Life Insurance Association Singapore

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2022 Protection Gap Study – Singapore

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Table of Contents

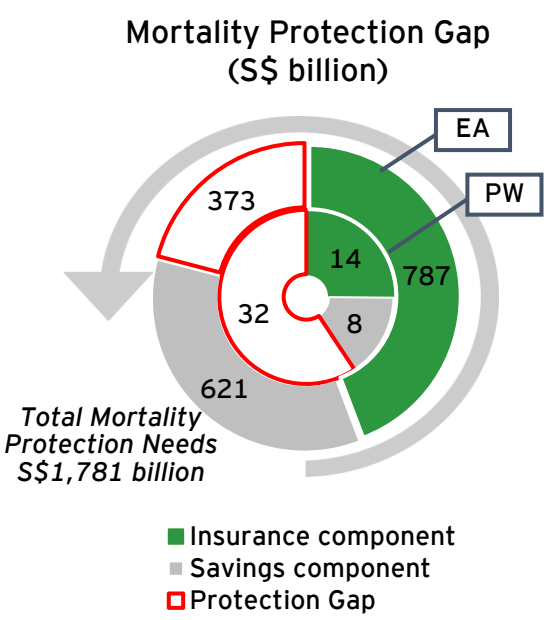
1. Executive Summary

The Life Insurance Association of Singapore ("LIA") has engaged Ernst & Young Advisory Pte. Ltd. ("EY") to carry out the 2022 Protection Gap Study ("PGS") covering both Mortality and Critical Illness ("CI") for the Economically Active ("EA") population, as well as the Platform Worker ("PW") population.

The analysis on the PW population has been introduced into the PGS for the first time in 2022 using a similar methodology to the EA population. By using a consistent approach to calculate the Protection Gaps for both groups, the study enables a more effective comparison between the EA and PW populations, shedding light on the main drivers behind differences in Protection Needs and observed Protection Gaps. This study was performed using policy data, reference data and assumptions as of 31st December 2021.

1.1 Mortality Protection Gap

To calculate the protection gap for EA adults, a similar methodology from the 2017 PGS has been adopted, allowing for trending and appropriate comparisons between the previous and current PGS.



Key Statistics	EA Population	PW Population
Count	2,187,833	68,568
Total Mortality Protection Needs	S$1,781 bn	S$55 bn
Total Protection Gap	S$373 bn	S$32 bn
Protection Gap (As a % of Mortality Protection Needs)	21%	59%

S$1,781 bn
Mortality Protection Needs for EA Adults

S$787 bn
Life Insurance Coverage for EA Adults

<u>Key Highlights for EA Mortality Protection Needs and Gap</u>

- As of 31st December 2021, the Mortality Protection Needs of EA Singaporeans and Permanent Residents ("SGPR") is S$1,781 bn which translates to an overall Protection Need of 9.0x annual income. However, it should be noted that the factor of Mortality Protection Needs to average annual salary varies between the different household profiles and income levels.
- The Mortality insurance coverage, which includes individual and group insurance Mortality coverage, is estimated to be S$787 bn, whereas Central Provident Fund ("CPF") savings and Other savings (cash and deposits) totalled S$621 bn. These figures represent a 11% and 47% growth as compared to 2017 figures, respectively.

21%
Mortality Protection Gap for EA Adults, close to 2017 PGS

- This results in a Mortality Protection Gap of S$373 bn (or 21% of Mortality Protection Needs of EA), after allowing for insurance and savings.
- Compared to the previous LIA study conducted as of 31st December 2016, there has been an increase in the absolute amount of Mortality Protection Needs. However, the Mortality Protection Gap (as a proportion of Mortality Protection Needs) remained relatively unchanged between 2017 and 2022. This is due to an overall increase in income levels, 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$55 bn
Mortality Protection Needs for PW Adults

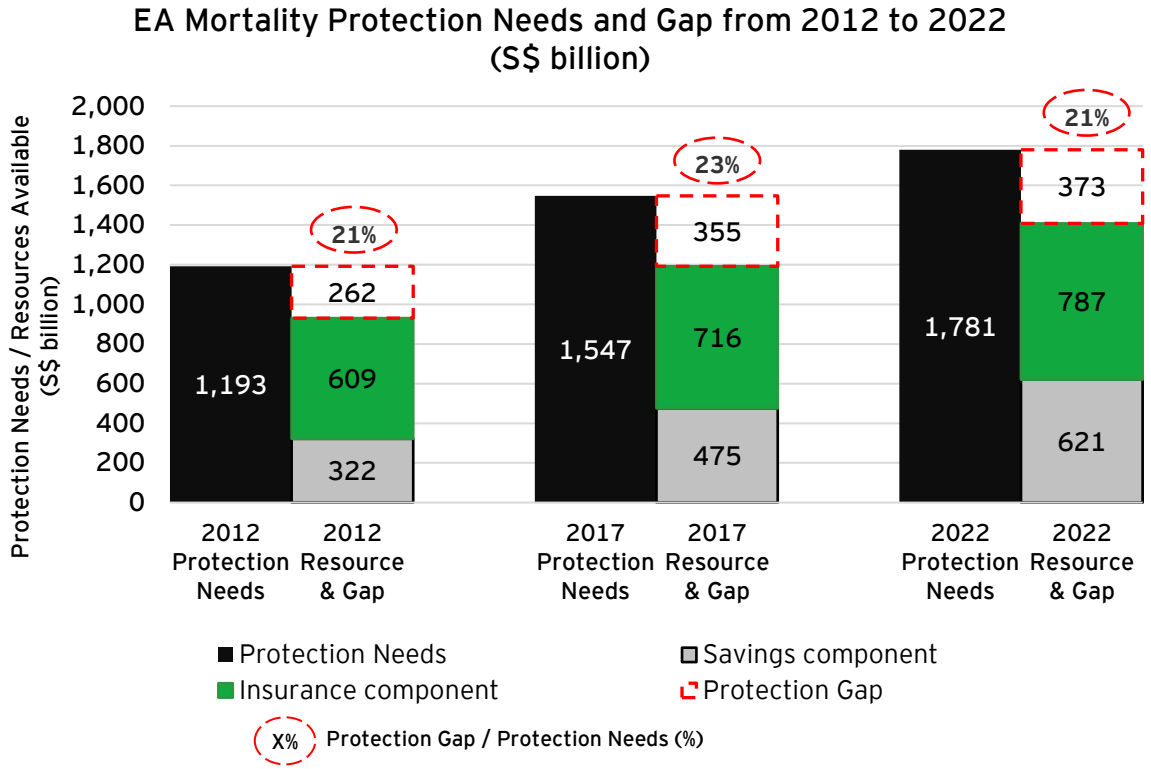
S$14 bn
Life Insurance Coverage for PW Adults

59%
Mortality Protection Gap for PW Adults

Key Highlights for PW Mortality Protection Needs and Gap

- As of 31st December 2021, the Mortality Protection Needs of PW Singaporeans and Permanent Residents is S$55 bn. It should be noted that PWs are a subset of the EA population within this PGS, therefore the Mortality Protection Needs and Protection Gap for PWs have been included in the EA Mortality Protection Needs and Protection Gap.
- The Mortality insurance coverage, which includes individual and group insurance Mortality coverage, is estimated to be S$14 bn, whereas CPF Savings and Other Savings (cash and deposits) totalled S$8 bn.
- The Mortality Protection Gap for PW is S$32 bn, after allowing for insurance and savings. This represents a gap of 59% of PW Mortality Protection Needs.
- A higher Mortality Protection Gap is observed for PW, as compared to EA adults, mainly due to:
  - Lower savings (CPF and other savings) as compared to an average EA.
  - Lower insurance coverage as compared to an average EA (in terms of sum assured purchased and number of policies held).

1.2 Mortality Protection Movements (for EA)



The graph above summarises the movement of the Mortality Protection Gap components from the 2012 PGS.

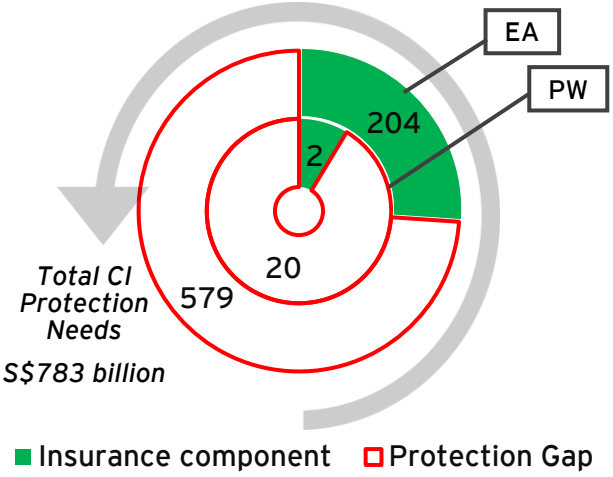
The PW Mortality Protection Gap has been calculated for the first time in 2022 PGS, thus no comparison is available against the 2012 and 2017 positions.

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 demographic in Singapore, whereas each individual's circumstances will differ based on their circumstances, such as the number of dependents and income levels. As such, individual Protection Needs should be analysed separately, and professional advice obtained where necessary.

The reader may visit MoneySense (https://www.moneysense.gov.sg/) or compareFIRST (https://www.comparefirst.sg/) to find out more about life insurance products.

1.3 CI Protection Gap

For the calculation of the overall CI Protection Gap, an approach similar to the Mortality Protection Gap has been used, with an assumption of a five-year CI recovery period.



Key Statistics	EA Population	PW Population
Count	2,187,833	68,568
Total CI Protection Needs	S$783 bn	S$22 bn
Protection Gap	S$579 bn	S$20 bn
Protection Gap (As a % of CI Protection Needs)	74%	91%

S$783 bn
CI Protection Needs for EA Adults

S$204 bn
CI Insurance Coverage for EA Adults

74%
CI Protection Gap for EA Adults

<u>Key Highlights for EA CI Protection Needs and Gap</u>

- An approach similar to the Mortality Protection Gap has been used to calculate the CI gap, with an assumption of a five-year CI recovery period to project expenditures.
- As of 31st December 2021, the CI Protection Needs of EA is S$783 bn which translates to an overall CI Protection Need of 3.9x annual income (based on the assumptions of a 5-year CI recovery period). This amount represents the financial needs of household expenses and outstanding debt payments during the period of recovery. Immediate medical expenses are assumed to be covered by MediShield Life or an Integrated Shield Plan.
- The CI insurance coverage, which includes individual and group insurance CI coverage, is estimated to be S$204 bn which leaves a CI Protection Gap of S$579 bn (or 74% of CI Protection Needs of EA).
- Compared to the previous LIA study conducted as of 31st December 2016, there has been an increase in the absolute amount of CI Protection Needs. However, the CI Protection Gap (as a percentage of Protection Needs) has reduced from 81% to 74% between 2017 and 2022. The reduction in CI Protection Gap as a proportion of CI Protection Needs is mainly driven by an increase in CI coverage, where the total CI coverage has increased by 67% since 2017.

- Similar to 2017 PGS, it is assumed that savings (CPF Savings and Other Savings) are not used to cover expenditures during the recovery period. More details included in Section 2.

