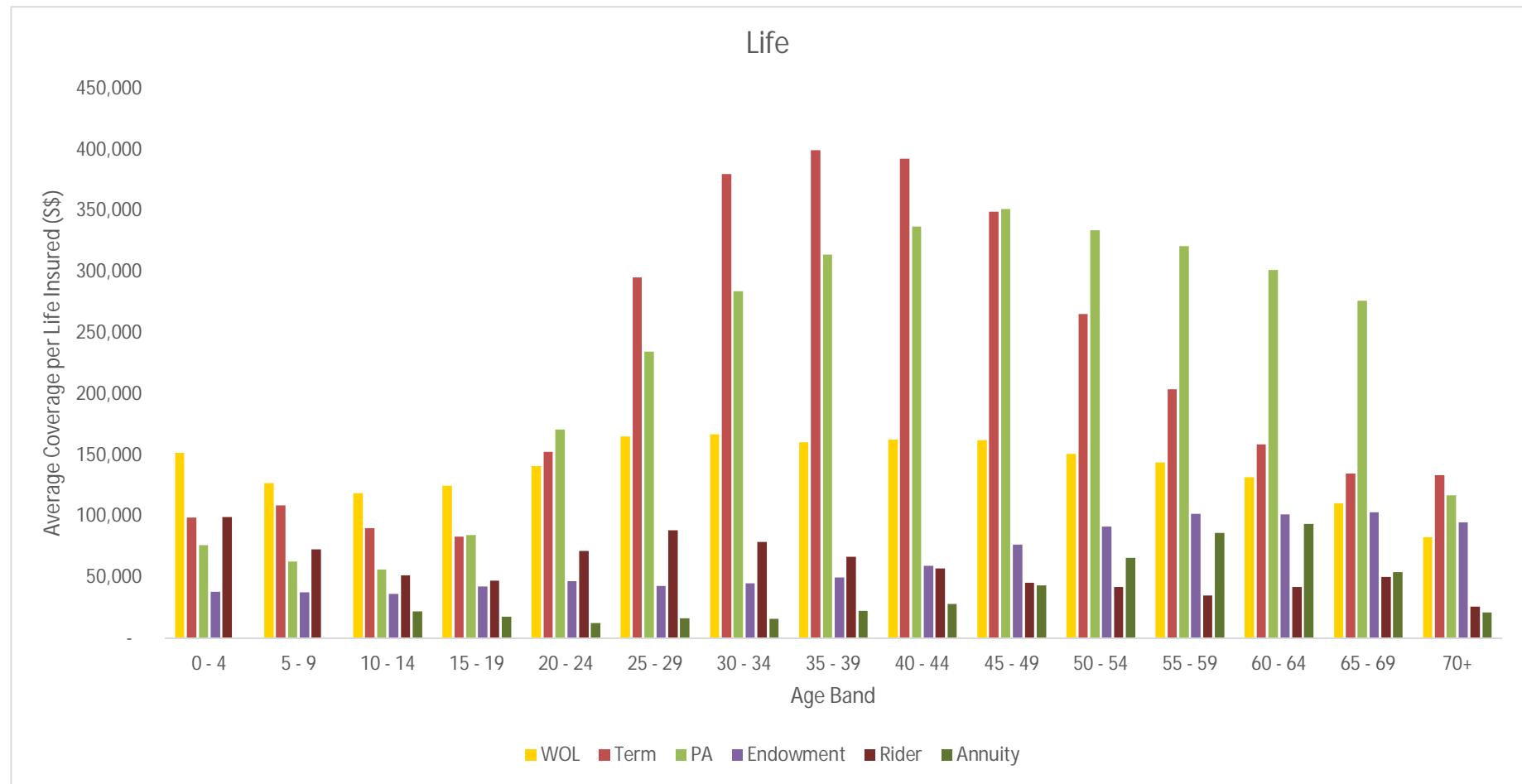


Table 39 Average life insurance coverage per life insured by age band and product type (S\$)

	WOL	Term	PA	Endowment	MRTA	Universal Life	Others	Rider	Annuity
0 - 4	151,515	98,801	75,972	38,088	-	-	59,750	98,964	-
5 - 9	126,752	108,528	62,642	37,573	-	-	63,250	72,719	-
10 - 14	118,534	90,208	56,228	36,066	-	-	32,143	51,280	22,080
15 - 19	124,893	83,265	84,499	42,213	-	3,332,021	71,262	47,198	17,749
20 - 24	140,649	152,594	170,665	46,645	572,155	2,823,096	106,492	71,161	12,350
25 - 29	164,984	295,388	234,543	42,605	594,142	1,654,884	203,769	88,261	16,157
30 - 34	166,863	379,912	284,116	44,720	554,290	2,374,104	224,066	78,647	15,880
35 - 39	160,263	399,217	313,722	49,807	534,045	2,762,531	145,187	66,510	22,328
40 - 44	162,436	392,594	336,928	59,339	476,139	3,140,148	42,941	56,860	27,990
45 - 49	162,065	349,091	351,086	76,468	411,662	3,014,136	41,760	45,391	43,314
50 - 54	150,913	265,483	333,953	91,426	333,377	3,137,600	39,640	41,628	65,826
55 - 59	143,925	203,742	320,962	101,539	254,294	2,486,450	30,571	34,840	86,062
60 - 64	131,509	158,490	301,161	101,298	193,443	2,806,245	13,498	41,649	93,332
65 - 69	110,420	134,757	275,969	103,054	123,036	2,704,315	4,791	50,242	53,825
70+	82,493	133,309	117,016	94,593	75,421	3,237,251	4,716	25,633	21,123

WOL, Term, Endowments and Riders make up 97% of the total CI coverage. People with endowment policies are likely to have much lower coverage than the rest.

Figure 19 Average CI insurance coverage per life insured by age band and product type (S\$)

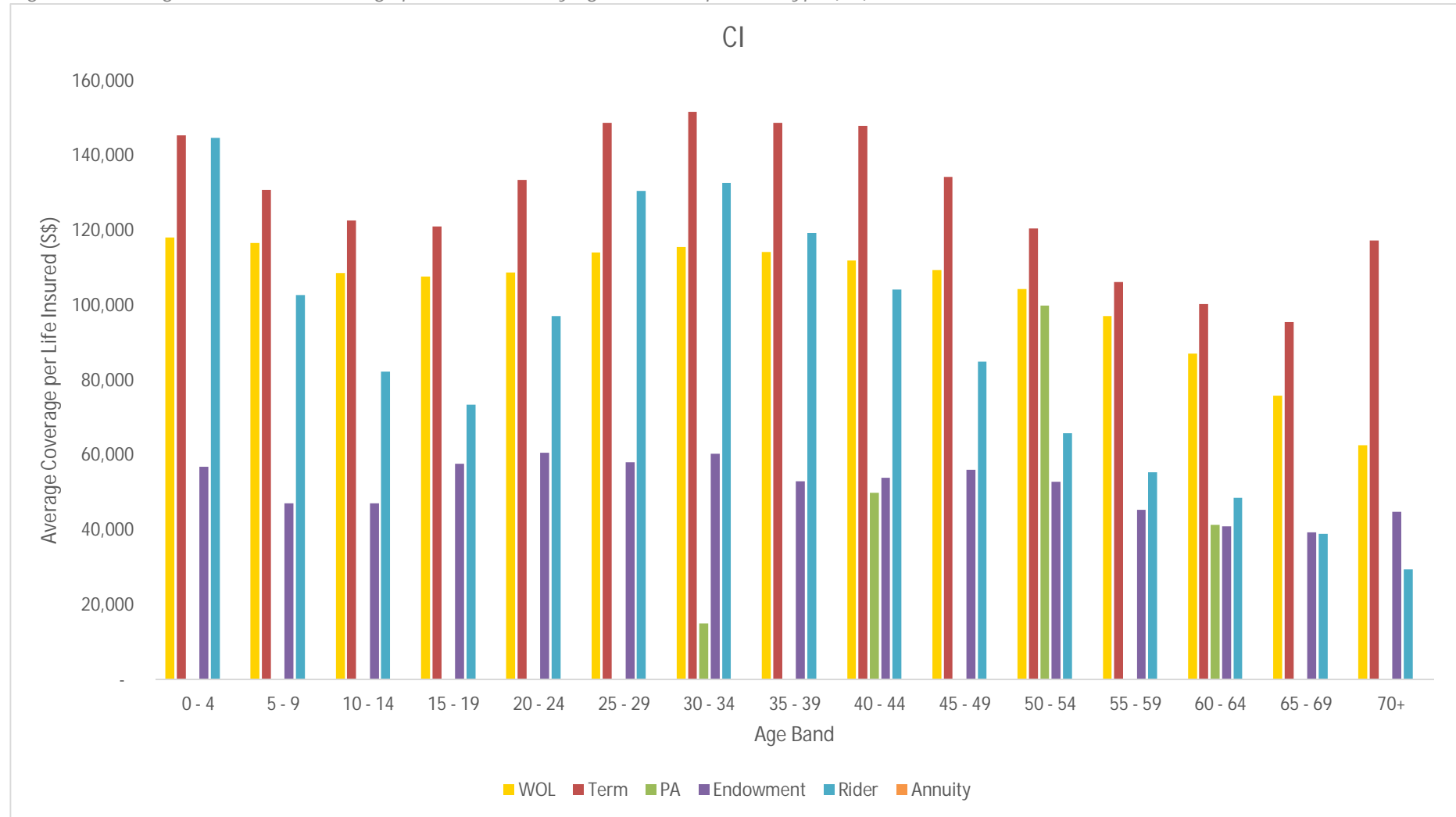


Table 40 Average CI insurance coverage per life insured by age band and product type (S\$)

	WOL	Term	PA	Endowment	MRTA	Universal Life	Others	Rider	Annuity
0 - 4	118,165	145,547	-	56,977	-	-	-	144,869	-
5 - 9	116,683	130,946	-	47,175	-	-	-	102,767	-
10 - 14	108,672	122,824	-	47,132	-	-	-	82,335	-
15 - 19	107,746	121,219	-	57,743	-	-	93,424	73,526	-
20 - 24	108,914	133,620	-	60,682	162,000	-	112,245	97,184	-
25 - 29	114,226	148,803	-	58,178	355,677	-	136,193	130,691	-
30 - 34	115,652	151,832	15,000	60,344	378,312	-	143,946	132,787	-
35 - 39	114,388	148,879	-	53,072	322,535	-	147,111	119,445	-
40 - 44	112,033	148,119	50,000	53,962	238,819	-	139,430	104,324	-
45 - 49	109,451	134,352	-	56,170	194,978	-	121,981	85,085	-
50 - 54	104,387	120,569	100,000	52,867	150,484	-	95,190	65,945	-
55 - 59	97,165	106,292	-	45,368	101,945	-	80,223	55,464	-
60 - 64	87,150	100,436	41,429	41,026	68,859	-	64,886	48,663	-
65 - 69	75,866	95,566	-	39,383	35,292	-	56,952	39,026	-
70+	62,677	117,385	-	44,885	-	-	46,667	29,457	-

VII. Number of lives covered by product type

Figure 20 Total number of lives covered by life insurance by age band and product type

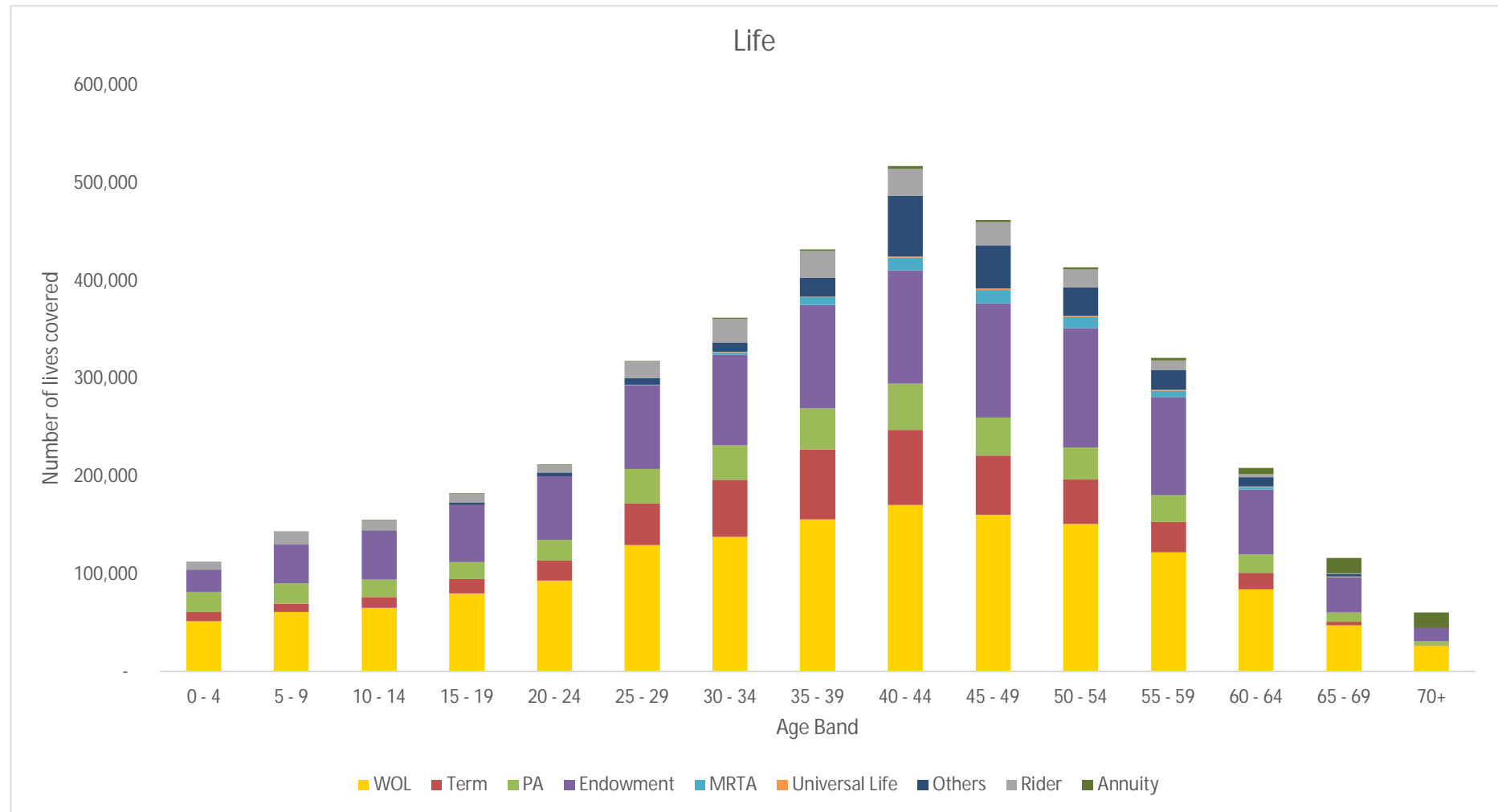


Table 41 Total number of lives covered by life insurance by age band and product type