S$22 bn
CI Protection Needs for PW Adults

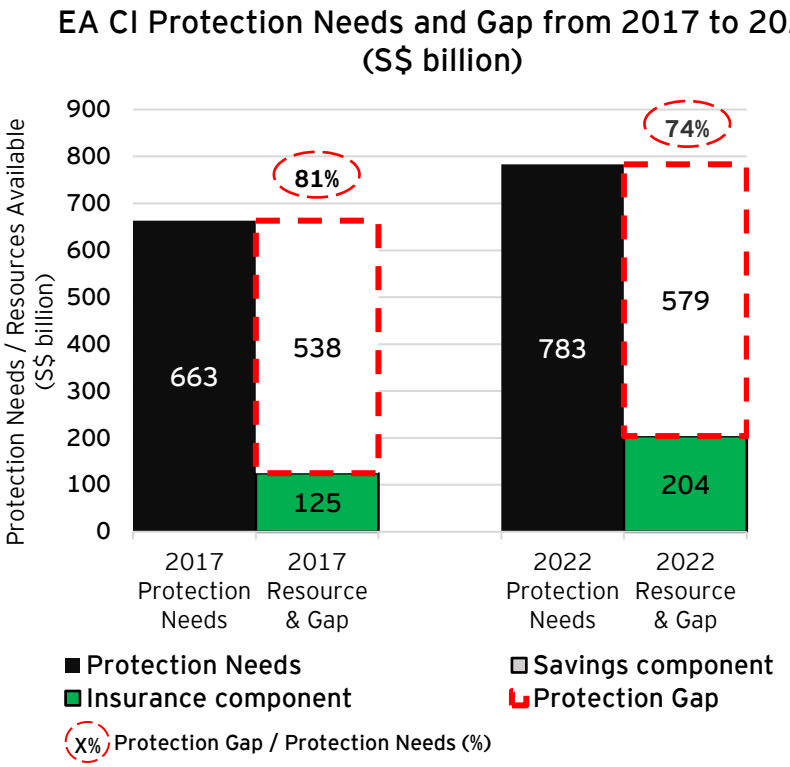
S$2 bn
CI Insurance Coverage for PW Adults

91%
CI Protection Gap for PW Adults

<u>Key Highlights for PW CI Protection Needs and Gap</u>

- As of 31st December 2021, the CI Protection Needs of PW Singaporeans and Permanent Residents is S$22 bn. Similar to the mortality study, PWs are a subset of the EA population within this PGS, therefore the CI Protection Needs and Protection Gap for PWs have been included in the EA CI Protection Needs and Protection Gap.
- The CI insurance coverage, which includes individual and group insurance CI coverage, is estimated to be S$2 bn.
- The CI Protection Gap for PW is S$20 bn, after allowing for CI insurance coverage. This represents a gap of 91% of PW CI Protection Needs.
- Similar to the reasons mentioned above, a higher CI Protection Gap is observed for PW, as compared to EA adults, mainly due to lower insurance coverage owned by PW, as compared to an average EA (in terms of sum assured purchased and number of policies held).

1.4 CI Protection Gap Movements (for EA)



The graph above summarises the movement of the CI Protection Gap components since the 2017 PGS.

Since the CI Protection Gap was first studied in 2017 PGS, no data is available for the 2012 position. In addition, the PW CI Protection Gap has been calculated for the first time in 2022 PGS, thus no comparison is available against the 2012 and 2017 positions.

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 demographic in Singapore, whereas each individual's circumstances will differ based on their number of dependents and income levels. As such, individual Protection Needs should be analysed separately, and professional advice obtained where necessary.

The reader may visit MoneySense (https://www.moneysense.gov.sg/) or compareFIRST (https://www.comparefirst.sg/) to find out more about life insurance products.

1.5 Supplementary Market Survey Results Highlights

For the 2022 PGS, a supplementary market survey was conducted on a sample of EA and PW adults in Singapore, with an aim to provide further insights to the Protection Needs and resources available, and to provide relevant insights to the underlying reasons for the Protection Gap observed. Questions designed to assess the suitability of the model assumptions used in calculating the Protection Gap, were also included in this survey.

The highlights of this survey's results are as follows. More information on the objective, background, and key findings of this survey have been included in Section 9 of this report.

Supplementary Market Survey Results Highlights for Mortality

- This survey unveiled the top 3 sources of financial concerns for EAs as being healthcare expenses (65%), retirement planning (62%) and inability to work due to CI (30%).
- Generally, there appears to be a lower priority to plan for one's dependents / for legacy planning, with only 23% selecting this as part of their financial concerns.
- This survey's results suggest that there may potentially be a gap in the general public's understanding of insurance products' benefits as 50% of EA respondents indicated that the insurance industry can simplify insurance products by making them easier to understand, and providing simplified illustrations and tools.
- The results also suggest that a significant proportion of EA respondents (86%) have a target mortality coverage that falls below the average mortality coverage required to address the protection gap. Furthermore, 26% of EA respondents are aware that their mortality insurance coverage is inadequate, setting a higher target for mortality coverage than the coverage they own.

Supplementary Market Survey Results Highlights for CI

- This survey's results suggest that the EA respondents perceive a shorter CI recovery period of 3.4 years (on average), as compared with the recovery period of 5 years that was assumed for the PGS.
- Respondents have also provided the top reasons for purchasing additional insurance, where the top 2 reasons are:
  - Insufficient existing insurance coverage (45%), suggesting that respondents are generally incentivized to purchase additional insurance when there is awareness of a shortfall in their coverage; and
  - Financial responsibilities for dependents (32%), suggesting that respondents generally consider purchasing additional insurance as a form of financial protection for their dependents.
- In contrast, the top 2 reasons for not purchasing additional insurance are:
  - Not being able to afford the additional expense (50%), suggesting that respondents may have a relatively tight budget; and
  - Insurance premium being too expensive (47%) suggesting that respondents generally perceive insurance premiums to be costly.
- The results also indicate that 76% of EA respondents have a target CI coverage that falls below the average CI coverage required to address the protection gap. Also, 63% of EA respondents are aware that their CI insurance coverage is inadequate, setting a higher target CI coverage than the CI coverage they own.

This survey presents the respondents' viewpoints without engaging in further discussions. Insurers have been implementing various initiatives such as offering simplified products with streamlined benefits and using illustrations to clarify product benefits, which were mentioned in this survey. However, considering the ongoing evolution of the insurance industry, it is important to continuously improve communication and education efforts to boost public awareness and comprehension.

2. Introduction to 2022 PGS

The Life Insurance Association of Singapore ("LIA") has engaged Ernst & Young Advisory Pte. Ltd. ("EY") to carry out the 2022 PGS covering both Mortality and CI for EA adults, as well as PWs. This study was performed using policy data, reference data and assumptions as of 31st December 2021.

This report summarises the results and approach adopted for the 2022 PGS, including:

- The methodology used for the calculation of the 2022 Protection Gap (Mortality and CI), for both EA and PW adults
- The breakdown of Protection Gap for the appropriate segments
- The sources of data used in the PGS
- The results and analysis of the supplementary market survey that was conducted for the 2022 PGS
- The analysis of industry insurance data

The 2022 PGS adopts a methodology broadly consistent with that of 2017 PGS. 2022 PGS focuses on two groups of Singaporeans and Permanent Residents between the ages of 20 to 69, who have at least one dependent:

- EA adults, which includes those who are employed, including PWs; and
- PW adults, defined as own account workers who source for a significant part of their work through online matching platforms, consisting of private hire drivers, taxi drivers and delivery workers.

Economically Inactive ("EI") adults are excluded from the calculation of the Protection Gap, consistent with the 2012 and 2017 PGS, due to data limitations. 2022 PGS is therefore focused on EA adults only.

There are a few enhancements made as compared to the 2017 PGS, which includes:

- Calculation of the Mortality and CI Protection Gap for the PW population
- Inclusion of a cap on CPF savings and Other savings, in addition to the cap on Sum Assured, to prevent cross-subsidy between profiles with negative Mortality Protection Gap due to ownership of a high amount of savings, and profiles with a positive Mortality Protection Gap.

The reader is advised to be aware of the various key assumptions that have been made. Changes in the assumptions will have an impact on the PGS results. The key assumptions that were made in the 2022 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. This assumption is used in the calculation of elderly needs and the calculation of rent.
- Children are assumed to enter the workforce at age 20, when they will no longer be dependents. This assumption is used in the calculation of of the children's needs.
- Life expectancy is assumed to be 88 years for all individuals, in line with the life expectancy of a female in Singapore as of 31st December 2021.
- Future income and expenses are inflated using the prospective rates specified in the Appendix: Assumptions and Data Sources. Future income and expenses are discounted at a rate that is based on the 15-year Singapore Government Bond yield as of 31st December 2021 at 2.74%.
- The CI recovery period is assumed to be 5 years, consistent with the 2017 PGS. More details are provided in the Appendix: Assumptions and Data Sources.
- CPF savings are not available as resources to meet the CI Protection Needs, as we have assumed that these savings can only be used to pay for immediate medical needs, and cannot otherwise be withdrawn before retirement.

- 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.

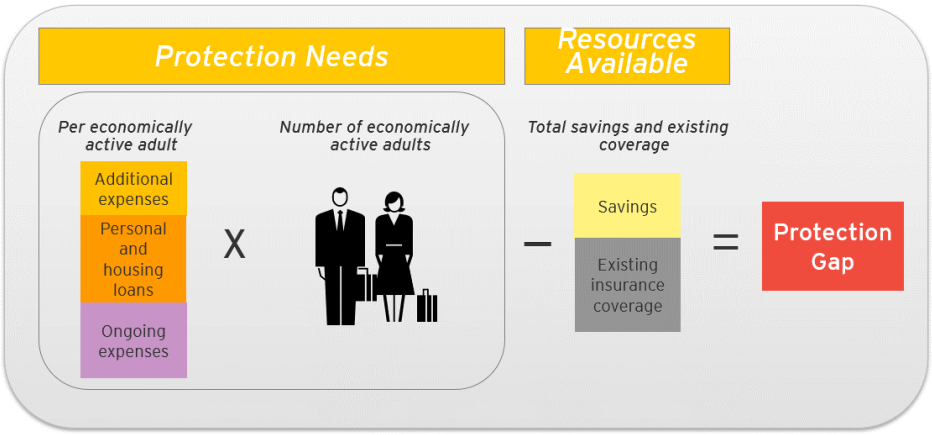
Refer to the relevant sections for detailed explanation on the methodology used to calculate the Protection Gap.

3. Definition of the Protection Gap

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

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



The Protection Needs include:

- Additional expenses: Funeral costs and unpaid services
- Personal and housing loans
- Ongoing expenses for dependents: Needs of children, needs of elderly parents, rent and future household expenses, after deducting the remaining spouse's income

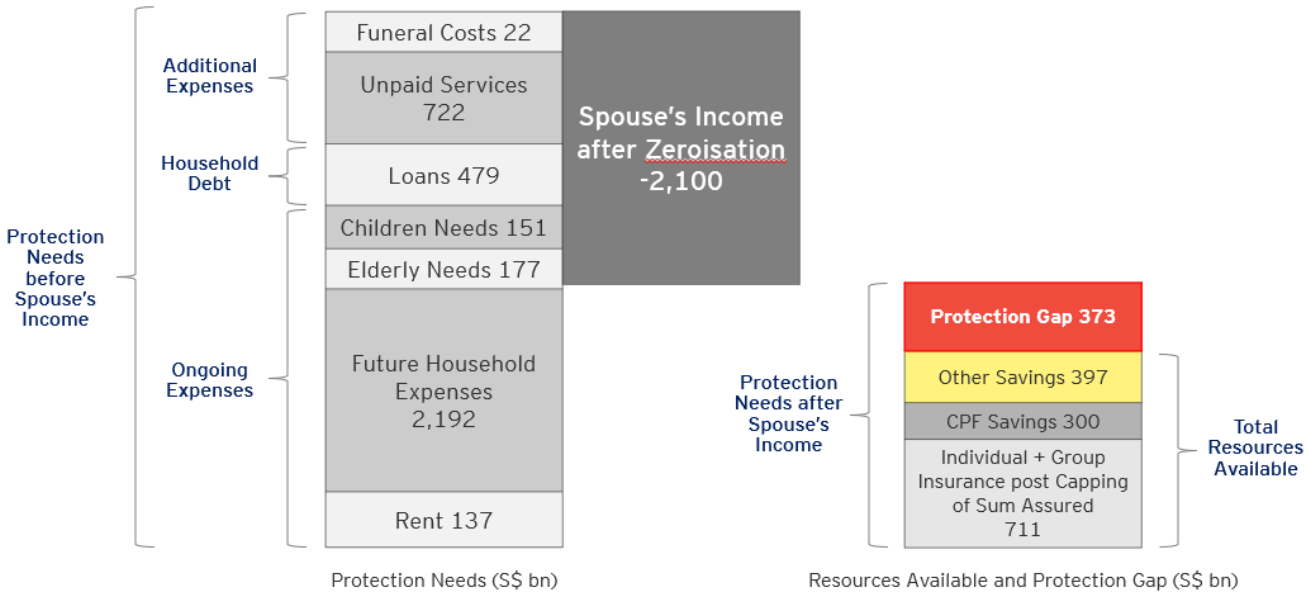
The resources available include:

- Savings: CPF and Other savings (cash and deposits)
- Insurance coverage: Group and individual insurance

3.1 Mortality Protection Gap

The Mortality Protection Gap represents the financial gap to cover needs of dependents over a defined period in the event of the death of an EA adult. 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



3.2 CI Protection Gap

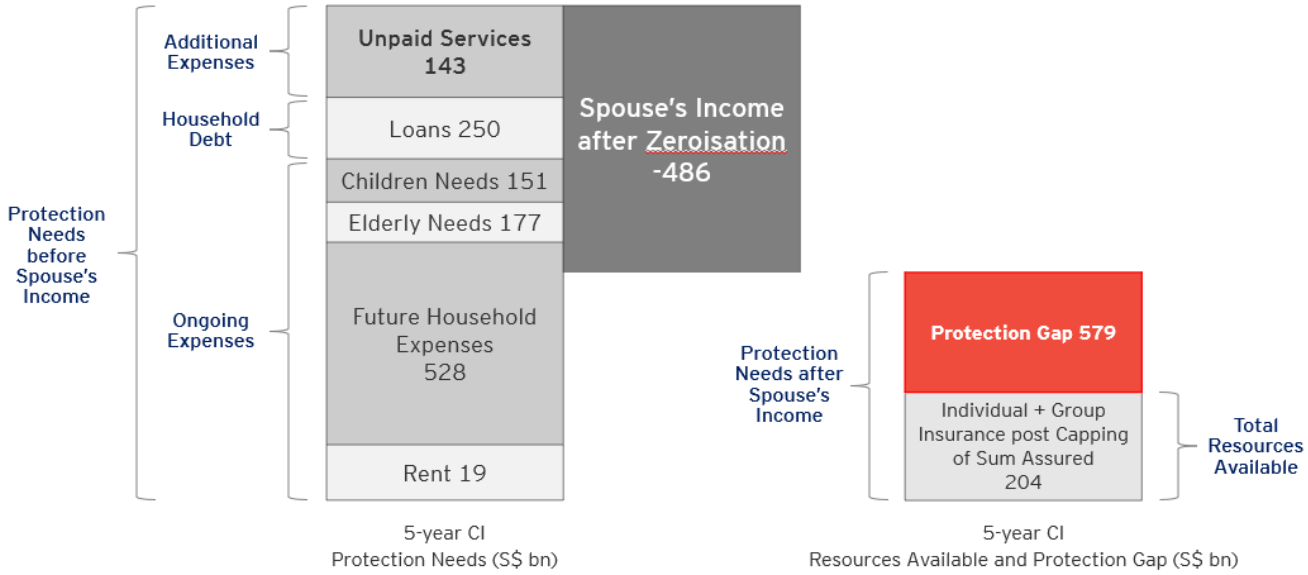
The CI Protection Gap represents the financial gap to cover family needs during the assumed CI recovery period of 5 years, until the insured is able to return to work. It is the amount of money required to cover expenses and outstanding debt payments during the insured's CI recovery period, less existing insurance coverage for CI. It is to be noted that identified needs of dependents beyond the CI recovery period have been considered on the hypothesis that the insured may not be able to meet those needs when they do return to work (due to the assumed reduction in the insured's earning capacity).

We have assumed that the direct medical costs for the CI treatments are met by the patient's existing MediShield Life or Integrated Shield Plan, and CPF MediSave accounts, reflecting Singapore's health financing landscape.

We have not considered CPF or Other Savings as available resources to meet the CI Protection Needs, as we have assumed that the MediSave account is only used to offset immediate medical needs, and the remaining CPF balance cannot be withdrawn during the CI recovery period, while Other savings are required to maintain a reasonable lifestyle in later stages of their life, such as during their retirement.

In the 2022 PGS, the CI Protection Gap is calculated using the same approach as Mortality Protection Gap by considering the same components, but adapted to the needs of CI. The change in assumptions in CI Protection Gap has been documented in Section 5 of this report.

Figure 3: CI Protection Gap



3.3 Family Profiles

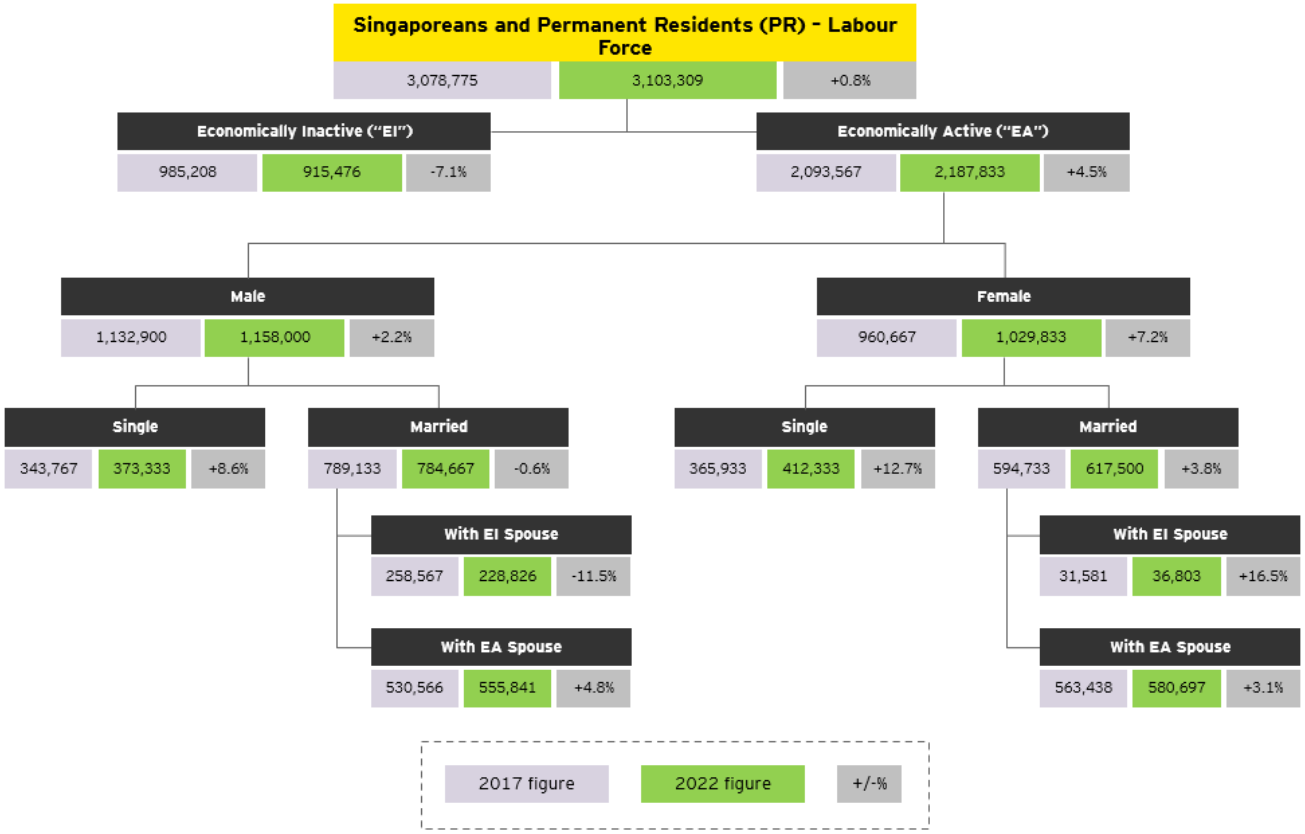
For both the Mortality and CI Protection Needs, we have performed calculations for the following grouping (family profiles, income quintiles and age bands), in order to provide additional insights into the Protection Gap:

- 6 family profiles depending on the insured's gender and marital status, and the spouse's economic status (if any)
  - Male Single with Elderly Parent
  - Female Single with Elderly Parent
  - Male Married with EA Spouse
  - Male Married with EI Spouse
  - Female Married with EA Spouse
  - Female Married with EI Spouse
- 5 income quintiles
- 10 age bands (20-24, 25-29, ..., 65-69)

The total number of EA adults as of the end of 2021 was estimated to be 2,187,833 persons, representing a 4.5% increase from the end of 2016. Figure 4 shows the total number of EA adults in each family profile as of 31st December 2021.

EI adults are excluded from the calculation of the Protection Gap, consistent with the 2012 and 2017 PGS, due to data limitations. The PGS is therefore focused on EA adults only.

Figure 4: Singaporeans and Permanent Residents - Gender and Family Profiles



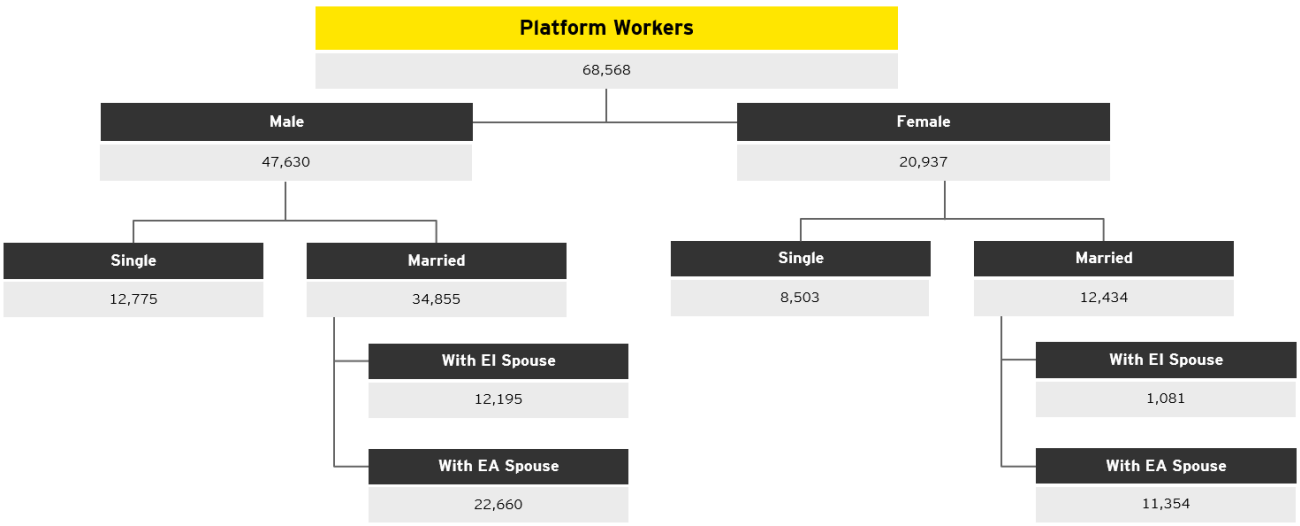
3.4 PW Definition

The PW is a new audience added for the 2022 PGS. While there isn't a standard or universally accepted definition of a PW, it generally refers to own account workers who source for a significant part of their work through online matching platforms. The key occupations classified as a PW within the 2022 PGS are private hire drivers, taxi drivers and delivery workers.