	WOL	Term	PA	Endowment	MRTA	Universal Life	Others	Rider	Annuity
0 - 4	51,577	9,296	20,291	22,979	-	-	8	8,383	-
5 - 9	61,011	8,138	21,193	39,395	-	-	4	13,864	-
10 - 14	65,206	10,946	17,874	49,990	-	-	56	10,684	50
15 - 19	79,747	14,884	17,554	58,260	-	13	2,381	9,081	736
20 - 24	93,100	20,167	21,515	65,023	13	77	3,711	7,653	283
25 - 29	129,257	42,721	35,126	85,857	496	184	6,589	16,742	833
30 - 34	137,587	58,535	35,503	92,299	2,843	255	9,680	24,083	1,028
35 - 39	155,441	71,904	41,881	105,980	7,559	624	19,370	27,471	1,488
40 - 44	170,437	76,720	47,192	116,007	13,183	1,138	61,849	28,006	2,383
45 - 49	160,173	60,678	38,997	116,777	13,762	1,494	44,346	23,476	2,036
50 - 54	150,835	45,716	32,613	122,352	10,910	1,616	29,048	18,330	2,051
55 - 59	121,918	31,157	27,170	100,860	6,033	1,317	19,909	9,836	2,475
60 - 64	84,186	16,660	19,125	66,270	2,487	800	9,138	3,412	5,966
65 - 69	47,376	3,763	9,215	35,841	517	337	2,847	717	15,296
70+	26,113	347	4,485	13,650	48	124	295	254	14,864

Figure 21 Total number of lives covered by CI insurance by age band and product type

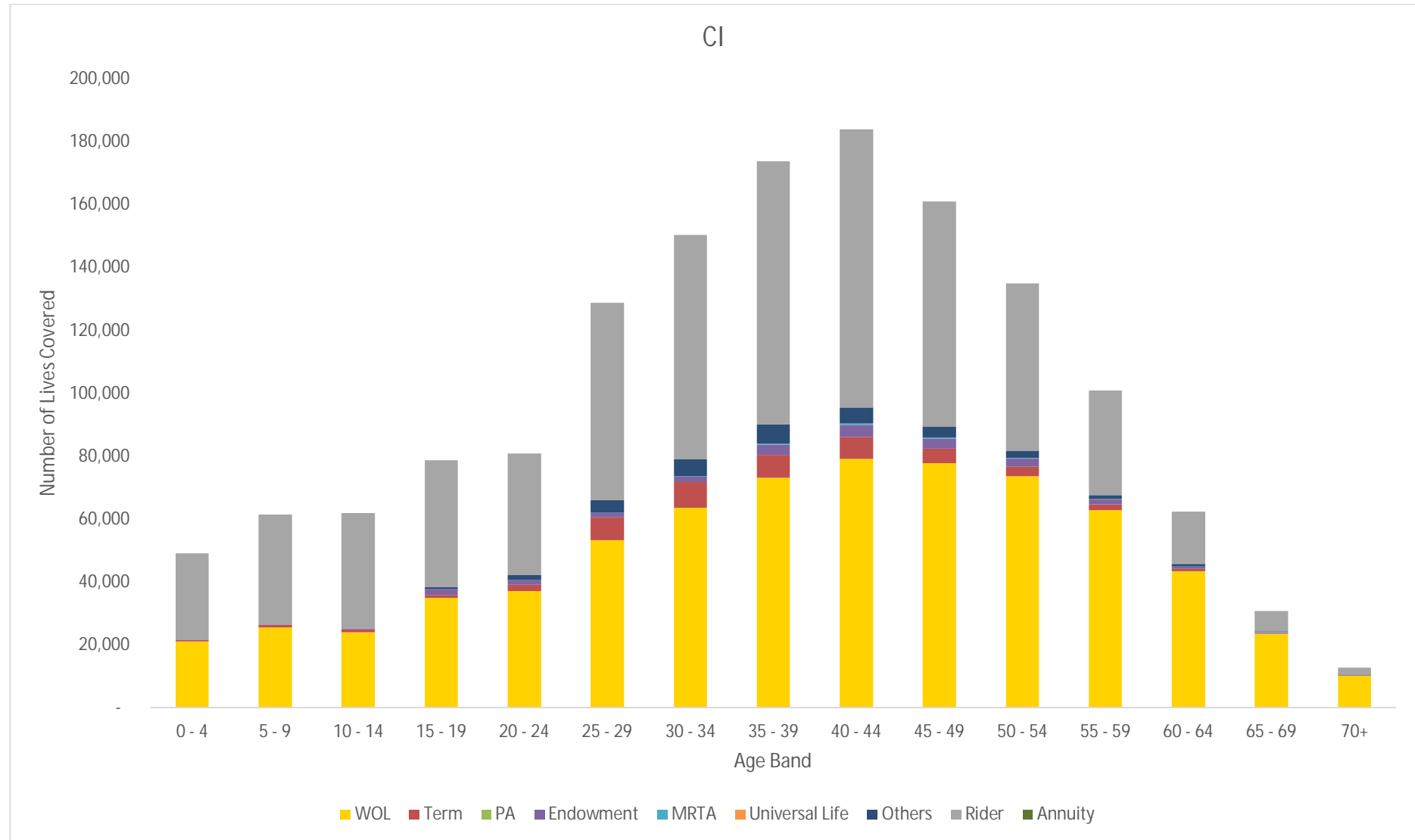


Table 42 Total number of lives covered by CI insurance by age band and product type

	WOL	Term	PA	Endowment	MRTA	Universal Life	Others	Rider	Annuity
0 - 4	21,049	437	-	15	-	-	-	27,539	-
5 - 9	25,448	869	-	106	-	-	-	35,013	-
10 - 14	24,018	954	-	270	-	-	-	36,656	-
15 - 19	34,898	999	-	1,780	-	-	654	40,326	-
20 - 24	37,127	1,988	-	1,429	1	-	1,665	38,664	-
25 - 29	53,187	7,241	-	1,535	41	-	3,986	62,707	-
30 - 34	63,548	8,155	1	1,659	146	-	5,447	71,353	-
35 - 39	73,075	7,344	-	3,113	324	-	6,168	83,614	-
40 - 44	79,191	6,916	1	3,784	506	-	5,051	88,477	-
45 - 49	77,712	4,705	-	3,134	409	-	3,295	71,696	-
50 - 54	73,568	3,029	1	2,606	246	-	2,157	53,233	-
55 - 59	62,814	1,768	-	1,562	118	-	1,349	33,249	-
60 - 64	43,443	661	7	827	46	-	641	16,738	-
65 - 69	23,545	176	-	332	10	-	171	6,540	-
70+	10,264	28	-	101	-	-	24	2,293	-

VIII. Number of policies per life insured within each product type

The average number of WOL policies owned increases from 1.10 (infant ages) to 1.94 (age 45 – 49), and drops to 1.29 for ages 70+. This could indicate that the rate of purchase of WOL fell below the rate of surrender for people above 50 years old. The number of policies per insured is reasonably consistent throughout all ages.

Figure 22 Life insurance - number of policies per life insured within each product type by age band

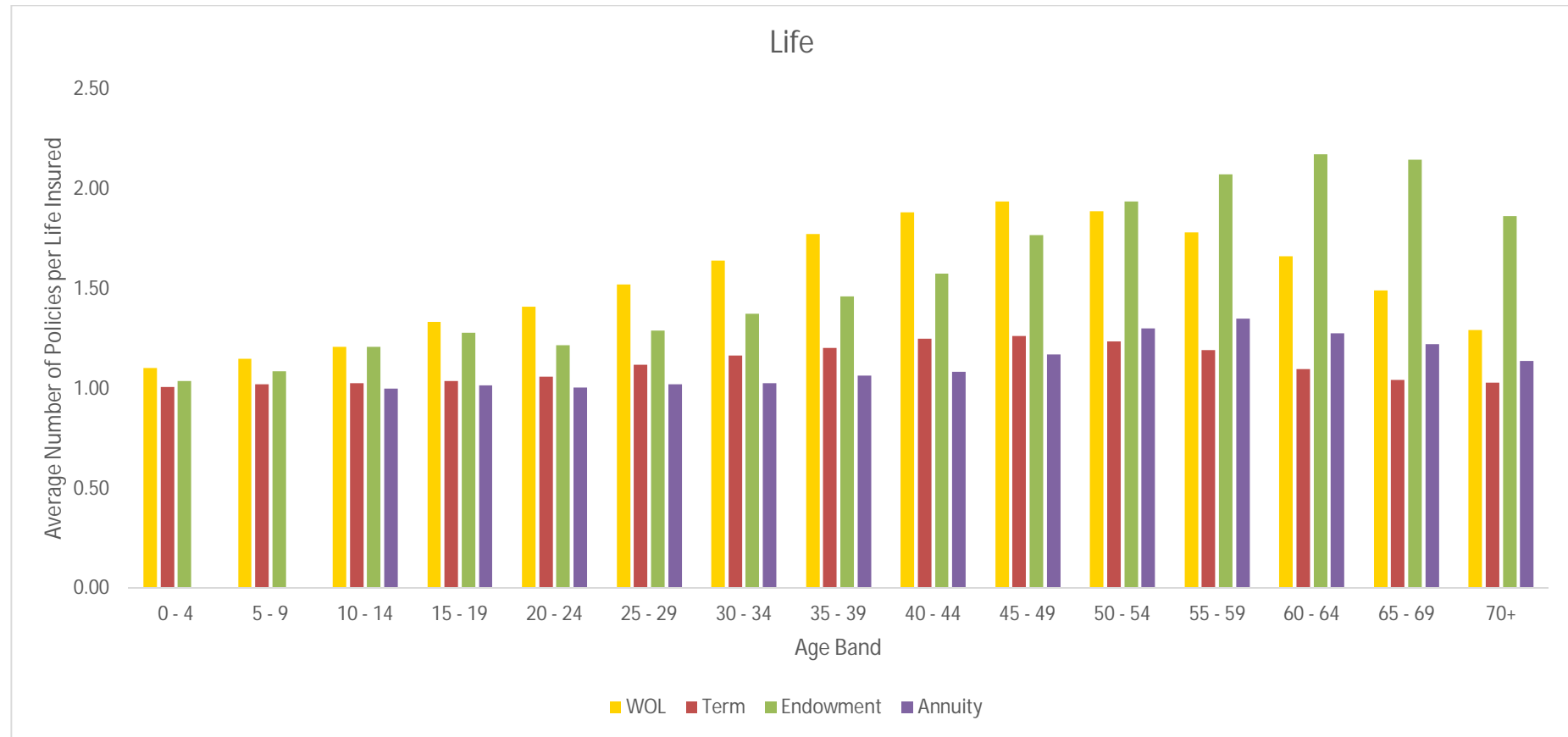


Table 43 Number of policies per life insured within each product type by age band

	WOL	Term	PA	Endowment	MRTA	Universal Life	Others	Rider	Annuity
0 - 4	1.10	1.01	1.01	1.04	0.00	0.00	1.00	1.09	0.00
5 - 9	1.15	1.02	1.00	1.09	0.00	0.00	1.00	1.13	0.00
10 - 14	1.21	1.03	1.02	1.21	0.00	0.00	1.00	1.12	1.00
15 - 19	1.33	1.04	1.03	1.28	0.00	1.00	1.18	1.11	1.01
20 - 24	1.41	1.06	1.05	1.22	1.00	1.03	1.18	1.06	1.00
25 - 29	1.52	1.12	1.05	1.29	1.00	1.01	1.25	1.06	1.02
30 - 34	1.64	1.16	1.06	1.37	1.01	1.04	1.26	1.18	1.03
35 - 39	1.77	1.20	1.09	1.46	1.03	1.03	1.22	1.38	1.06
40 - 44	1.88	1.25	1.12	1.58	1.05	1.07	1.16	1.46	1.08
45 - 49	1.94	1.26	1.12	1.77	1.06	1.07	1.18	1.43	1.17
50 - 54	1.89	1.24	1.13	1.94	1.05	1.07	1.19	1.37	1.30
55 - 59	1.78	1.19	1.13	2.07	1.05	1.07	1.14	1.25	1.35
60 - 64	1.66	1.10	1.12	2.17	1.04	1.08	1.05	1.14	1.28
65 - 69	1.49	1.04	1.10	2.15	1.01	1.06	1.03	1.04	1.22
70+	1.29	1.03	1.04	1.86	1.00	1.07	1.02	1.04	1.14