Similar to the EA population, calculations for the PWwere based on 6 family profiles, 5 income quintiles and 10 age bands.

The total number of PWs as of the end of 2021 was estimated to be 73,200 persons, of which 68,568 were considered within the 2022 PGS as they fall between the age of 20 to 69. Figure 5 shows the total number of PW in each family profile as of 31st December 2021.

Figure 5: PW - Gender and Family profiles



** Numbers might not add up due to rounding.*

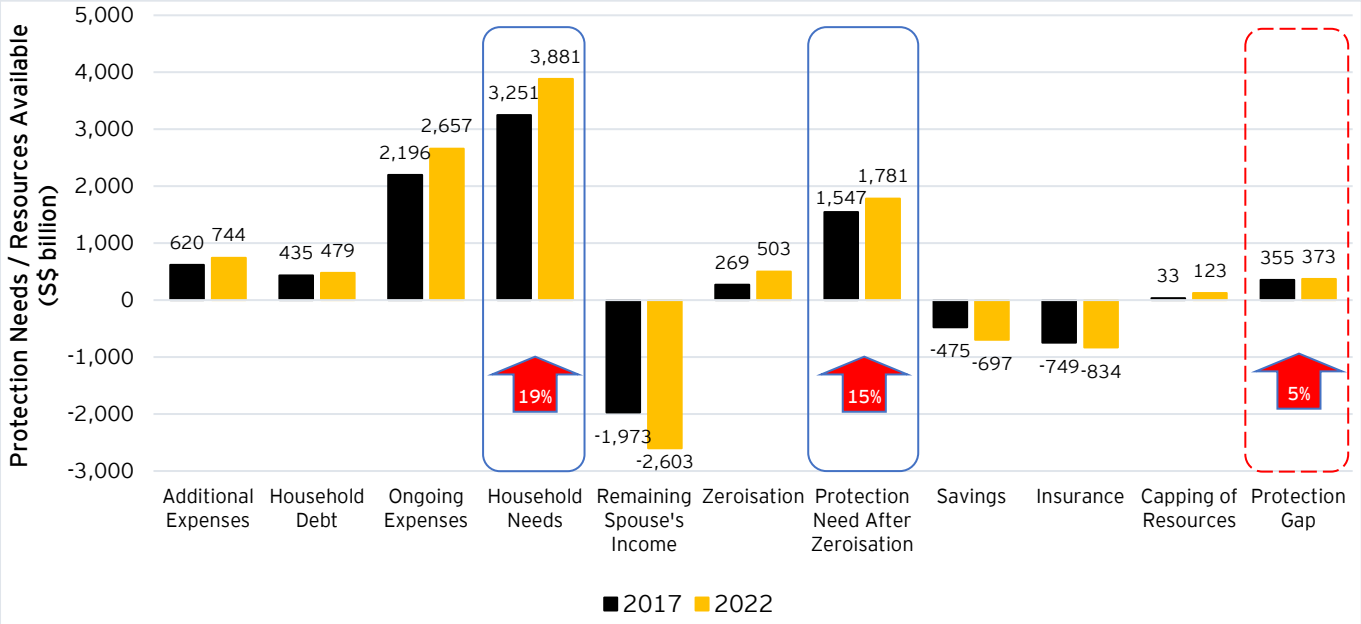
4. EA Adult Mortality Protection Gap

The Protection Gap per EA adult can be broken down as below.

Table 1: Average Protection Needs and Protection Gap per Economically Active Adult (S$)	
Protection Need after Zeroisation	813,892
Less: CPF Savings	137,049
Less: Other Savings	181,586
Less: Existing Insurance Coverage	324,905
Protection Gap	170,352
Average Annual Income	90,855
Multiple of Annual Income	
Protection Need after Zeroisation	9.0x
CPF Savings	1.5x
Other Savings	2.0x
Existing Insurance Coverage	3.6x
Protection Gap	1.9x

A comparison of each individual component of the Mortality Protection Gap for 2022 PGS, compared to 2017 PGS, is shown in Figure 6 below.

Figure 6: EA Mortality Protection Needs & Available Resources (2017 PGS vs. 2022 PGS)



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

4.1 Protection Needs - Additional Expenses

Additional expenses consist of funeral costs and unpaid services.

4.1.1 Funeral Costs

This is the cost of holding a funeral, including all after-funeral costs (e.g. purchasing a niche to store the ashes). Our desktop research on the cost of a funeral suggests that the cost of funeral would be S$10,000 per EA.

The resulting total Protection Needs for funeral expenses is S$21.9 billion.

Table 2 : Protection Needs – Funeral Costs	
Funeral Cost per EA Adult (S$)	10,000
Number of EA Adults	2,187,833
Total funeral expenses (S$ bn)	**21.9**

4.1.2 Unpaid Services

Each individual in the household provides a certain amount of manpower in maintaining the hosuehold's living standards, including carrying out household chores and accompanying children or dependents.

The 2022 PGS valued these unpaid services based on the cost of a part-time domestic helper.

Table 3 : Annual Cost of a Part-time Helper		
Average hourly cost (S$)	22	The cost of a part-time helper ranges from S$16 per hour to S$27 per hour if hired through an employment agency. An average cost of S$22 has been assumed.
Number of hours per week	9	Allows for 1 hour per day on weekdays and 2 hours per day on weekends.
Number of weeks per year	52	
Annual cost (S$)	**10,296**	

We have projected unpaid services until the end of the life expectancy of the dependents. For the single EA profile, unpaid services have been projected based on the life expectancy of the dependent elderly parents; for the married EA profile, unpaid services have been projected for the entire lifetime of the surviving spouse.

The present value of unpaid services has been adjusted to allow for inflation and discount rates.

Table 4: Protection Needs - Unpaid Services	
Present value of unpaid services per EA adult (S$)	330,115
Number of EA Adults	2,187,833
Total unpaid services (S$ bn)	**722.2**

4.2 Protection Needs - Personal and Housing Loans

Personal and housing loans are liabilities to be repaid by surviving family members following the death of the EA. As of the end of 2021, the total housing (referred to as Mortgage Loans in Table 5 below) and personal loan amounts were S$104.0 bn and S$255.5 bn respectively, as detailed in the table below.

Table 5: Household Sector Balance Sheet – Personal and Housing Loans (S$ bn)	
Mortgage Loans	255.5
Financial Institutions	217.1
Housing Development Board	38.4
Personal Loans	104.0
Motor Vehicle Loans	10.9
Credit / Charge Cards	11.2
Others	81.9
Total Loans	**359.5**

Source: Household Sector Balance Sheet (End of Period), 2021, Department of Statistics, Singapore

As the total loans reflected in the 2021 Household Balance Sheet included loan holdings by foreigners, the value of both personal and housing loans, apart from HDB loans, were reduced by 17%, based on the proportion of Singaporean households living in private properties to the total number of private properties in Singapore.

Table 6: Private Housing Owned by Singaporeans	
Singaporean and Permanent Residents occupied private housing	297,600
Total number of private properties in Singapore	359,135
% owned by residents	**83%**

Sources: Resident Households by Type of Dwelling, Annual, 2021, Department of Statistics, Singapore; Real Estate Statistics Annex E-1: Stock & Vacancy and Supply in the Pipeline as of the End of 4th Quarter 2021, Urban Redevelopment Authority, Singapore.

In the event of the death of any EA in the household, it is assumed that the entire loan liability of the household will be part of the Household Needs to calculate the Protection Gap, to be consistent with the 2017 PGS methodology. For example, assuming a household with 2 EAs and an aggregate $1 mil outstanding property loan, each EA needs insurance coverage of $1 mil, so that the surviving EA no longer bears any loan burden. To reflect this, the total personal and housing loans for Singaporeans and Permanent Residents have been increased by the ratio of Number of EAs to Number of households.

Table 7: Protection Needs – Personal and Housing Loans	
Average outstanding loans per EA Adult (S$)	218,955
Number of EA Adults	2,187,833
Total personal and housing loans (S$ bn)	**479.0**

4.3 Protection Needs - Ongoing Expenses

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

4.3.1 Needs of Children

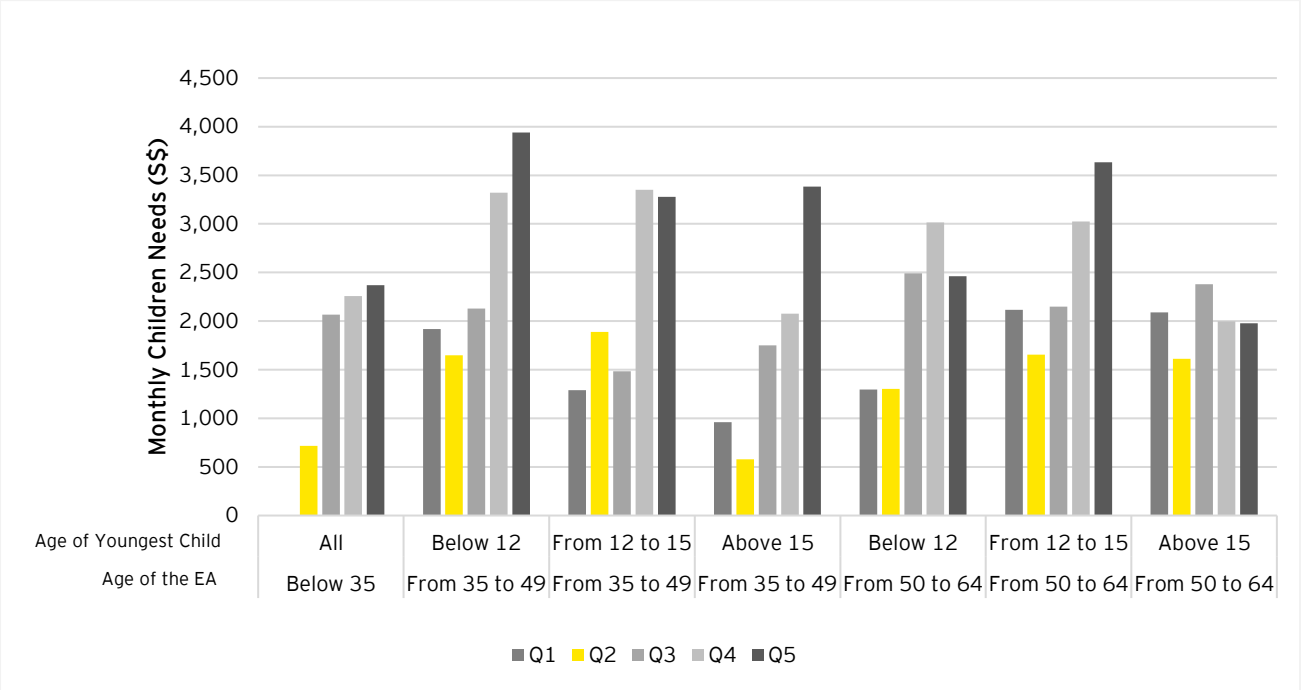
Needs of children refers to the ongoing expenses of children, including school fees and all other types of expenses, such as tuition/enrichment classes, food and clothing.