Figure 23 CI insurance - number of policies per life insured within each product type by age band

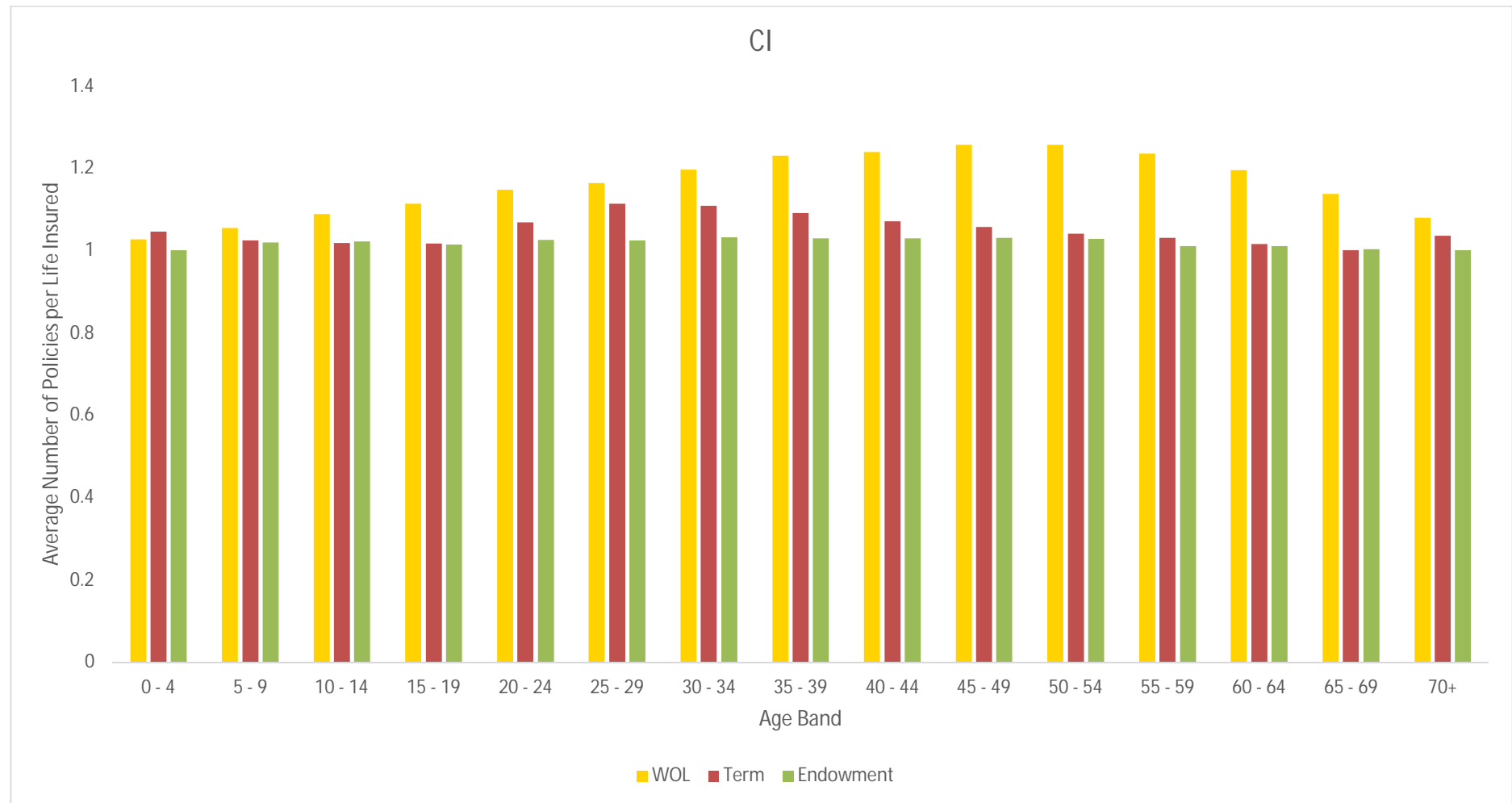


Table 44 CI insurance - number of policies per life insured within each product type by age band

	WOL	Term	PA	Endowment	MRTA	Universal Life	Others	Rider	Annuity
0 - 4	1.03	1.05	-	1.00	-	-	-	1.18	-
5 - 9	1.05	1.02	-	1.02	-	-	-	1.12	-
10 - 14	1.09	1.02	-	1.02	-	-	-	1.13	-
15 - 19	1.11	1.02	-	1.01	-	-	1.03	1.15	-
20 - 24	1.15	1.07	-	1.03	1.00	-	1.05	1.16	-
25 - 29	1.16	1.11	-	1.02	1.00	-	1.06	1.19	-
30 - 34	1.20	1.11	1.00	1.03	1.01	-	1.06	1.25	-
35 - 39	1.23	1.09	-	1.03	1.03	-	1.07	1.33	-
40 - 44	1.24	1.07	1.00	1.03	1.04	-	1.09	1.38	-
45 - 49	1.26	1.06	-	1.03	1.04	-	1.09	1.36	-
50 - 54	1.26	1.04	1.00	1.03	1.04	-	1.07	1.29	-
55 - 59	1.24	1.03	-	1.01	1.01	-	1.06	1.18	-
60 - 64	1.19	1.02	1.00	1.01	1.02	-	1.07	1.08	-
65 - 69	1.14	1.00	-	1.00	1.10	-	1.11	1.02	-
70+	1.08	1.04	-	1.00	-	-	1.04	1.01	-

IX. Cumulative number of policies and lives insured by sum assured band for life insurance

The red line shows the cumulative total Sum Assured for policyholders (by proportion), and the cumulative sum assured for each policy. The majority of purchased policies are below 200k in Sum Assured.

Figure 24 Number of policies and lives insured by sum assured band

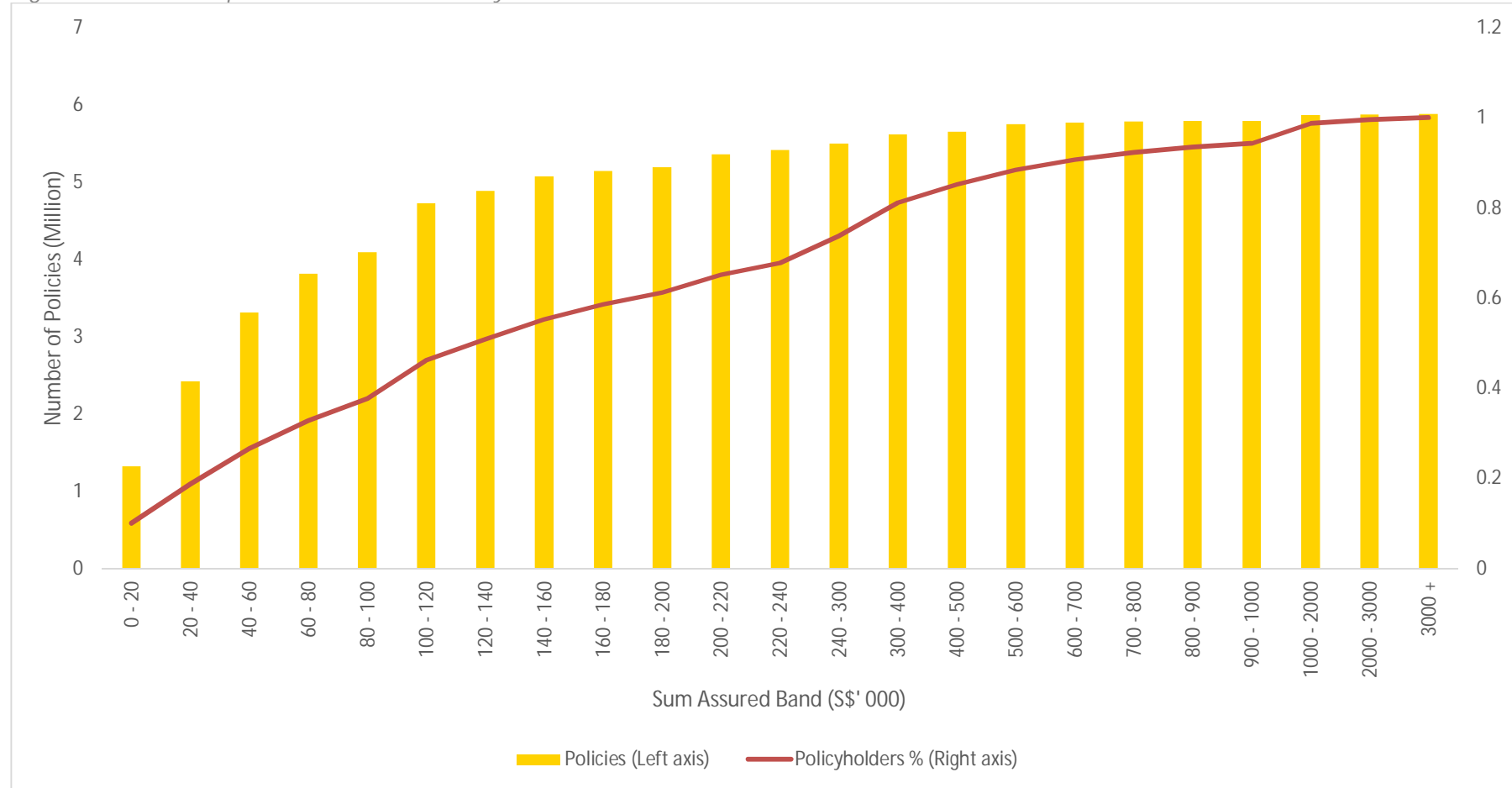


Table 45 Number of policies and lives insured by sum assured band

SA Bands (In S\$'000)	Cumulative Number of Policies		Cumulative Number of Policyholders	
0 - 20	1,321,189	22%	214,135	10%
20 - 40	2,419,830	41%	398,166	19%
40 - 60	3,311,854	56%	565,791	27%
60 - 80	3,814,618	65%	697,250	33%
80 - 100	4,092,000	70%	799,962	38%
100 - 120	4,726,737	80%	981,872	46%
120 - 140	4,884,320	83%	1,079,105	51%
140 - 160	5,076,754	86%	1,174,782	55%
160 - 180	5,141,063	87%	1,243,824	59%
180 - 200	5,189,457	88%	1,301,381	61%
200 - 220	5,356,910	91%	1,385,200	65%
220 - 240	5,413,865	92%	1,439,002	68%
240 - 300	5,498,000	94%	1,567,603	74%
300 - 400	5,614,429	96%	1,723,935	81%
400 - 500	5,651,140	96%	1,809,027	85%
500 - 600	5,749,851	98%	1,879,146	88%
600 - 700	5,768,344	98%	1,925,891	91%
700 - 800	5,782,303	98%	1,959,510	92%
800 - 900	5,789,257	98%	1,983,924	93%
900 - 1000	5,792,933	99%	2,001,311	94%
1000 - 2000	5,866,284	100%	2,096,958	99%
2000 - 3000	5,873,430	100%	2,114,279	100%
3000 +	5,877,928	100%	2,124,525	100%

Appendix B LIA Industry Statistics Summary

In S\$ million	LIA Statistics - all insurers Sum Assured	LIA Statistics - insurers in scope Sum Assured (A)	Data collected - Life Insurance coverage (B)	Proportion (B)/(A)
Individual Insurance				
Linked	106,267	98,694	67,532	68.43%
Par	219,352	217,204	238,084	109.61%
Non-par	477,888	457,428	403,198	88.15%
Total Individual	803,507	773,323	708,813	91.66%
Total Group	332,076	331,566	198,878	59.98%

The comparison presented in the table above refers to the insurance coverage in the whole industry covering both economically active and inactive individuals.

Amongst the reasons for the differences between the data collected from the insurers and LIA statistics are:

- ▶ The data collected from the industry reflects death coverage for Singaporeans and Permanent Residents only while LIA total industry statistics as the later also includes death coverage for foreigners.
- ▶ The data collected from the industry reflects the life insurance coverage while LIA statistics only mention the sum assured. Depending on the product features, the sum assured may not be representative of the life insurance coverage, especially for unit linked and participating products.

Appendix C Graphical Representation of the Aggregate Protection Needs

1. Mortality Protection Needs

Married individuals with Economically Active Spouse

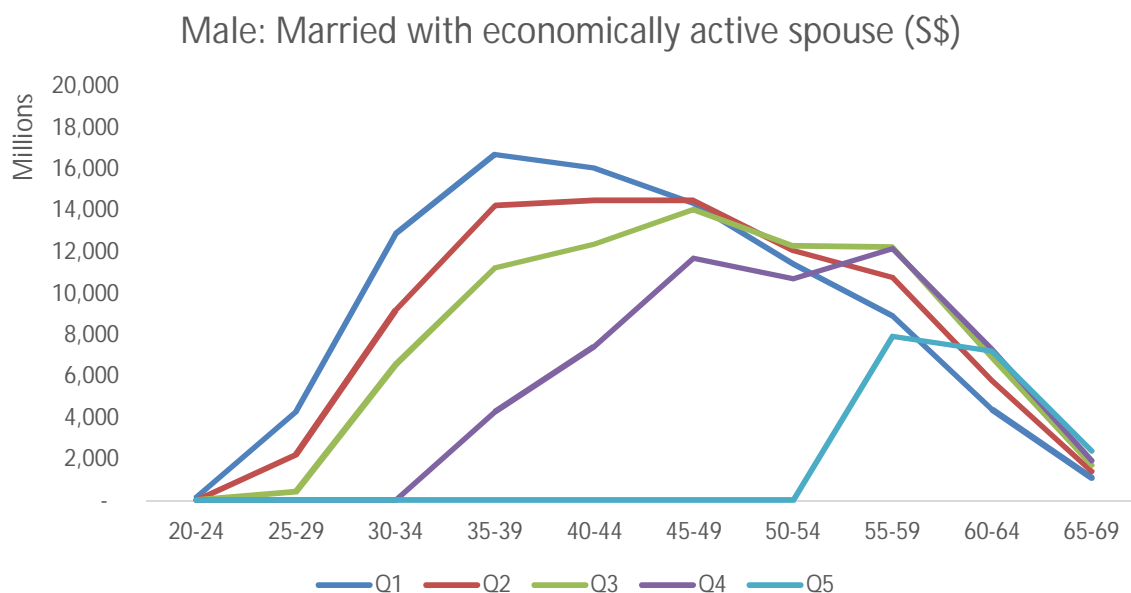


Table: Mortality protection needs for married males with economically active spouses (\$\$ million)

	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69
Q1	159	4,292	12,858	16,703	16,047	14,367	11,413	8,916	4,392	1,092
Q2	-	2,196	9,198	14,218	14,466	14,483	12,055	10,779	5,784	1,418
Q3	-	413	6,555	11,235	12,377	14,045	12,285	12,208	6,907	1,711
Q4	-	-	-	4,287	7,433	11,698	10,705	12,153	7,296	1,940
Q5	-	-	-	-	-	-	-	7,910	7,202	2,407

Female: Married with economically active spouse (\$\$)

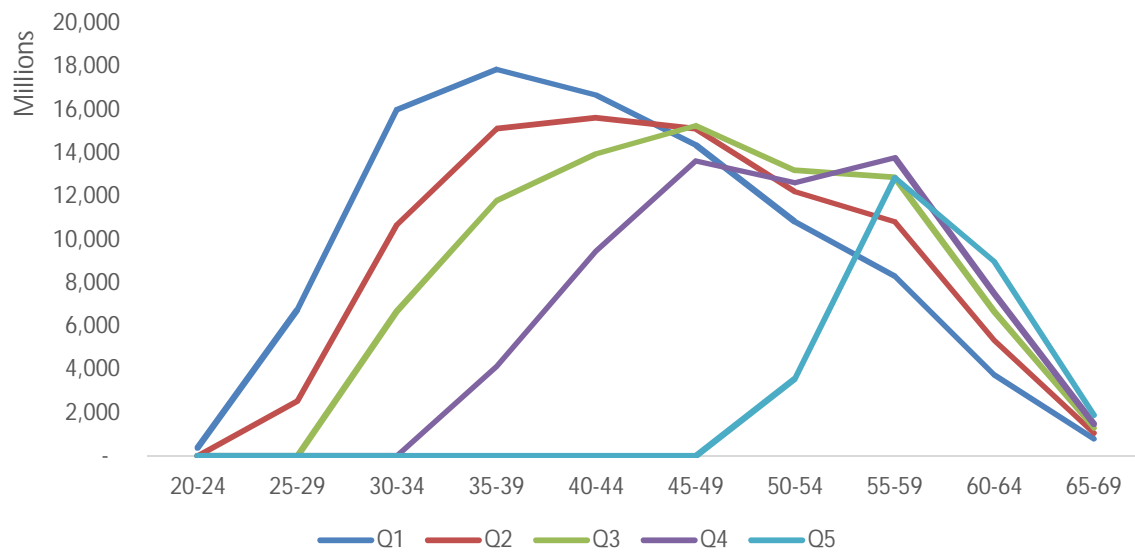


Table: Mortality protection needs for married females with economically active spouses (\$\$ million)

	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69
Q1	363	6,755	16,003	17,847	16,679	14,380	10,804	8,295	3,750	776
Q2	-	2,543	10,652	15,094	15,607	15,118	12,207	10,804	5,340	1,038
Q3	-	-	6,667	11,794	13,964	15,258	13,173	12,867	6,678	1,274
Q4	-	-	-	4,120	9,463	13,619	12,622	13,764	7,500	1,464
Q5	-	-	-	-	-	-	3,562	12,855	8,978	1,871

Married individuals with Economically Inactive Spouse

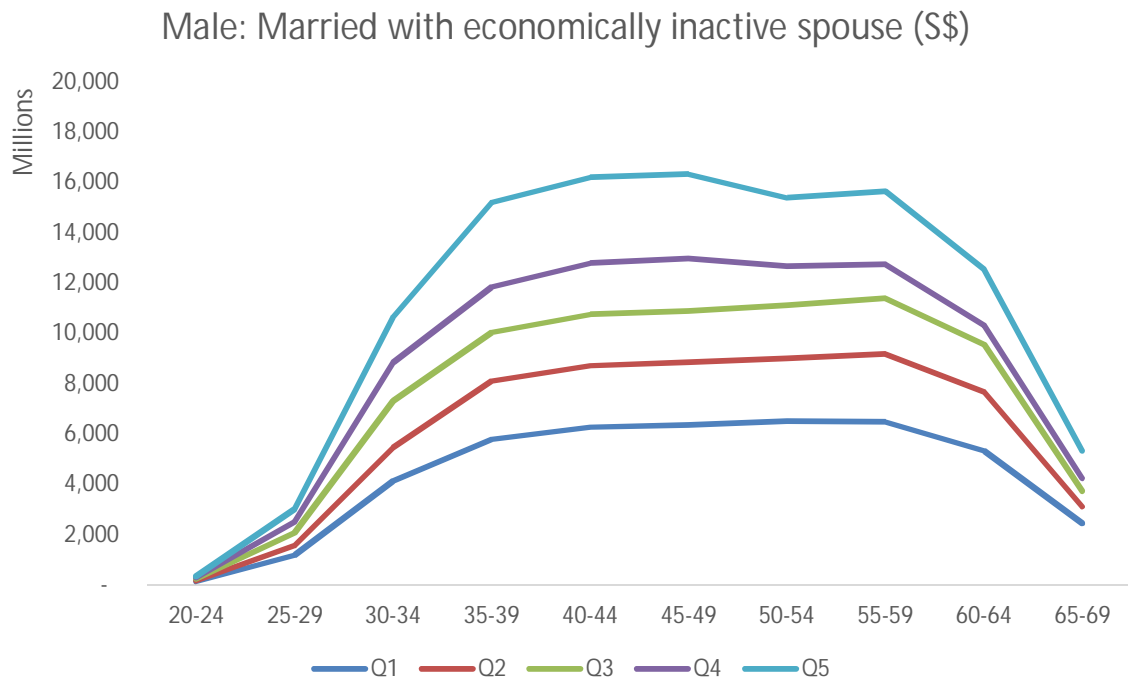
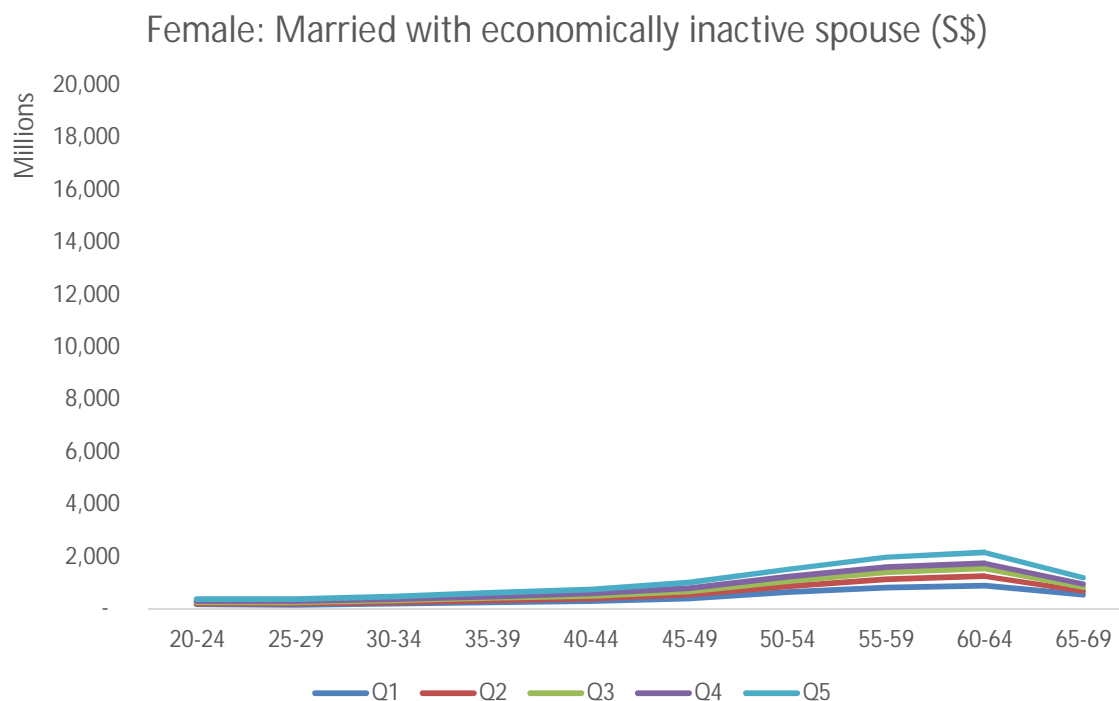


Table: Mortality protection needs for married males with economically inactive spouses (\$\$ million)

	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69
Q1	132	1,183	4,119	5,785	6,265	6,337	6,480	6,465	5,329	2,456
Q2	165	1,558	5,454	8,081	8,709	8,826	8,985	9,157	7,670	3,117
Q3	233	2,068	7,291	10,015	10,740	10,872	11,097	11,384	9,530	3,720
Q4	290	2,495	8,822	11,836	12,764	12,938	12,640	12,715	10,317	4,217
Q5	320	3,006	10,646	15,196	16,193	16,314	15,367	15,627	12,514	5,308



Note: the total Protection Needs of females married with economically inactive spouse is significantly lower than that of males married with economically inactive spouse because there are fewer females married with economically inactive spouse (32,000) than males married with economically inactive spouse (259,000)

Table: Mortality protection needs for married females with economically inactive spouses (S\$ million)

	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69
Q1	145	137	173	225	282	378	613	784	862	524
Q2	189	184	234	312	389	522	845	1,101	1,222	678
Q3	241	235	302	389	482	647	1,047	1,374	1,525	819
Q4	287	278	359	460	574	772	1,219	1,576	1,715	935
Q5	349	351	452	594	731	977	1,504	1,975	2,140	1,190

Singles

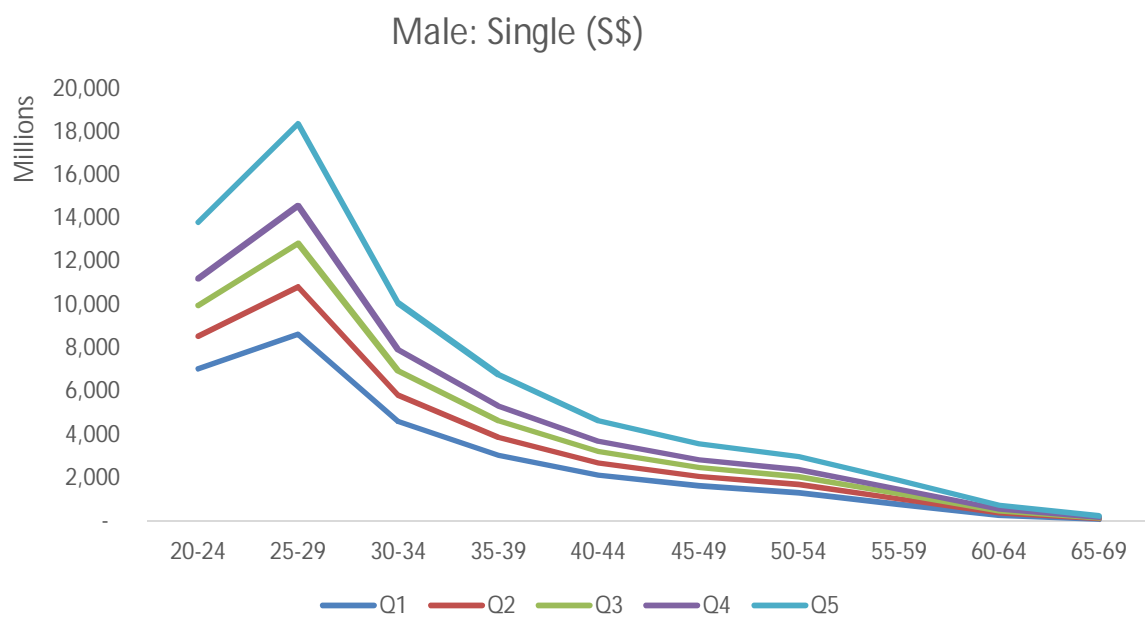


Table: Mortality protection needs for single males (S\$ million)

	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69
Q1	7,020	8,619	4,592	3,045	2,120	1,603	1,300	762	253	77
Q2	8,548	10,813	5,818	3,861	2,681	2,053	1,688	1,030	371	115
Q3	9,962	12,841	6,954	4,623	3,203	2,466	2,043	1,272	476	148
Q4	1,215	14,577	7,928	5,307	3,684	2,839	2,355	1,470	558	173
Q5	13,807	18,361	10,080	6,753	4,649	3,572	2,968	1,889	737	230