We have estimated the needs of children by comparing the difference between expenses for households with and without children, based on the Census of Population 2020 and the Household Expenditure Survey 2017/18.

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 7: Monthly Children Needs of Each Family Groupings and Income Quintiles



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

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

Table 8: Protection Needs – Needs of Children	
Average children needs per EA Adult (S$)	69,105
Number of EA Adults	2,187,833
Total needs of children (S$ bn)	**151.2**

4.3.2 Needs of Elderly Parents

The needs of elderly parents represent the financial support provided by EAs 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 surviving adults).

At the end of 2021, there were 317,221 senior citizens who required financial support from children (or 0.228 per household). For the 2022 PGS, the proportion of elderly dependents for each age band was determined using the National Survey of Senior Citizens 2011, then scaled up to Singapore's population using data from Population Trends 2021, to determine the number of dependent elderlies as of 2021. This is done as the 2011 survey is the most relevant and recent source for data on dependent elderly to-date.

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.

Elderly parents are assumed to be 25 years older than the EA or age 65, whichever is higher. Elderly needs are projected until age 88 (i.e. the life expectancy of an elderly female aged 65). 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$)	80,955
Number of EA adults	2,187,833
Total needs of elderly parents (S$ bn)	**177.1**

4.3.3 Needs of Surviving Adults

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

4.3.3.1 Rent

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

For Single EAs with elderly dependent, future rent has been considered over the remaining lifetime of the elderly dependent whereas for married EAs, future rent covers the remaining lifetime of the spouse.

Table 10: Protection Needs – Rent	
Present value of needs of rent per EA (S$)	62,735
Number of EA Adults	2,187,833
Total rent (S$ bn)	**137.3**

4.3.3.2 Future Household Expenses

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

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

For single households, 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 an EA.

For married households, the average household expenditure per member out of average household expenditure was 33%, so household expenditure has been reduced to 67% after the death of an EA. It has also been assumed that expenses depend on the number of working persons in the household, and an adjustment has been applied. Double Income households incurred expenses 19% higher than the average while households with only one working persons incurred household expenses 17% lower than the average.

Future household expenses are projected until the life expectancy of the spouse for married EAs 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$)	1,001,862
Number of EA Adults	2,187,833
Total future household expense (S$ bn)	**2,191.9**

4.4 Remaining Spouse's Income

After the death of individuals with an economically active spouse, we have assumed that the remaining spouse will continue to earn their usual salary as income. The remaining spouse's income will offset part of the Protection Needs of the household.

- 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.
- 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).
- The ratios of average household income with one and two working people relative to the overall average are 79% and 127% respectively. This is based on data on monthly income from work from the Household Expenditure Survey 2017/2018. This implies that for singles and married individuals with economically inactive spouses, the average household income was 21% lower than average. For married individuals with economically active spouses, the average household income was 27% higher than average.

- The average income of households with two EA adults is also split between male and female in a 56:44 ratio. The allocation has been estimated based on the median gross monthly income from work recorded for the period of 2016-2021.

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

Table 12: Protection Needs – Remaining Spouse's Income	
Present value of the spouse's income, per EA (S$)	1,189,750
Number of EA Adults	2,187,833
Total remaining spouse's income (S$ bn)	**2,603.0**

4.5 Effect of Zeroisation

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.

We have set the negative Protection Needs to zero (i.e. zeroised negative Protection Needs) 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 Protection Needs	2,603.0
Less: zeroised negative Protection Needs	(503.0)
Spouse's income after zeroisation of negative Protection Needs	**2,100.0**

4.6 Resources Available

In estimating the resources available, we have allowed for insurance and savings (i.e. CPF savings, Other Savings as cash and deposits), but have excluded other items such as shares, bonds, property and any overseas investments, as the value of investments are relatively volatile.

4.6.1 CPF Savings

CPF Savings figures were extracted from the CPF Annual Report 2021. For EA adults aged above 20, the average CPF Savings is S$137,049.

The CPF Savings in 2022 PGS is derived by multiplying the average CPF balance with the number of EA adults.

Table 14: Resources Available – CPF Savings	
Average CPF Savings per EA (S$)	137,049
Number of EA Adults	2,187,833
Total CPF Savings (S$ bn)	**299.8**

4.6.2 Other Savings

The cash and deposits account from the Household Sector Balance Sheet at the end of Q4 2021 was used to derive Other Savings. To remove savings from foreigners (who are not within the scope of the PGS), we applied an adjustment factor based on the percentage of Singaporean citizens and Permanent Residents out of the total population of Singapore.

Due to limited data on the savings owned by EA versus EI adults, we have assumed that all savings will be fully attributable to the EA adults. This may overstate the available Other Savings.

Table 15: Resources Available - Other Savings	
Cash & Deposits YE21 (S$ bn)	543.4
Adjustment Factor (Resident population out of total population)	73.11%
Total other savings of resident households YE2021 (S$ bn)	**397.3**

4.6.3 Life Insurance Coverage

For the 2022 PGS, we have collected anonymised insurance coverage information from insurers in Singapore representing 99% of total coverage by Death Coverage. A reconciliation of our total coverage with the industry statistics reported by LIA is detailed in Section 13.

Only individual life insurance coverage from EA adults are considered in the life insurance coverage derivation. To achieve this, we have assumed that all EA adults between ages 20 to 60 will have a Dependent Protection Scheme ("DPS") policy and consequently excluded all lives with no corresponding DPS policy.

We have noted that the number of EA adults represented in the DPS data for ages 60-64 is much lower than its neighbouring age bands (i.e. age bands 55-59 and 65-69). This may be due to the DPS age limit that has been extended from age 60 to 65 on 1 April 2021. Therefore, we have instead estimated the insurance coverage for EA in the age bands of 60-64 and 65-69, using the information from the insurance data received and labour force participation rates from the Labour Force Survey 2021.

In 2017 PGS, we have 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. For 2022 PGS, we have introduced capping across income quintiles as well, to refine the capping methodology and further minimise any cross-subsidy between income quintiles.

The maximum sum assured capped for individual life insurance coverage, split by income quintile, are detailed in the table below:

Table 16: Individual Sum Assured Caps by Gender and by Age Band (S$ m)										
Quintile	**Q1**		**Q2**		**Q3**		**Q4**		**Q5**	
Age Band	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**
20 - 24	1.8	1.6	2.3	2.1	3.1	2.6	3.6	3.1	3.8	3.5
25 - 29	1.7	1.6	2.3	2.1	3.0	2.6	3.5	3.1	3.9	3.7
30 - 34	1.8	1.7	2.3	2.2	3.0	2.7	3.6	3.2	4.1	3.9
35 - 39	1.6	1.5	2.2	2.0	2.7	2.5	3.2	3.0	3.9	3.7
40 - 44	1.5	1.4	2.0	1.8	2.5	2.3	3.0	2.7	3.6	3.3
45 - 49	1.3	1.2	1.7	1.6	2.2	2	2.6	2.3	3.1	2.9
50 - 54	1.1	1.0	1.5	1.4	1.8	1.7	2.1	2.0	2.5	2.4
55 - 59	0.9	0.9	1.2	1.1	1.4	1.3	1.6	1.5	2.0	1.9
60 - 64	0.7	0.7	1.0	1.0	1.1	1.1	1.2	1.3	1.5	1.5
65 - 69	0.6	0.5	0.7	0.7	0.8	0.8	1.0	1.0	1.2	1.2

We have also collected Group insurance data from participating insurers. Where Group insurance data was not available in the granularity required, we have relied on LIA Business Statistics 2021 instead.

The total life insurance coverage as of 31st December 2021 are as follows:

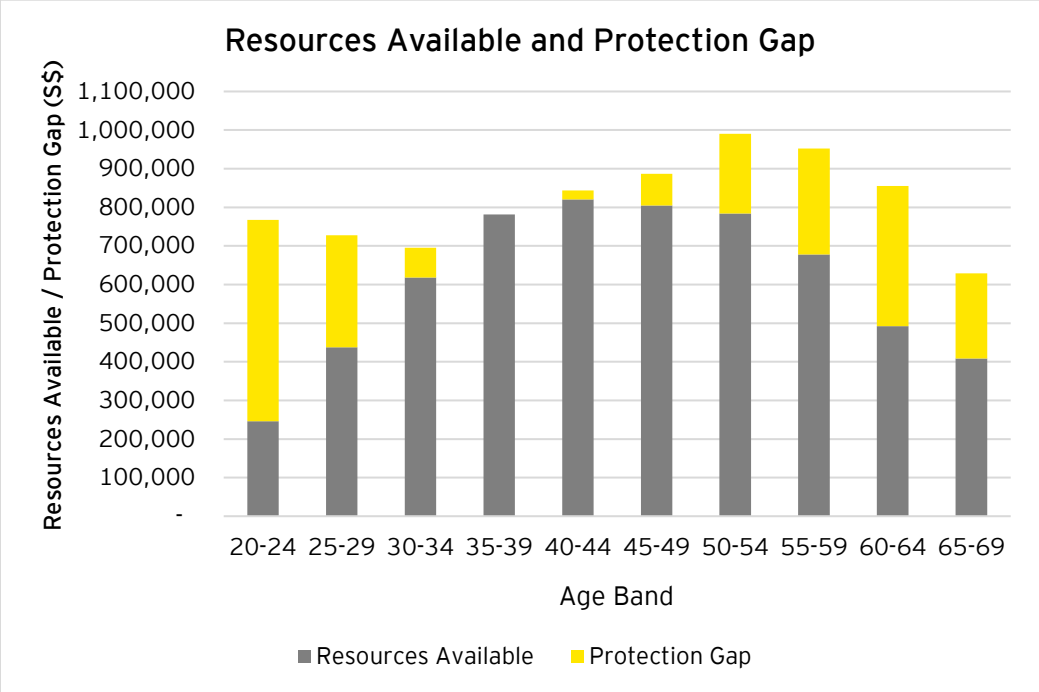
Table 17: Existing Life Insurance Coverage (S$ bn)	
Group Insurance	240.9
Individual Insurance	592.8
Effect of Capping Sum Assured	(46.6)
Total Existing Life Insurance Coverage	**787.1**

We have further floored the CPF and Other Savings at zero to ensure there is no cross-subsidy between those with negative Mortality Protection Gap due to having a high amount of savings, and those with positive Mortality Protection Gap.

Table 18: Total Resources Available (S$ bn)	
Total Existing Life Insurance Coverage	787.1
Savings (CPF + Other Savings)	697.1
Additional Effect of Floored Savings	(76.3)
Total Resources Available	**1,408.0**

4.7 Graphical Representation of the Resources Available and Protection Gap

Figure 8: Resources Available and Protection Gap



The total Mortality Protection Need for the average EA adult in each age band is the sum of the Resources Available and Protection Gap. The total Protection Need decreases from age band 20-24 to 30-34, due to the high proportion of single EA adults in younger age bands, who have higher Protection Needs that are not offset by spouse's income. Protection Needs increase from age bands 30-54, due to the increasing proportion of married EA adults, as the spouse income decreases at a faster rate than household expenses.