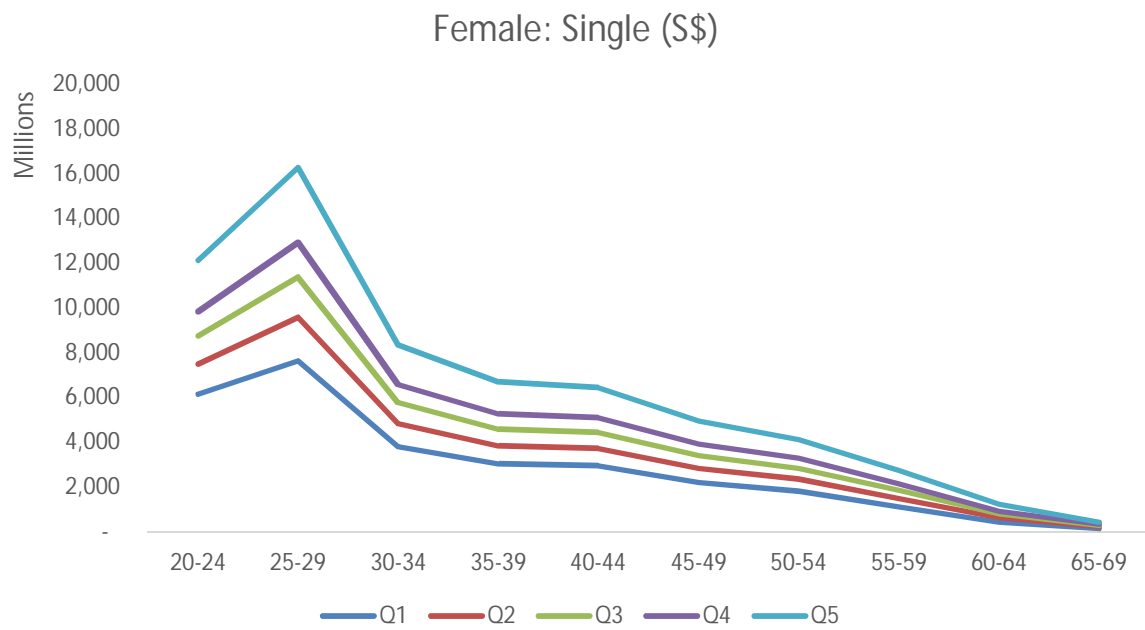


Table: Mortality protection needs for single females (S\$ million)

	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69
Q1	6,161	7,635	3,810	3,019	2,934	2,216	1,809	1,109	420	149
Q2	7,503	9,579	4,826	3,828	3,710	2,837	2,350	1,500	617	221
Q3	8,744	11,375	5,769	4,584	4,433	3,409	2,843	1,853	793	285
Q4	9,844	12,913	6,577	5,261	5,099	3,924	3,278	2,141	928	334
Q5	12,119	16,265	8,362	6,695	6,434	4,937	4,130	2,750	1,227	442

2. Critical Illness Protection Needs

Married individuals with economically active spouse

Male: Married with economically active spouse (\$\$)

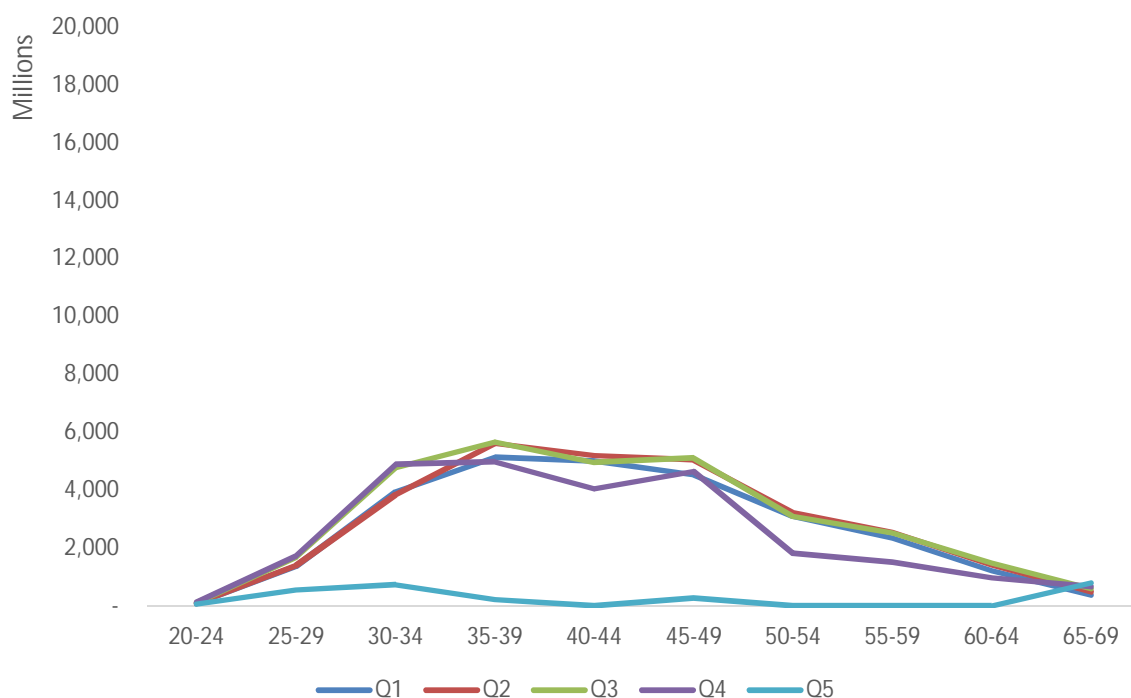


Table: Critical illness protection needs for married males with economically active spouses (\$\$ million)

	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69
Q1	70	1,360	3,933	5,126	4,981	4,524	3,082	2,325	1,195	365
Q2	73	1,383	3,837	5,607	5,187	5,022	3,229	2,538	1,414	479
Q3	98	1,678	4,776	5,644	4,952	5,089	3,095	2,515	1,481	581
Q4	112	1,720	4,876	4,973	4,031	4,626	1,803	1,490	958	653
Q5	66	548	709	218	-	257	-	-	-	782

Female: Married with economically active spouse (S\$)

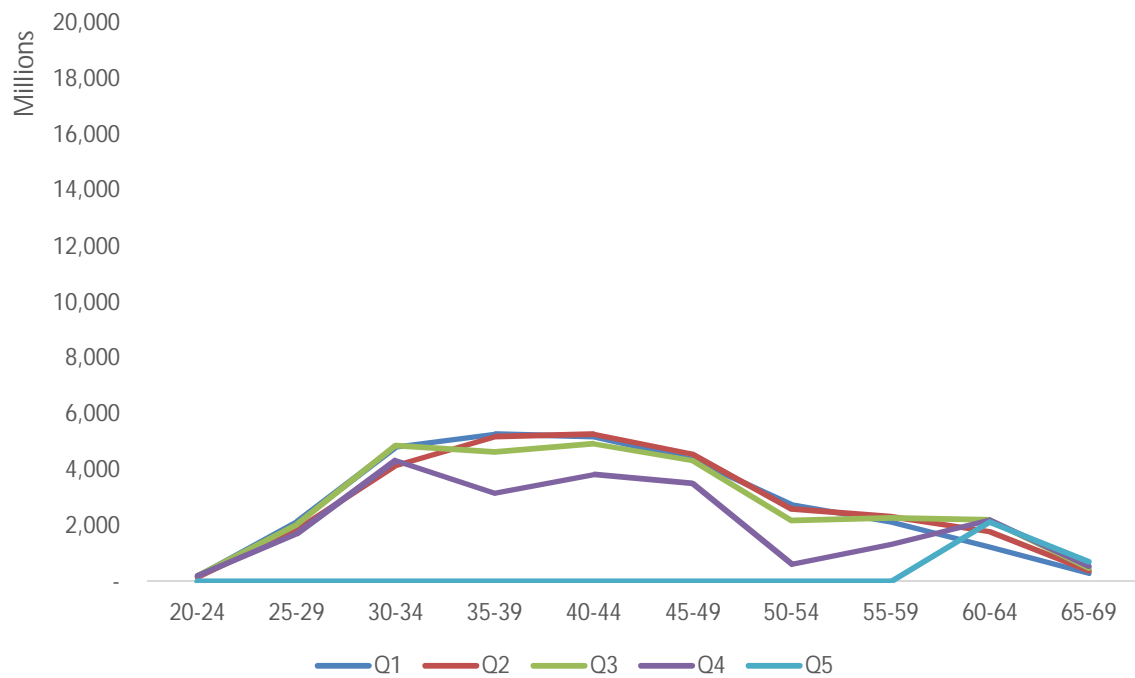


Table: Critical illness protection needs for married females with economically active spouses (S\$ million)

	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69
Q1	172	2,132	4,811	5,266	5,173	4,383	2,736	2,127	1,236	286
Q2	152	1,843	4,138	5,173	5,276	4,569	2,582	2,309	1,789	387
Q3	194	2,040	4,855	4,630	4,922	4,338	2,179	2,275	2,192	477
Q4	198	1,723	4,337	3,151	3,817	3,492	607	1,318	2,189	548
Q5	-	-	-	-	-	-	-	-	2,131	696

Married individuals with Economically Inactive Spouse

Male: Married with economically inactive spouse (\$\$)

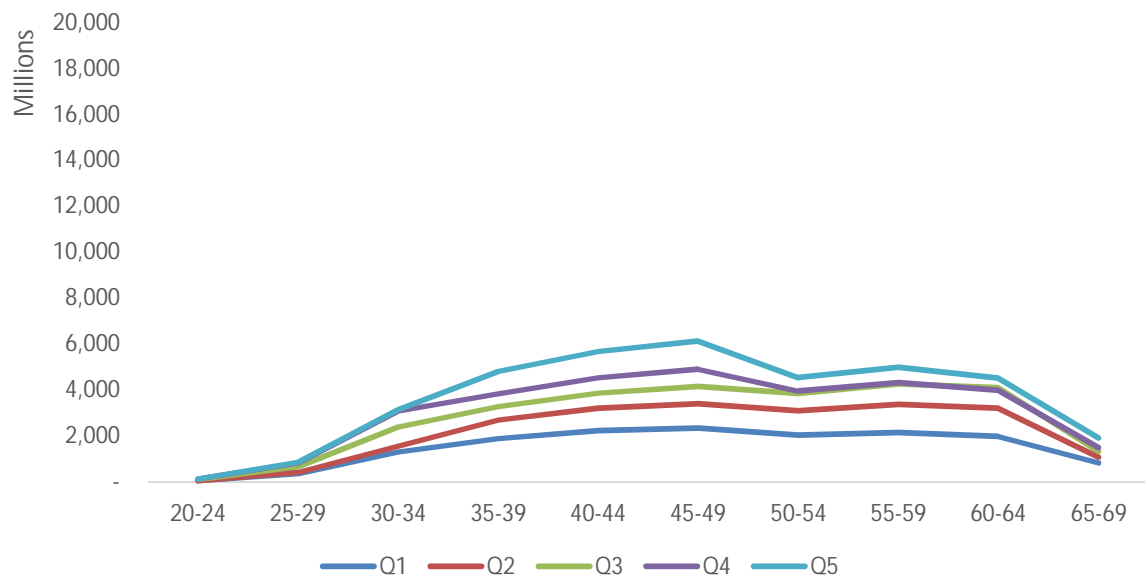
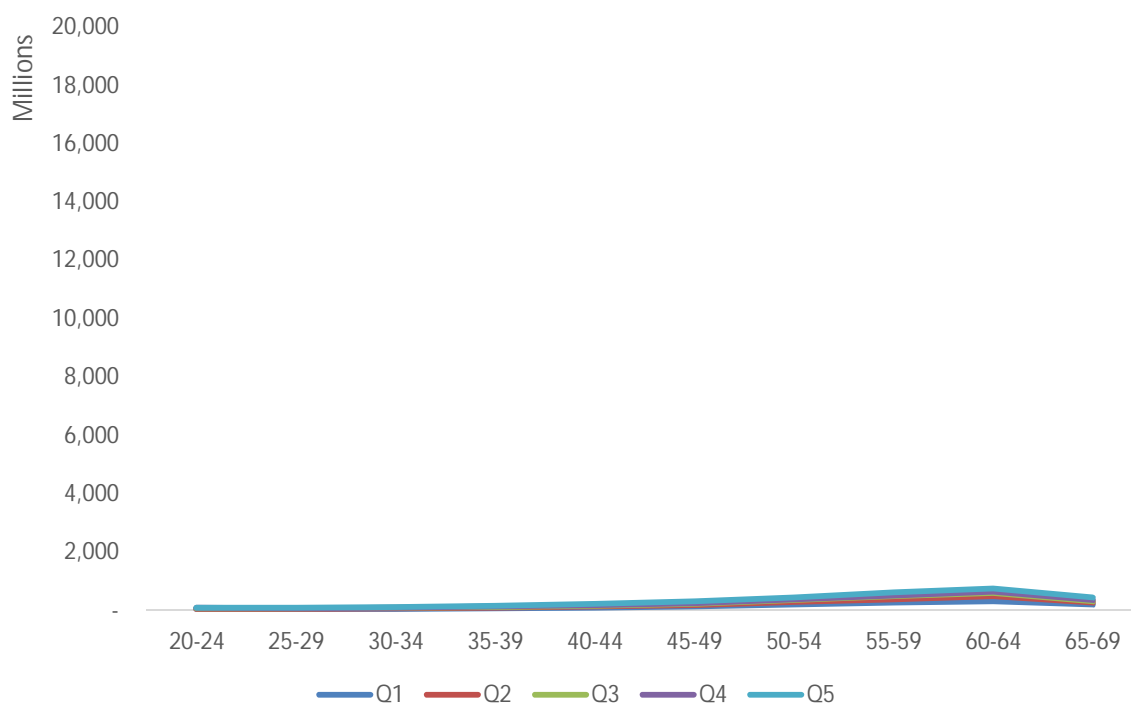


Table: Critical illness protection needs for married males with economically inactive spouses (\$\$ million)

	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69
Q1	52	355	1,300	1,878	2,209	2,326	2,031	2,146	1,959	828
Q2	58	422	1,554	2,701	3,191	3,401	3,074	3,362	3,208	1,087
Q3	102	650	2,401	3,276	3,869	4,144	3,836	4,242	4,077	1,320
Q4	136	830	3,072	3,827	4,540	4,886	3,958	4,312	3,989	1,506
Q5	125	843	3,131	4,802	5,677	6,125	4,537	4,985	4,518	1,906