Table 19: Number of EA Adults and Average Income (S$)

Age Band	Number of EA Adults	Average Income (S$)
20 – 24	128,667	56,232
25 – 29	233,367	81,505
30 – 34	295,100	98,955
35 – 39	273,100	109,494
40 – 44	267,400	116,645
45 – 49	253,700	117,008
50 – 54	213,150	101,818
55 – 59	214,550	91,495
60 – 64	191,450	65,127
65 – 69	117,350	38,920

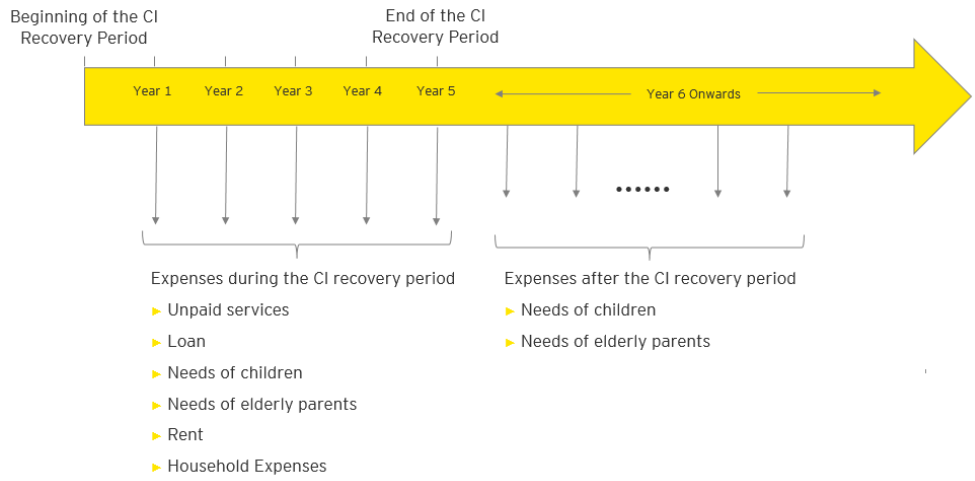
5. EA Adult CI Protection Gap

The CI Protection Gap represents the financial gap to cover family needs during the assumed CI recovery period, until the insured is expected to return to work.It is the amount of money required to cover expenses and outstanding debt payments during the insured's CI recovery period, less existing insurance coverage for CI. It is to be noted that identified needs of dependents beyond the CI recovery period have been considered on the hypothesis that the insured may not be able to meet those needs when they do return to work (due to the assumed reduction in the insured's earning capacity).

The approach used for calculating the CI Protection Gap is illustrated in Figure 9 below.

The 2022 PGS assumes a CI recovery period of 5 years, which is a key area of judgement. More information on the 5-year CI recovery period assumption is covered in Section 15.1. In addition, the Needs of Children and Needs of Elderly Parents are projected until the life expectancy of the dependents, to represent the reduction in earning ability of CI survivors.

Figure 9: Protection Needs for the CI Protection Gap

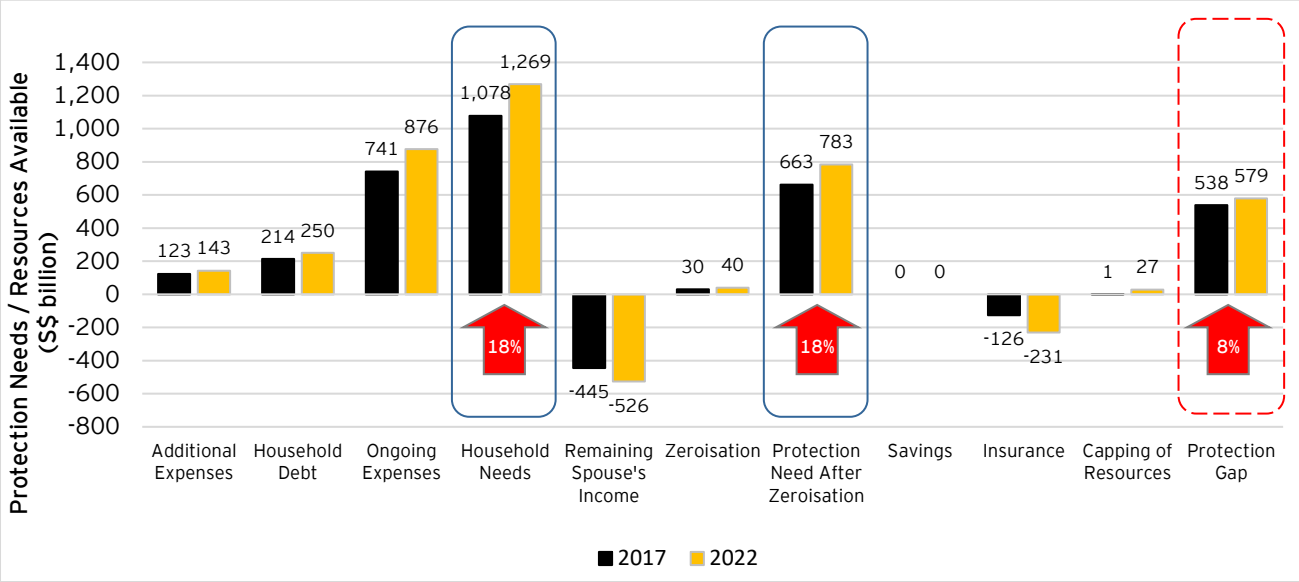


The CI protection Gap per Economically Active Adult can be broken down as below.

Table 20: Average Protection Needs and Protection Gap per economically active adult (in S$)	
Protection Need after Zeroisation	357,864
Less: Existing Insurance Coverage	93,278
Protection Gap	264,586
Average Annual Income	90,855
Multiple of Annual Income	
Protection Need after Zeroisation	3.9x
Existing Insurance Coverage	1.0x
Protection Gap	2.9x

A comparison of each individual component of the Protection Gap for the 2017 PGS against 2022 PGS is shown in the figure below.

Figure 10: EA CI Protection Needs & Resources Available (2017 PGS vs. 2022 PGS)



The detailed calculation of the CI Protection Gap is detailed in the following sections.

5.1 Protection Needs - Additional Expenses

Additional expenses consist of unpaid services.

5.1.1 Medical Needs

We have assumed that in the event of CI, the immediate hospitalization and surgery expenses of the Singaporeans 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. This is also consistent with the supplementary market survey findings, where most respondents had sufficient MediSave savings to pay for the average amount of CI conditions. More details can be found in Section 16.5.3.

5.1.2 Unpaid Services

To estimate the costs of unpaid services, a methodology in line with the Mortality Protection Gap 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 under the Mortality Protection Gap) to reflect the additional needs of a critically ill patient.

With the above assumption, the total annual cost of unpaid services increases to S$13,728. We note that this is within the range of annual cost for hiring a full-time domestic helper, which is S$7,200 to $18,000 per year according to our desktop research[1]. We have only projected the needs of unpaid services for 5 years during the CI recovery period.

Table 21: CI Protection Needs – Unpaid Services	
Present value of unpaid services per EA (S$)	65,347
Number of EA Adults	2,187,833
Total unpaid services (S$ bn)	**143.0**

5.2 Protection Needs - Personal and Housing Loans

To estimate the costs of personal and housing loans, a methodology in line with the Mortality Protection Gap has been used, but with the projection period reduced to the CI recovery period.

The average tenure for new residential property loan is 30 years[2], and assuming that an average EA has paid half of all loans, the remaining loan tenure for a 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. Costs of interest has been excluded for simplicity.

Similarly for personal loans, the average tenure for motor vehicle financing and personal loans is 7 years[3], so it is 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 22: CI Protection Needs – Personal and Housing Loans	
Average outstanding loans per EA Adult (S$)	114,307
Number of EA Adults	2,187,833
Total personal and housing loans (S$ bn)	**250.1**

5.3 Protection Needs - Ongoing expenses

5.3.1 Needs of Children

We have not adjusted the needs of children from the Mortality Protection Gap. As CI conditions vary and can result in significantly impaired future earning ability, we have taken the full needs of dependent children till adulthood (age 20) to ensure full protection for dependents.

Table 23: CI Protection Needs – Needs of Children	
Average children needs per EA Adult (S$)	69,105
Number of EA Adults	2,187,833
Total needs of children (S$ bn)	**151.2**

5.3.2 Needs of Elderly Parents

The needs of elderly parents are also unchanged from the Mortality Protection Gap. Similar to the assumption made for the needs of children, we have taken the full needs of dependent elderly parents till the expected life expectancy of 88 years old to ensure full protection for dependents.

Table 24: CI Protection Needs - Needs of Elderly Parents	
Present value of needs of elderly parents per household (S$)	80,955
Number of EA adults	2,187,833
Total needs of elderly parents (S$ bn)	**177.1**

5.3.3 Needs of Surviving Adults

The needs of surviving adults during the CI period comprises two components: rent and future household expenses.

5.3.3.1 Rent

To estimate the costs of rent, a methodology in line with the Mortality Protection Gap has been used, reducing the projection period to the CI recovery period.

Table 25: CI Protection Needs - Rent	
Present value of needs of rent per EA (S$)	8,764
Number of EA Adults	2,187,833
Total rent (S$ bn)	**19.2**

5.3.3.2 Future Household Expenses

To estimate the future expenses (excluding rent) to the household, a methodology in line with the Mortality Protection Gap has been used, reducing the projection period to the CI recovery period.

In the Mortality Protection Gap, it is assumed that the household expenses will be reduced by an adjustment factor due to the death of a household member. For the CI Protection Gap, however, the critically ill patients are still alive, so there is no reduction to household expenses.

Table 26: CI Protection Needs – Future Household Expenses	
Present value of future household expense per EA (S$)	241,472
Number of EA Adults	2,187,833
Total future household expense (S$ bn)	**528.3**

5.4 Remaining Spouse's Income

To estimate the spouse's income, a methodology in line with the Mortality Protection Gap has been used, reducing the projection period to the CI recovery period.

Table 27: CI Protection Needs – Present Value of Remaining Spouse's Income	
Present value of the spouse's income, per EA (S$)	240,455
Number of EA Adults	2,187,833
Total remaining spouse's income (S$ bn)	**526.1**

5.5 Effect of Zeroisation

Similar to the Mortality Protection Gap, the negative Protection Needs have been floored at zero in order to eliminate cross subsidies between those with positive and negative Protection Needs.

Table 28: Spouse's Income after Zeroisation (S$ bn)	
Spouse's income before zeroisation of negative Protection Needs	526.1
Less: zeroised negative Protection Needs	(40.2)
Spouse's income after zeroisation of negative Protection Needs	**485.9**

5.6 Resources Available

In estimating the resources available, only CI insurance coverage had been assumed.

CPF Savings are not included as we have assumed that the MediSave account is only used to offset the immediate medical needs, and the remaining CPF account balance cannot be withdrawn to pay for CI expenses.

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 during their retirement.

5.6.1 CI Insurance Coverage

Only CI insurance coverage from EA adults are considered in the CI insurance coverage derivation. Using a methodology in line with deriving of life insurance coverage:

- 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.
- We have noted that the number of EAs represented in the DPS data for ages 60-64 is much lower than its neighbouring age bands. This may be due to the DPS age limit that has been extended from age 60 to 65 on 1 April 2021. Therefore, we have instead estimated the insurance coverage for EAs in age bands of 60-64 and 65-69, using the information from the insurance data received and labour force participation rates from the Labour Force Survey 2021.
- 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, and have also assessed and introduced capping for different income quintiles, to further minimise any cross-subsidy.