Female: Married with economically inactive spouse (\$\$)



Note: the total Protection Needs of females married with economically inactive spouse is significantly lower than that of males married with economically inactive spouse because there are fewer females married with economically inactive spouse (32,000) than males married with economically inactive spouse (259,000)

Table: Critical illness protection needs for married females with economically inactive spouses (\$\$ million)

	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69
Q1	38	33	46	65	88	124	190	256	310	194
Q2	46	42	58	90	122	175	274	379	472	254
Q3	64	56	80	109	148	213	340	475	596	309
Q4	80	67	97	127	173	250	369	512	628	352
Q5	84	77	108	159	216	313	437	617	752	446

Singles

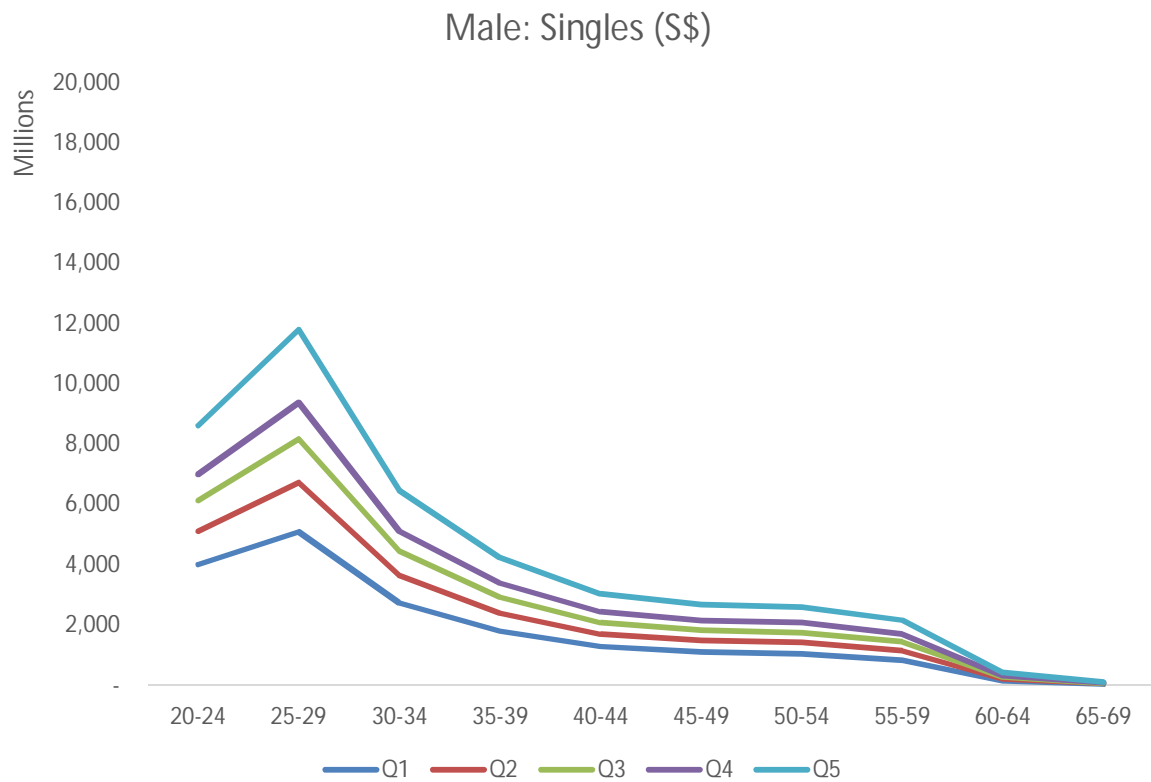


Table: Critical illness protection needs for single males (\$\$ million)

	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69
Q1	4,003	5,087	2,732	1,794	1,282	1,092	1,039	821	141	31
Q2	5,120	6,715	3,640	2,386	1,701	1,471	1,407	1,142	208	50
Q3	6,124	8,173	4,452	2,917	2,078	1,812	1,740	1,431	268	66
Q4	7,003	9,384	5,122	3,381	2,427	2,134	2,065	1,689	315	79
Q5	8,624	11,791	6,467	4,240	3,021	2,668	2,576	2,152	416	106

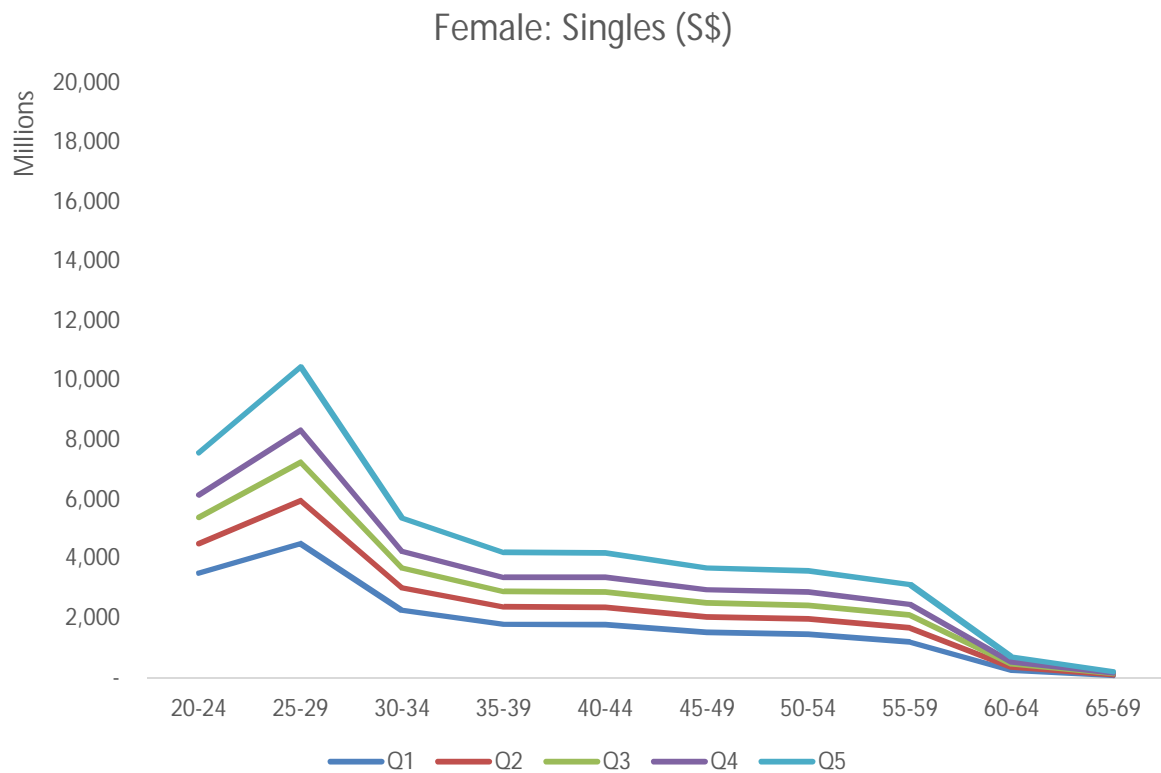


Table: Critical illness protection needs for single females (\$\$ million)

	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69
Q1	3,513	4,506	2,266	1,779	1,775	1,509	1,445	1,195	234	60
Q2	4,494	5,949	3,019	2,365	2,354	2,033	1,958	1,663	346	96
Q3	5,375	7,240	3,693	2,892	2,876	2,505	2,421	2,084	446	127
Q4	6,147	8,313	4,249	3,352	3,358	2,950	2,873	2,460	524	151
Q5	7,569	10,445	5,365	4,203	4,181	3,687	3,585	3,133	693	205

Appendix D Assumptions and Data Sources

I. Historic economic assumptions

These are used to inflate historical data from prior years to the present year (31 December 2016).

Assumption	Rate	Source	Application
Wage inflation rate	3.45%	3 year CAGR from 2013 to 2016 based on Department of Statistics report entitled "Household income from work time series" ⁴	Remaining spouse's income: HES 2012/13, 3 years to end 2016 Elderly needs: NSSC 2011, 5 years to end 2016
General expense inflation rate	-0.01%	3 year CAGR of CPI from 2013 to 2016 based on Department of Statistics report entitled "Consumer Price Index (CPI)" ⁵	Future Household Expenses: HES 2012/13, 3 years to end 2016
Housing inflation rate	-2.52%	3 year CAGR of Housing and Utilities index from 2013 to 2016 based on Department of Statistics report entitled "Consumer Price Index (CPI)"	Rent: HES 2012/13, 3 years to end 2016
Education inflation rate	3.31%	3 year CAGR of Education index from 2013 to 2016 based on Department of Statistics report entitled "Consumer Price Index (CPI)"	Children needs: HES 2012/13: 3 years to end 2016

II. Prospective economic assumptions

These are used to project the needs in the future for the Present Value calculations.

Assumption	Rate	Source	Application
Wage inflation rate	3.80%	Annualised change in average gross monthly income from work from 2011 to 2016 based on Department of Statistics report entitled "Household income from work time series"	Elderly needs Remaining spouse's income
General expense inflation rate	2.40%	10 year CAGR of CPI from 2006 to 2016 based on Department of Statistics report entitled "Consumer Price Index (CPI)"	Unpaid services Children needs Future household expenses
Housing inflation rate	3.04%	10 year CAGR of Housing and Utilities index from 2013 to 2016 based on Department of Statistics report entitled "Consumer Price Index (CPI)"	Rent
Discount rate	2.74%	15 year Singapore government risk free yields as at 30 Dec 2016 ⁶	Unpaid services Children needs Elderly needs Future household expense Rent Remaining spouse's income

⁴ <http://www.tablebuilder.singstat.gov.sg/publicfacing/createSpecialTable.action?refId=12313>

⁵ <http://www.tablebuilder.singstat.gov.sg/publicfacing/createDataTable.action?refId=6763>

⁶ <https://secure.sgs.gov.sg/fdanet/BenchmarkPricesAndYields.aspx>

III. Key non-economic assumptions

Assumption	Rate	Source	Application
Life expectancy	87.4 years	Life expectancy of elderly dependents in 2016 is based on life expectancy of a female at age 65, from Population And Vital Statistics, Ministry of Health Statistics ⁷	Elderly needs
Age of spouse setback	2 years	Followed PGS 2012 assumption	Unpaid services Future household expense
Age of elderly	65 years or 25 years older than child's age, whichever is higher	Followed PGS 2012 assumption	Unpaid services Elderly needs Future household expense Rent Remaining spouse's income

IV. Other assumptions and data sources

Section	Item	Value	Source
Funeral Costs	Cost of funeral	S\$10,000	http://casketfairprice.com/ http://www.singaporefuneraldirectory.com/top-10-funeral-service-providers-in-singapore/ https://eservices.nea.gov.sg/atad/FAQ.html
Unpaid Services	Cost of part-time helper	S\$20/ hour	http://www.homecleaning.com.sg/rates/ http://www.domestic1.com.sg/parttimemaids.html https://servishero.com/sg/en/singapore/request/400001#service http://www.auntiecleaner.com.sg/parttimecleaner.html http://www.a-team.com.sg/part_time_maid_housekeeping.html https://www.helpling.com.sg/bids/jmjpbzq/date_time
Needs of Children	Age of children leaving dependency status	20 years	Using Table 10, Education options of Protection Gap Study 2012, the age at which children join workforce is multiplied by the probability of each educational option to arrive at the weighted average age of children leaving dependency status.
	Age when an individual has the first child	30 years	Followed the assumption of PGS 2012
	Age setback of each subsequent child	3 years	Followed the assumption of PGS 2012
	Difference between expenses for households with and without children	N/A	Table 44, General Household survey 2015. Household expenses with children minus household expenses without children is the cost of children.
	Number of households with the 7 family groups according to age of parent and children	N/A	Table 32, General Household Survey 2015
Needs of Elderly Parents	Number of senior citizens who required financial support from children at the end of 2015	240,900	Table 122, General Household survey 2015. Total number of senior citizens whose main source of financial support is "allowances given by children".

	Life expectancy of elderly	87.4	https://www.moh.gov.sg/content/moh_web/home/statistics/Health_Facts_Singapore/Population_And_Vital_Statistics.html Assumed that the elderly is a female.
Rent	Actual rent figures over age groups and income quintiles	N/A	Rentals for housing over income quintiles from Table 16A, HES12/13 Rentals for housing over age groups from table 21A, HES 12/13
Future Household Expense	Expense reduction after the death of the EA for households with one single EA	77%	For singles, on average an EA individual will support 0.3 other economically inactive /sideward or elderly dependant. Household expenses have therefore been reduced to $0.3/1.3 = 23\%$
	Expense reduction after the death of the EA for households with one married EA to an EA spouse	31%	From HES 12/13 T23, average monthly household expenditure per member is S\$1,450. From HES 12/13 T7, the average monthly household expenditure is S\$4,724. Therefore each household member accounts for approximately $1450/4724 = 31\%$ of household expenditure.
	Ratio of single-income household expense (married to EI spouse) to average household expense	80%	From HES 12/13 T7, average monthly expenditure of households with one working person is S\$3,761. From HES 12/13 T7, the average monthly household expenditure is S\$4,724. Therefore the ratio is $3761/4724 = 80\%$.
	Ratio of double-income household expense (married to EA spouse) to average household expense	118%	From HES 12/13 T7, average monthly expenditure of households with two working person is S\$5,567. From HES 12/13 T7, the average monthly household expenditure is S\$4,724. Therefore the ratio is $5567/4724 = 118\%$.
Remaining Spouse's Income	Ratio of single-income household income (married to EI spouse) to average household income	67%	From Table 91 of General Household Survey 2015. The weighted average monthly income for households with one working person is S\$6,713 and the average household income (excluding "no working person") is S\$10,030. Therefore the ratio is $6713/10030 = 67\%$.
	Ratio of double-income household income (married to EA spouse) to average household income	112%	From Table 91 of General Household Survey 2015. The weighted average monthly income for households with two working persons is S\$11,240 and the average household income (excluding "no working person") is S\$10,030. Therefore the ratio is $11240/10030 = 112\%$.
	Split of household income according to gender, male to female	55:45	From Yearbook of Manpower Statistics 2016 Table B.2: Median Gross Monthly Income from Work, the ratio of male and female median income from 2011 to 2016 is obtained. The average of the 5-year ratio is 55:45.