The maximum sum assured capped for individual CI insurance coverage, split by income quintile, are detailed in the table below:

Table 29: Individual Sum Assured Caps by Gender and by Age Band (S$ m)

Quintile	Q1		Q2		Q3		Q4		Q5	
Age Band	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
20 - 24	0.5	0.4	0.7	0.5	1.2	0.7	1.4	0.9	1.4	0.9
25 - 29	0.5	0.4	0.6	0.5	1.0	0.7	1.2	0.8	1.2	0.8
30 - 34	0.5	0.4	0.7	0.5	1.0	0.7	1.2	0.8	1.2	0.8
35 - 39	0.5	0.4	0.6	0.5	0.8	0.7	1.0	0.8	1.1	0.9
40 - 44	0.5	0.4	0.6	0.5	0.9	0.7	1.0	0.8	1.1	0.9
45 - 49	0.4	0.4	0.6	0.5	0.8	0.6	0.9	0.7	1.0	0.8
50 - 54	0.4	0.3	0.5	0.4	0.6	0.5	0.6	0.6	0.7	0.7
55 - 59	0.3	0.3	0.5	0.4	0.5	0.4	0.5	0.5	0.6	0.6
60 - 64	0.3	0.2	0.4	0.3	0.4	0.4	0.5	0.4	0.5	0.5
65 - 69	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.4	0.4

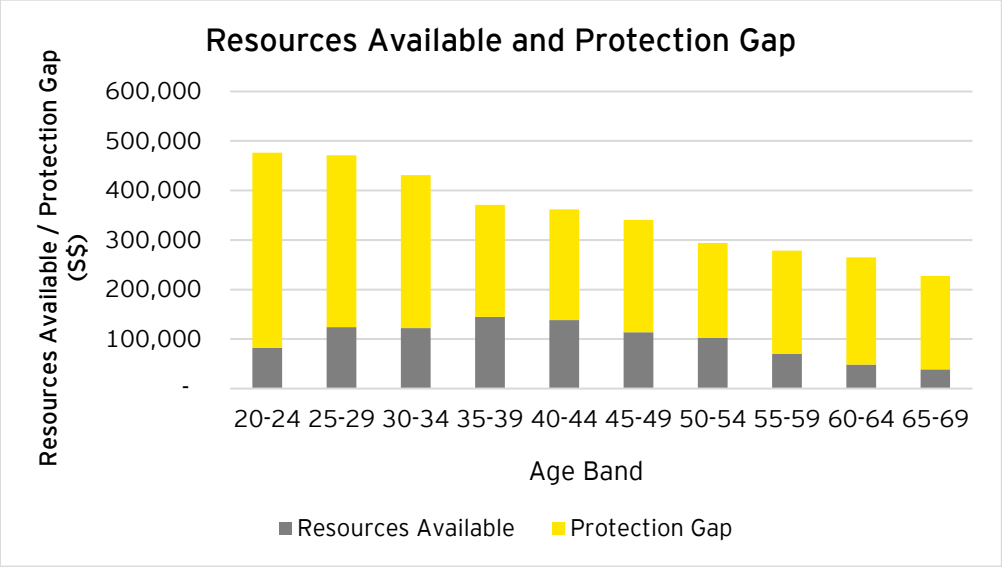
We have also included Group Insurance coverage in our calculations based on the amounts provided by insurers. The total CI insurance coverage is presented in the table below.

Table 30: Existing CI Insurance Coverage (S$ bn)

Group Insurance	25.0
Individual Insurance	206.4
Effect of Capping Sum Assured	(27.3)
Total Existing CI Insurance Coverage	**204.1**

5.7 Graphical Representation of the Resources Available and Protection Gap

Figure 11: Resources Available and Protection Gap



The Protection Need decreases as age increases. This is mainly driven by the decreasing projection period for the needs of dependents, which are projected to the life expectancy age of 88 years.

This is in contrast to all other needs, which are projected for the maximum period of 5 years (i.e. the assumed CI recovery period).

6. PW Adult Mortality Protection Gap

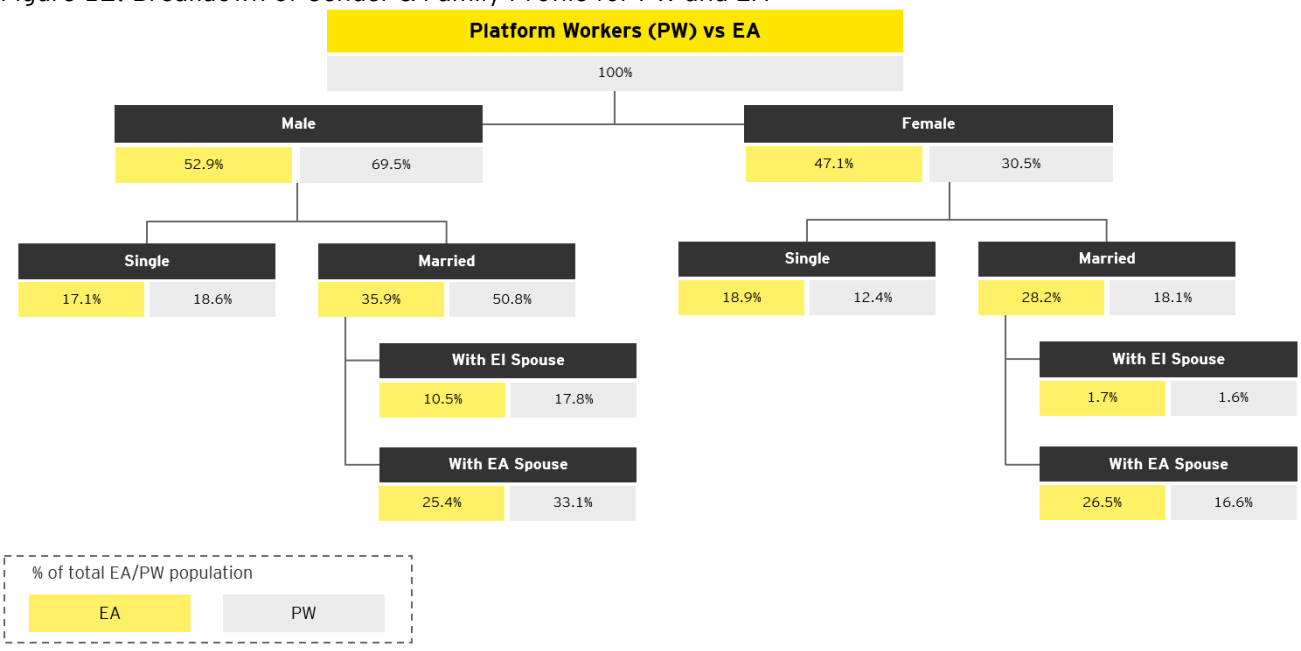
The PW Mortality Protection Gap is calculated using a similar methodology as that which is used to derive the EA Mortality Protection Gap.

The Protection Gap per PW adult can be broken down as below.

Table 31: Average Protection Needs and Protection Gap per PW (S$)	
Protection Need after Zeroisation	796,553
Less: CPF Savings	25,829
Less: Other Savings	97,926
Less: Existing Insurance Coverage	200,311
Protection Gap	472,488
Average Annual Income	35,646
Multiple of Annual Income	
Protection Need after Zeroisation	22.3x
CPF Savings	0.7x
Other Savings	2.7x
Existing Insurance Coverage	5.6x
Protection Gap	13.3x

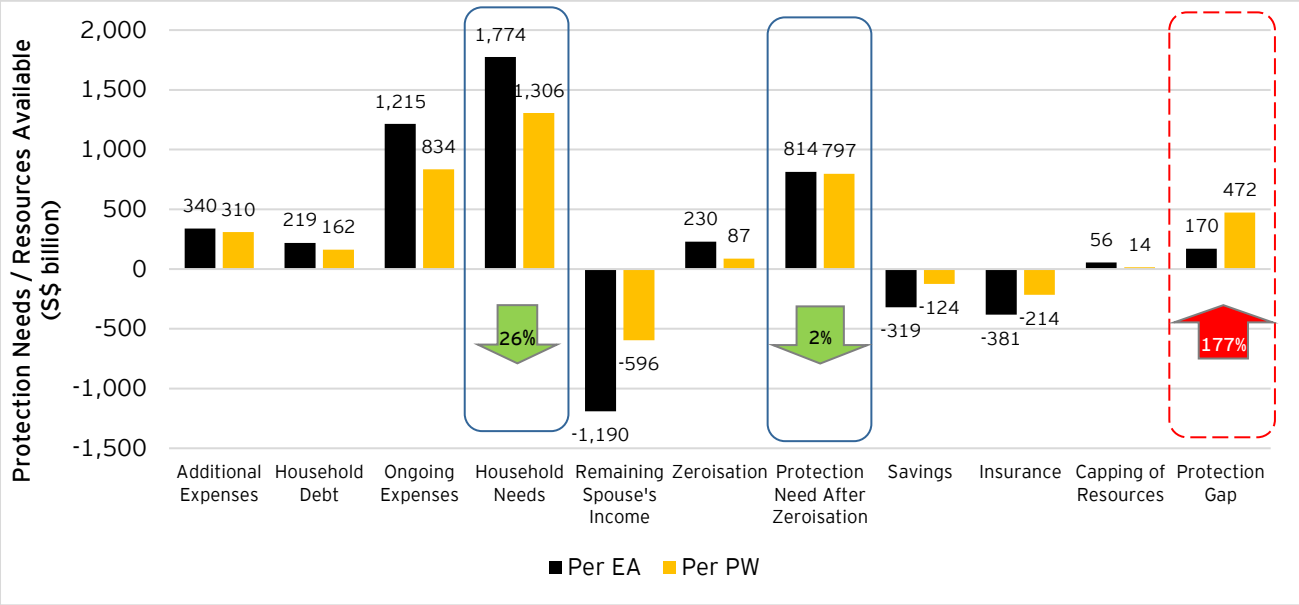
In general, the methodology for calculating the Protection Gap for PW involves deriving the average Protection Needs and resources available per EA split by age group, income quintile, marital status and spouse participation; and scaling these using the derived PW demographic. A comparison of the EA vs PW demographics can be seen in the figure below:

Figure 12: Breakdown of Gender & Family Profile for PW and EA



A comparison of each individual component of the Mortality Protection Gap for 2022 PGS, comparing needs/resources per EA vs per PW, is shown in the figure below, to provide insights to the differences in the needs and resources between both types of individuals.

Figure 13: Mortality Protection Needs & Available Resources (Per EA vs. Per PW)



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

6.1 Protection Needs - Additional Expenses

Additional expenses consist of funeral costs and unpaid services.

6.1.1 Funeral Costs

Funeral costs are the costs of holding a funeral, including all after-funeral costs (e.g. purchasing a niche to store the ashes).

For the PW calculation, no adjustment was made to the funeral cost assumption per EA, of $10,000.

Table 32: Protection Needs – Funeral Costs	
Funeral Cost per PW Adult (S$)	10,000
Number of PW Adults	68,568
Total funeral expenses (S$ bn)	0.7

6.1.2 Unpaid Services

For unpaid services, the annual cost of a part-time domestic helper is assumed to be the same for PW and EA, regardless of income quintile or age group.