Appendix E Ministry of Manpower Labour Force Data

In this appendix, we have set out the key data we have used in the Comprehensive Labour Force Survey conducted by the Ministry of Manpower⁸.

The table numbers quoted are the statistical tables from the “Labour Market Statistical Information” on MOM website.

The labour force data at June 2016 has been used without any adjustments to the data as we do not expect significant demographic changes between June 2016 and Year End 2016.

Table 1 - Labour force, employed, unemployed and unemployment rate, 2006 - 2016 (June) (Thousands)

Mid-Year	Labour Force ('000)		Employed ('000)		Unemployed ('000)		Unemployment Rate (Seasonally Adjusted) (%)		Unemployment Rate (Non-Seasonally Adjusted) (%)	
	Total	Resident	Total	Resident	Total	Resident	Total	Resident	Total	Resident
2006	2,594.1	1,880.8	2,505.8	1,796.7	88.3	84.2	2.7	3.5	3.4	4.5
2007	2,750.5	1,918.1	2,670.8	1,842.1	79.7	76.1	2.3	3.1	2.9	4.0
2007	2,710.3	1,878.0	2,631.9	1,803.2	78.4	74.8	2.3	3.1	2.9	4.0
2008	2,939.9	1,928.3	2,858.1	1,852.0	81.8	76.2	2.2	3.0	2.8	4.0
2009	3,030.0	1,985.7	2,905.9	1,869.4	124.1	116.3	3.2	4.5	4.1	5.9
2010	3,135.9	2,047.3	3,047.2	1,962.9	88.8	84.4	2.2	3.1	2.8	4.1
2011	3,237.1	2,080.1	3,149.7	1,998.9	87.4	81.2	2.0	2.9	2.7	3.9
2012	3,361.8	2,119.6	3,274.7	2,040.6	87.1	79.0	1.9	2.8	2.6	3.7
2013	3,443.7	2,138.8	3,352.9	2,056.1	90.7	82.6	2.0	2.9	2.6	3.9
2014	3,530.8	2,185.2	3,440.2	2,103.5	90.7	81.8	1.9	2.8	2.6	3.7
2015	3,610.6	2,232.3	3,516.0	2,147.8	94.6	84.5	1.9	2.8	2.6	3.8

⁸ <http://stats.mom.gov.sg/Pages/Labour-Force-in-Singapore-2016-Labour-Force.aspx>

2016	3,672.8	2,257.6	3,570.0	2,165.3	102.8	92.3	2.1	3.0	2.8	4.1		
Age (Years)	Total				Males				Females			
	Total	Single	Married	Widowed/ Divorced	Total	Single	Married	Widowed/ Divorced	Total	Single	Married	Widowed/ Divorced
Total	68.0	63.2	73.7	46.9	76.2	63.5	83.8	65.5	60.4	62.9	63.5	40.7
15 - 19	15.3	15.2	n/a	n/a	18.0	17.9	n/a	n/a	12.4	12.4	n/a	n/a
20 - 24	62.3	61.9	75.7	n/a	62.6	62.3	84.0	n/a	62.0	61.4	72.7	n/a
25 - 29	90.3	90.4	90.0	89.9	90.0	87.6	98.7	n/a	90.6	93.8	85.0	n/a
30 - 34	90.8	94.4	89.1	92.6	97.0	93.4	99.2	100.0	85.3	95.6	81.4	88.0
35 - 39	89.7	93.4	88.5	96.6	97.8	93.7	99.0	97.4	82.3	93.2	79.2	96.1
40 - 44	88.2	91.0	87.4	92.6	97.2	89.4	98.6	95.2	80.2	92.3	76.9	91.4
45 - 49	86.3	88.3	85.5	92.4	96.3	87.1	97.7	96.4	77.2	89.3	73.6	90.5
50 - 54	81.4	81.3	81.1	84.8	92.9	80.4	94.9	91.9	70.3	82.0	66.5	81.4
55 - 59	75.8	79.5	75.6	73.2	88.7	75.7	90.9	84.3	63.1	83.3	58.8	69.0
60 - 64	62.8	66.2	63.5	55.6	76.9	61.9	79.2	68.4	48.8	69.3	44.9	50.1
65 - 69	43.2	46.5	43.6	39.4	55.7	48.2	55.9	59.2	31.4	45.7	28.0	33.0
70 & Over	15.0	23.1	18.5	9.1	22.1	24.8	22.8	17.7	9.8	21.8	12.0	7.3

Table 6 - Age - sex specific resident labour force participation rate by marital status, June 2016 (%)

Table 15 - Resident labour force aged fifteen years and over by marital status, age and sex, June 2016 (Thousands)

Age (Years)	Total			Single			Married			Widowed/Divorced		
	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females
Total	2,257.6	1,224.5	1,033.1	663.3	342.9	320.4	1,456.2	833.2	623.0	138.2	48.4	89.8
15 - 19	37.9	22.9	15.0	37.7	22.8	14.9	0.2	0.1	0.1	-	-	-
20 - 24	162.5	84.7	77.8	156.3	82.9	73.3	6.0	1.8	4.2	0.3	-	0.3
25 - 29	239.3	118.0	121.3	170.5	90.1	80.4	66.6	26.8	39.8	2.2	1.0	1.1
30 - 34	244.7	122.8	121.9	80.7	44.6	36.1	159.7	76.4	83.3	4.2	1.8	2.5
35 - 39	259.7	135.5	124.2	52.2	27.5	24.7	197.8	104.3	93.5	9.7	3.7	6.0
40 - 44	268.4	139.8	128.6	41.0	18.7	22.3	212.5	116.2	96.3	14.9	4.9	10.0
45 - 49	260.1	139.3	120.7	33.9	15.9	18.0	207.2	116.9	90.2	19.1	6.5	12.6
50 - 54	262.3	147.4	114.8	33.6	15.7	17.9	205.1	123.5	81.6	23.6	8.3	15.3
55 - 59	226.9	131.6	95.3	27.5	13.2	14.3	177.3	111.3	66.0	22.1	7.1	15.0
60 - 64	164.1	100.1	64.0	18.0	7.0	11.0	127.8	86.3	41.5	18.3	6.8	11.5
65 - 69	87.9	55.0	32.9	9.0	3.0	5.9	65.6	47.1	18.5	13.3	4.8	8.4
70 & Over	43.9	27.3	16.6	3.0	1.3	1.7	30.5	22.5	8.0	10.5	3.5	7.0

Table 82 - Unemployed residents aged fifteen years and over by marital status, age and sex, June 2016 (Thousands)

Age (Years)	Total			Single			Married			Widowed/Divorced		
	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females
Total	92.3	46.1	46.2	44.4	22.0	22.4	42.4	21.7	20.7	5.5	2.4	3.1
15 - 29	31.1	14.7	16.4	28.7	14.0	14.8	2.3	0.7	1.6	0.1	-	-
30 - 39	17.1	7.5	9.6	7.0	3.8	3.2	9.1	3.2	5.9	0.9	0.4	0.5
40 - 49	17.2	8.1	9.0	3.9	1.9	2.0	12.2	5.7	6.5	1.1	0.5	0.6
50 & Over	27.0	15.8	11.2	4.7	2.3	2.5	18.8	12.1	6.7	3.5	1.5	2.0

Table B2 - Median Gross Monthly Income from Work

	Male	Female
2011	3,174	2,672
2012	3,451	2,839
2013	3,654	3,016
2014	3,770	3,087
2015	3,890	3,248
2016	3,991	3,382

Source: Singapore Yearbook of Manpower Statistics, 2016

Appendix F General Household Survey 2015 Data

In this appendix, we have set out the key data we have used in the General Household Survey 2015 conducted by the Department of Statistics, Singapore.

The table numbers quoted are the statistical tables from the General Household Survey 2015 report.

The GHS 2015 data has been used without any adjustments to the data as we do not expect significant demographic changes between 2015 and Year End 2016.

Table 15 - Resident Ever-Married Females Aged 15 Years and Over by Age Group, Number of Children Born and Economic Activity (Thousands)

Age Group (Years)	Total	Number of Children Born					
		0	1	2	3	4	5
	Total						
Total	1,184.9	139.1	230.4	439.1	235.8	72.7	67.7
Below 25	5.7	2.3	2.1	1.1	0.2	-	-
25 - 29	46.1	21.9	14.5	7.8	1.5	0.2	0.2
30 - 34	107.2	29.0	36.2	32.0	8.0	1.5	0.5
<i>below 35</i>		53.2	52.8	40.9	9.7	1.7	0.7
35 - 39	132.7	20.5	33.7	57.4	16.4	3.2	1.5
40 - 44	139.0	17.2	32.3	60.9	21.6	5.5	1.4
45 - 49	132.5	14.2	28.3	54.3	27.4	6.3	2.0
<i>35 to 49</i>		51.9	94.3	172.6	65.4	15.0	4.9
50 - 54	140.7	11.4	23.9	61.3	33.1	8.7	2.3
55 - 59	129.0	9.9	20.5	54.8	34.1	7.7	2.1
60 - 64	109.3	5.8	15.9	46.7	32.6	6.7	1.7
<i>50 to 64</i>		27.1	60.3	162.8	99.8	23.1	6.1
65 - 69	89.3	3.0	11.4	33.4	26.8	9.8	4.9
70 - 74	53.8	1.0	5.3	14.8	14.6	8.9	9.1
75 & Over	99.6	2.6	6.4	14.7	19.4	14.3	42.1
<i>65 and over</i>		6.6	23.1	62.9	60.8	33.0	56.1

Table 15 - Resident Ever-Married Females Aged 15 Years and Over by Age Group, Number of Children Born and Economic Activity (Thousands)
(Continued)

Age Group (Years)	Total	Number of Children Born					
		0	1	2	3	4	5
	Economically Active						
Total	700.4	113.2	161.7	270.3	119.2	26.3	9.7
Below 25	4.1	2.0	1.3	0.7	0.1	-	-
25 - 29	38.2	20.3	11.3	5.4	1.1	0.1	-
30 - 34	86.2	26.0	29.7	23.3	5.9	1.1	0.2
35 - 39	105.1	18.1	27.4	44.0	12.6	2.2	0.8
40 - 44	105.8	14.9	25.1	46.0	15.1	3.7	1.1
45 - 49	97.0	11.0	21.3	40.1	19.7	4.0	0.9
50 - 54	97.1	8.9	17.0	42.6	22.4	5.0	1.3
55 - 59	77.0	7.0	13.5	32.2	19.5	3.9	0.9
60 - 64	49.4	3.3	8.4	22.6	12.3	2.1	0.6
65 - 69	26.7	1.3	4.9	10.2	7.3	2.1	0.9
70 - 74	8.7	0.2	1.3	2.4	2.1	1.3	1.3
75 & Over	5.2	0.3	0.6	0.8	1.1	0.7	1.7

Table 15 - Resident Ever-Married Females Aged 15 Years and Over by Age Group, Number of Children Born and Economic Activity (Thousands)
(Continued)

Age Group (Years)	Total	Number of Children Born					
		-	1.0	2.0	3.0	4.0	5.0
	Economically Inactive						
Total	484.6	25.9	68.7	168.9	116.6	46.5	58.1
Below 25	1.6	0.3	0.8	0.4	0.1	-	-
25 - 29	7.9	1.7	3.2	2.4	0.4	0.1	0.1
30 - 34	21.0	3.1	6.5	8.7	2.1	0.4	0.3
35 - 39	27.7	2.5	6.3	13.3	3.9	1.0	0.7
40 - 44	33.2	2.3	7.2	15.0	6.5	1.8	0.3
45 - 49	35.5	3.3	7.0	14.2	7.7	2.2	1.1
50 - 54	43.6	2.5	7.0	18.7	10.7	3.7	1.0
55 - 59	52.0	2.9	6.9	22.7	14.5	3.8	1.2
60 - 64	60.0	2.5	7.5	24.1	20.3	4.5	1.1
65 - 69	62.6	1.7	6.6	23.2	19.5	7.7	3.9
70 - 74	45.1	0.8	4.0	12.4	12.5	7.6	7.8
75 & Over	94.4	2.3	5.8	13.9	18.4	13.7	40.4

Table 91 - Resident Households by Monthly Household Income from Work and Number of Working Persons in Household (Thousands)

	Total	No Working Person	1 Working Person	2 Working Persons	3 Working Persons	4 or More Working Persons
Total	1,225.3	118.8	397.3	468.8	159.6	80.8
No Working Person	118.8	118.8	-	-	-	-
Below 1,000	24.0	-	23.2	0.8	-	-
1,000 - 1,499	36.4	-	34.0	2.2	0.1	-
1,500 - 1,999	33.6	-	27.9	5.5	0.3	-
2,000 - 2,499	37.4	-	27.3	9.4	0.7	-
2,500 - 2,999	33.2	-	21.5	11.0	0.6	0.1
3,000 - 3,499	33.7	-	20.7	11.5	1.6	-
3,500 - 3,999	34.0	-	18.6	13.3	2.0	0.1
4,000 - 4,499	38.9	-	20.1	15.6	3.1	0.1
4,500 - 4,999	33.3	-	14.6	14.5	3.7	0.6
5,000 - 5,999	69.4	-	28.3	31.1	8.9	1.1
6,000 - 6,999	70.8	-	23.2	33.4	11.7	2.5
7,000 - 7,999	65.4	-	19.2	30.2	12.7	3.3
8,000 - 8,999	65.0	-	17.2	31.1	12.8	3.9
9,000 - 9,999	58.6	-	13.8	27.8	12.7	4.2
10,000 - 10,999	52.7	-	12.9	24.6	10.7	4.6
11,000 - 11,999	46.9	-	9.1	22.5	10.4	5.0
12,000 - 12,999	43.8	-	8.1	22.4	8.6	4.7
13,000 - 13,999	36.8	-	6.5	17.4	8.2	4.7
14,000 - 14,999	33.6	-	5.8	15.9	6.7	5.2
15,000 - 17,499	63.5	-	10.7	30.7	12.2	9.9
17,500 - 19,999	46.9	-	7.0	23.6	8.4	7.9
20,000 & Over	148.6	-	27.5	74.4	23.6	23.1

Table 122 – Resident Population Aged 65 and Over in Resident Households by Main Source of Financial Support, Age Group and Sex

Main Source of Financial Support	Total	Males	Females
Total	460.9	203.6	257.4
Allowances given by Children	240.9	82.4	158.5
Allowances given by Spouse	21.8	3.8	18.0
Income from Employment/Business	93.6	60.3	33.3
Savings/Interests Earned	46.6	25.3	21.3
Income from Rent/Dividends/Annuity/Trusts	21.3	10.4	11.0
Other Sources	36.7	21.4	15.3

Appendix G Household Expenditure Survey 12/13 Data

In this appendix, we have set out the key data we have used from the Household Expenditure Survey 12/13 conducted by the Department of Statistics, Singapore.

The table numbers quoted are the statistical tables from the HES 12/13 report.

Table 7 – Households by Monthly Household Expenditure and Number of Working Persons (S\$)

	Total	No Working Person	Employed Households by Number of Working Persons		
			1	2	3 or more
Average Monthly Household Expenditure	4,724	1,985	3,761	5,567	6,185

Table 16A – Average Monthly Household Expenditure by Type of Goods and Services and Income Quintile (S\$)

	Total	Income Quintile				
		1 st - 20 th	21 st to 40 th	41 st to 60 th	61 st to 80 th	81 st to 100 th
Rentals for Housing	134.5	40.7	59.5	95.2	148.7	328.6
Educational Services	310.3	145.9	240.6	321.7	332.5	510.8

Table 21A - Average Monthly Household Expenditure by Type of Goods and Services and Age Group of Main Income Earner (S\$)

	Total	Age Group of Main Income Earner (Years)									
		Below 25	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 & Over
Rentals for Housing	134.5	101.1	136.3	167.0	192.5	169.5	126.2	99.9	88.0	60.3	128.1
Educational Services	310.3	229.0	175.8	173.8	316.6	434.1	463.0	494.2	309.4	187.5	39.2

Table 27A - Average Monthly Household Income by Income Quintile and Type of Dwelling (S\$)

	Total	Income Quintile				
		1 st - 20 th	21 st to 40 th	41 st to 60 th	61 st to 80 th	81 st to 100 th
Average Monthly Household Income	10,503	2,022	5,299	8,378	12,270	24,544

Table 30 - Average Monthly Household Income by Age Group of Main Income Earner and Type of Dwelling

	Total	Age Group of Main Income Earner (Years)									
		Below 25	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 & Over
Average Monthly Household Income	10,503	6,692	9,722	11,867	12,770	13,524	11,306	10,787	10,443	8,372	3,460

Table 32 - Households by Household Living Arrangement and Selected Characteristics (Number)

Total	Couple- based Households												Other Households
	Head Aged Below 35 Years		Head Aged 35 - 49 Years				Head Aged 50 - 64 Years				Head Aged 65 Years & Over		
	No Children in Household	With Children	No Children in Household	With Youngest Child Below 12 Years	With Youngest Child Aged 12 - 15 Years	With Youngest Child Aged 16 Years & Over	No Children in Household	With Youngest Child Below 12 Years	With Youngest Child Aged 12 - 15 Years	With Youngest Child Aged 16 Years & Over	No Children in Household	With Children	
Total	29,530	54,840	42,575	206,772	51,063	28,858	48,672	25,551	35,756	211,955	49,502	51,995	352,724
<u>By Income Quintile</u>													
1 st - 20 th	554	8,346	1,534	27,285	10,042	5,488	11,100	9,174	8,490	22,290	27,883	9,559	96,214
21 st - 40 th	682	9,023	3,708	42,132	11,937	9,592	12,707	6,157	11,366	45,946	10,647	11,932	62,129
41 st - 60 th	2,899	14,003	5,114	43,221	12,089	5,465	8,917	3,717	7,023	58,244	4,224	12,324	60,719
61 st - 80 th	7,949	15,233	11,097	53,518	7,065	4,316	7,188	3,138	4,946	53,129	3,563	9,636	57,181
81 st - 100 th	17,446	8,234	21,122	40,616	9,929	3,997	8,760	3,365	3,932	32,346	3,185	8,544	76,481

Table 32 - Households by Household Living Arrangement and Selected Characteristics (Number) (Continued)

Total	Couple- based Households												Other Households
	Head Aged Below 35 Years		Head Aged 35 - 49 Years				Head Aged 50 - 64 Years				Head Aged 65 Years & Over		
	No Children in Household	With Children	No Children in Household	With Youngest Child Below 12 Years	With Youngest Child Aged 12 - 15 Years	With Youngest Child Aged 16 Years & Over	No Children in Household	With Youngest Child Below 12 Years	With Youngest Child Aged 12 - 15 Years	With Youngest Child Aged 16 Years & Over	No Children in Household	With Children	
By Monthly Income Group													
Below 1,000	140	696	985	1,408	978	136	3,621	545	571	1,376	12,642	1,254	60,600
1,000 - 1,999	140	1,428	549	3,192	1,382	543	5,704	1,521	1,630	3,044	13,419	2,370	43,744
2,000 - 2,999	138	1,813	1,643	6,309	2,617	1,921	8,703	1,924	1,925	6,884	8,580	3,161	35,247
3,000 - 3,999	558	2,495	1,667	9,023	2,612	3,155	6,592	2,455	3,688	9,618	3,737	4,057	30,503
4,000 - 4,999	1,117	2,871	1,367	10,114	4,089	3,014	4,814	3,419	2,870	12,724	2,677	4,164	30,096
5,000 - 5,999	1,778	2,179	2,914	12,583	3,010	2,202	2,589	2,600	2,585	14,734	1,152	3,431	20,968
6,000 - 7,999	3,558	7,540	5,890	26,052	7,231	5,053	4,001	2,180	5,447	33,187	2,371	7,318	41,019
8,000 - 9,999	4,391	6,707	6,172	21,124	7,806	3,004	3,184	2,906	4,542	28,524	1,864	6,625	23,380
10,000 - 11,999	5,309	9,041	4,048	23,025	5,114	2,481	1,828	1,249	2,929	23,952	737	3,048	16,734
12,000 - 14,999	4,844	8,101	5,534	24,343	4,169	1,532	1,402	840	3,505	23,383	724	3,794	17,744
15,000 - 19,999	4,999	6,342	5,038	29,526	4,045	2,786	1,733	1,661	1,975	23,906	431	4,345	14,665
20,000 & Over	2,558	5,627	6,767	40,072	8,009	3,030	4,499	4,252	4,092	30,623	1,167	8,428	18,024

Table 40 - Average Monthly Household Expenditure by Age Group of Main Income Earner (S\$)

	Total	Age Group of Main Income Earner (Years)									
		Below 25	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 & Over
Household Expenditure	4,724	3,853	4,755	5,126	5,458	5,387	5,274	4,925	4,590	3,766	2,274

Table 44 - Average Monthly Household Expenditure by Household Living Arrangement and Income Quintile (S\$)

Household Living Arrangement	Total	Income Quintile				
		1 st - 20 th	21 st - 40 th	41 st - 60 th	61 st - 80 th	81 st - 100 th
Total	4,724	2,231	3,536	4,699	5,590	7,568
Couple-Based Households	5,472	2,744	3,993	5,239	6,236	8,879
Head Aged Below 35 Years	5,224	2,616	4,324	5,030	5,576	6,277
No Children in Household	4,994	2,078	4,373	3,428	4,149	5,755
With Children	5,347	2,651	4,320	5,361	6,320	7,383
Head Aged 35 - 49 Years	6,029	3,152	4,352	5,735	6,499	8,992
No Children in Household	4,450	1,226	2,428	3,611	3,817	5,575
With Youngest Child Below 12 Years	6,367	3,195	4,588	5,999	7,018	9,879
With Youngest Child Aged 12 - 15 Years	6,171	3,538	4,235	5,901	6,219	11,459
With Youngest Child Aged 16 Years & Over	5,683	2,767	4,209	5,270	7,411	11,921
Head Aged 50 - 64 Years	5,520	3,045	3,914	5,177	6,366	10,013
No Children in Household	3,620	2,219	2,122	2,552	4,307	8,094
With Youngest Child Below 12 Years	5,633	2,968	4,063	5,896	8,633	12,680
With Youngest Child Aged 12 - 15 Years	5,712	2,879	4,637	6,302	7,959	11,053
With Youngest Child Aged 16 Years & Over	5,910	3,552	4,211	5,397	6,362	10,129
Head Aged 65 Years & Over	3,721	1,880	3,042	3,766	5,209	9,168
No Children in Household	2,332	1,629	2,108	2,902	4,397	6,166
With Children	5,043	2,609	3,876	4,062	5,510	10,286
Other Households	2,950	1,475	2,242	3,122	3,547	4,798

Appendix H National Survey of Senior Citizens 2012 Data

In this appendix, we have set out the key data we have used in the National Survey of Senior Citizens 2012 conducted by Ministry of Community Development, Singapore.

The table numbers quoted are the statistical tables from the NSSC 2012 report.

Table 5.1 - Distribution of monthly income for senior citizens by age bands (%)

Monthly Income (All Sources)	Total Age 55 and Above	Age Group		
		55 to 64	65 to 74	75 & above
Total	100	100	100	100
Less than \$500	9.8	5.7	11.9	20.7
\$500 - 999	24.8	19.7	29.3	35.2
\$1000 - 1,999	35.7	37.4	35.9	29.4
\$2,000 and above	29.7	37.2	22.9	14.7

Appendix I CPF Savings

We have included CPF Savings as part of the disposable long-term assets that can contribute to reducing the protection gap.

The source of information is from the Central Provident Fund Board, 2016 Annual Report.

Age Band	Male		Female		Unspecified		Total	
	Number ('000)	CPF balance (\$\$ '000)	Number ('000)	CPF balance (\$\$ '000)	Number ('000)	CPF balance (\$\$ '000)	Number ('000)	CPF balance (\$\$ '000)
Up to age 20	62	80,925	57	95,719	-	-	120	176,644
>20-25	128	983,748	121	1,544,050	-	-	249	2,527,798
>25-30	140	5,488,610	145	7,230,629	-	-	285	12,719,239
>30-35	139	11,021,166	152	11,868,191	-	-	291	22,889,357
>35-40	154	16,930,721	164	17,157,337	0	37	319	34,088,095
>40-45	169	23,846,469	172	22,463,327	0	245	341	46,310,041
>45-50	176	27,151,543	175	23,187,526	0	371	351	50,339,440
>50-55	209	30,533,734	185	23,683,033	0.1	896	394	54,217,662
>55-60	192	23,641,330	172	18,597,527	0.1	756	364	42,239,612
Above 60	435	35,879,450	440	26,933,380	0.3	601	876	62,813,432
Unspecified	92	300,613	77	268,933	4	4,416	172	573,962
All Groups	1,896	175,858,308	1,860	153,029,651	5	7,322	3,761	328,895,282

The total CPF Savings are estimated to be \$ 198.0 billion.

Number of CPF members aged >20 (000)	3,470
Total CPF balance of members aged >20 (\$\$000)	328,144,676
Average CPF savings per member (\$\$)	94,566
Number of EA	2,093,567
Total CPF savings for the EA population (\$\$)	197,980,652,709

Appendix J Glossary

Economically Active/Inactive

An individual is considered to be “Economically Active” if he/she is employed and contributing to the production and distribution of goods and services. An individual is considered to be “Economically Inactive” otherwise.

Imputed Rent

The imputed rent has been estimated by the Department of Statistics Singapore (“Sing Stat”) based on the Annual Assessed Values (“AAVs”) provided by the Inland Revenue Authority of Singapore. It estimates the consumption expenditure owner-occupied accommodation using the rental equivalence method, which measures the shelter cost in terms of the expected rental the owner would have to pay if he were a tenant of the premise, i.e. the imputed rental.

Protection Need

The Protection Need is the amount of money (income and/or capital) required by dependants to cover expenses and maintain a reasonable lifestyle following the death of a member of the household. The Protection Need is only relevant for economically active adults that have at least one dependant.

Protection Gap

The Protection Gap is defined as the Protection Need less CPF Savings, other savings and existing insurance coverage. The Protection Gap is only relevant to those who are economically active and have at least one dependant.

Unpaid Services

Each individual in the household provides a certain amount of manpower in maintaining the living standards of a household. Some contributions of the individual include carrying out household chores and accompanying children or dependants. No explicit expenses are incurred for these contributions. In the event of death of the individual, such unpaid services should desirably be replaced.

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