Table 33: Annual Cost of a Part-time Helper		
Average per hour cost (S$)	22	The cost of a part-time helper ranges from S$16 per hour to S$27 per hour if hired by an employment agency. An average cost of S$22 has been assumed.
Number of hours per week	9	Allows for 1 hour per day on week days and 2 hours per day on weekends.
Number of weeks per year	52	
Annual Cost (S$)	**10,296**	

Similar to the methodology used for the EAs, we have projected unpaid services until the end of the life expectancy (i.e. age 88) of the dependents.

Table 34: Protection Needs - Unpaid Services	
Present value of unpaid services per PW adult (S$)	299,703
Number of PW Adults	68,568
Total unpaid services (S$ bn)	**20.5**

6.2 Protection Needs - Personal and Housing Loans

Personal and housing loans are the liabilities to be repaid by the family members following the death of the PW. The methodology used is similar to the methodology for the EAs.

For personal and housing loans, we have assumed that the average loan for each income quintile and age group for PW is the same as an EA adult in the same income quintile and age group, which is derived from the Household Sector Balance Sheet as of Q4 2021, after adjustment for loan holdings by foreigners.

Table 35: Protection Needs - Personal and Housing Loans	
Average outstanding loans per PW Adult (S$)	162,449
Number of PW Adults	68,568
Total personal and housing loans (S$ bn)	**11.1**

6.3 Protection Needs - Ongoing Expenses

6.3.1 Needs of Children

Needs of children refers to the ongoing expenses of children, including school fees and all other types of expenses, such as tuition/enrichment classes, food and clothing. The methodology used is similar to that which was used for the EAs.

Adjustments to the number of households in each group were made to fit the population demographics of the PWs, by adjusting for marital status, age group and income quintiles. The needs of children have been projected for all groups until the youngest child turns 20.

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

Table 36: Protection Needs – Needs of Children	
Average children needs per PW Adult (S$)	67,374
Number of PW Adults	68,568
Total personal and housing loans (S$ bn)	**4.6**

6.3.2 Needs of Elderly Parents

The needs of elderly parents represent the financial support provided by the PWs to their elderly parents who are not living in the same household (needs of elderly parents living in the same household as the PW are calculated in the needs of surviving adults). We have assumed that the needs of elderly parents for the PWs is the same as that of the EAs per age group.

Similar to the methodology applied for the EAs, only elderly parents who are financially dependent on the PWs have been considered. The costs of providing for the needs of an elderly parent is assumed to be comparable to the monthly income of a senior citizen.

Table 37: Protection Needs - Needs of Elderly Parents	
Present value of needs of elderly parents per household (S$)	56,312
Number of PW adults	68,568
Total needs of elderly parents (S$ bn)	**3.9**

6.3.3 Needs of Surviving Adults

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

6.3.3.1 Rent

Future housing costs relating to rent expense are estimated by projecting tenants' actual rent expenses. This is based on actual rent figures across age groups and income quintiles, which is assumed to be the same for the PWs and EAs.

For Single PWs with elderly dependents, future rent is considered over the remaining lifetime of the elderly dependents till 88 years, and for married PWs, future rent covers the remaining lifetime of the spouse till 88 years.

Table 38: Protection Needs – Rent	
Present value of needs of rent per PW (S$)	29,661
Number of PW Adults	68,568
Total rent (S$ bn)	**2.0**

6.3.3.2 Future Household Expenses

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

For each income quintile, age group, marital status and spouse participation, the future household expenses per PW is assumed to be the same as that of the EAs, with no change to the adjustment factors applied.

Future household expenses are projected until the life expectancy of the spouse for married PWs and until the life expectancy of elderly parents for single PWs.

Table 39: Protection Needs – Future Household Expenses	
Present value of future household expense per PW (S$)	680,205
Number of PW Adults	68,568
Total future household expense (S$ bn)	**46.6**

6.4 Remaining Spouse's Income

The calculation methodology for a PW's remaining spouse's income is similar to that of the EAs. We have assumed that the PW's income quintile is representative of the income quintile of his household. Spouse's income is derived from the household income quintile, so it is implicitly assumed that the PW's spouse is in the same income quintile as the PW.

Table 40: Protection Needs – Remaining Spouse's Income	
Present value of the spouse's income, per PW (S$)	595,801
Number of PW Adults	68,568
Total remaining spouse's income (S$ bn)	**40.9**

6.5 Effect of Zeroisation

The calculation methodology for zeroisation is similar to that of the EAs. We have floored negative Protection Needs at zero to eliminate cross subsidies between those with excess spouse's income and those who have positive Protection Needs.

Table 41: Spouse's Income after Zeroisation (S$ bn)	
Spouse's income before zeroisation of negative needs	40.9
Less: zeroised negative Protection Need	(5.9)
Spouse's income after zeroisation of negative needs	**35.0**

6.6 Resources Available

In estimating the resources available, we have allowed for insurance and savings (i.e. CPF Savings, Cash and Deposits), but have excluded shares, bonds, property and any overseas investments, as the value of investments are relatively volatile.

6.6.1 CPF Savings

CPF saving figures were extracted from the CPF Annual Report 2021.

The average CPF Savings per PW is calculated based on the CPF balance of members in each age group. We have assumed that all PWs contribute 10.5% of income (i.e. the maximum percentage of income that can be paid into CPF MediSave account for PWs), which is used to estimate the PWs' CPF Savings.

Table 42: Resources Available – CPF Savings	
Average CPF Savings per PW (S$)	25,829
Number of PW Adults	68,568
Total CPF Savings (S$ bn)	**1.8**

6.6.2 Other Savings

To estimate the other savings held by PWs, we have assumed that the amount of savings within the income quintile and age band group are the same, regardless of whether the individual is a PW or EA.

The amount of other savings held per PW is significantly lower than that of each EA, as a larger proportion of PWs are in lower income quintiles as compared with the EAs, as the PWs have less disposable income available and thus save less.

Table 43: Resources Available - Other Savings	
Average Other Savings per PW (S$)	97,926
Number of PW Adults	68,658
Total Other Savings (S$ bn)	**6.7**

6.6.3 Life Insurance Coverage

Similar to the methodology used to derive the life insurance coverage for the EAs, we have estimated the life insurance coverage for the PWs using the insurance data from participating insurers. However, due to limited occupation information that identifies PW policyholders, we have relied on policy data with PW identifiers from a subset of insurers to estimate the insurance coverage for the PW population ("PW Data").

The following methodology was used to derive the PW insurance coverage:

- We have derived and analysed the percentage of PWs and the average amount of individual insurance for each age band within the PW Data.
- The proportion of PW in each age band were then used to approximate the number of PWs within the full insurance data received.
- We have then used the estimated number of PWs and average insurance coverage to derive the estimated life insurance coverage (before adjustments).
- We then used a similar capping approach as that which was used for the EAs to minimise any potential cross-subsidy.

From the PW Data, the PWs identified from the policy data make up 2.2% of the total number of unique policyholders.

We have also included Group Insurance coverage of $40,650 per PW, based on group insurance coverage provided by larger private hire and delivery platforms such as Grab, Deliveroo and Lalamove.

Table 44: Existing Life Insurance Coverage (S$ bn)	
Group Insurance	2.8
Individual Insurance	11.9
Effect of Capping Sum Assured	(1.0)
Total Existing Life Insurance Coverage	**13.7**

7. PW Adult CI Protection Gap

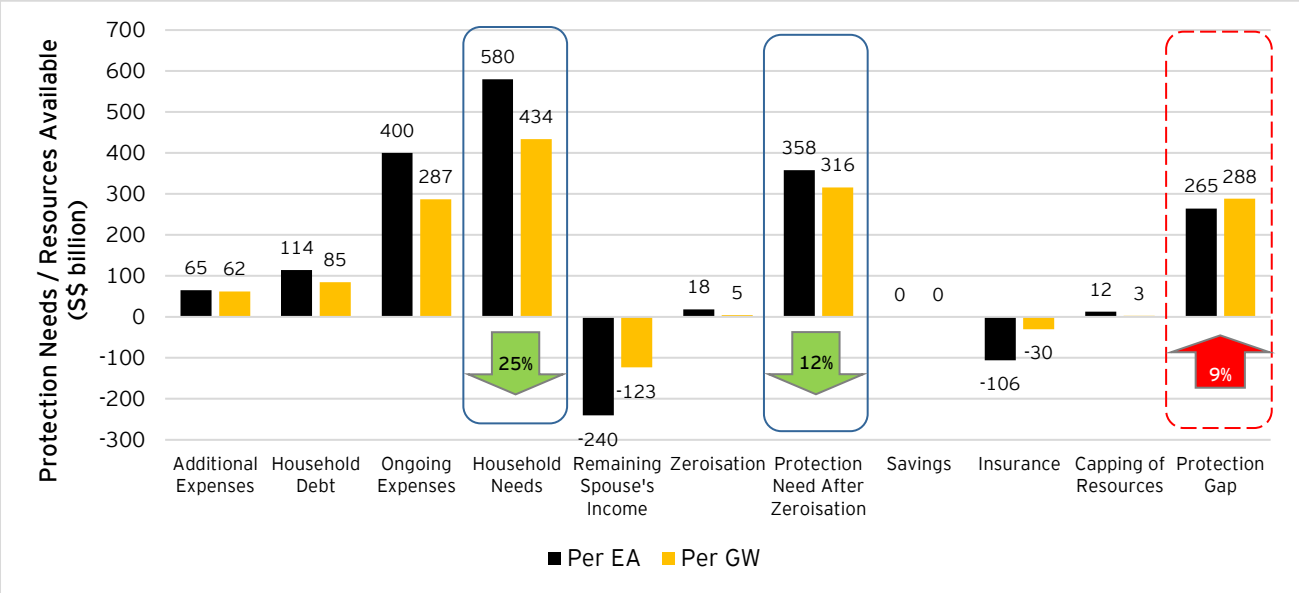
The PW CI Protection Gap is calculated using a similar methodology as those used to derive the EA CI Protection Gap.

The CI Protection Gap per PW adult can be broken down as below.

Table 45: Average Protection Needs and Protection Gap per PW Adult (in S$)	
Protection Need after Zeroisation	315,576
Less: Existing Insurance Coverage	27,324
Protection Gap	288,252
Average Annual Income	35,646
Multiple of Annual Income	
Protection Need after Zeroisation	8.9x
Existing Insurance Coverage	0.8x
Protection Gap	8.1x

A comparison of each individual component of the CI Protection Gap for 2022 PGS, comparing needs/resources per EA vs per PW, is shown in the figure below.

Figure 14: Mortality Protection Needs & Available Resources (Per EA vs. Per PW)



The detailed calculation of the CI Protection Gap is detailed in the following sections.

7.1 Protection Needs - Additional Expenses

Additional expense consists of unpaid services.

7.1.1 Medical Needs

Similar to the CI calculations for the EAs, we have assumed that in the event of CI, the immediate hospitalization and surgery expenses of the PWs will be adequately covered by MediShield Life, MediSave and/or an Integrated Shield Plan, despite having lower income, 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.

7.1.2 Unpaid Services

Similar to the CI calculations for the EAs, we assume that the total annual cost of unpaid services increases to S$13,728 for PWs. The needs of unpaid services is then projected for 5 years during the CI recovery period.

Table 46: CI Protection Needs – Unpaid Services	
Present value of unpaid services per PW (S$)	62,053
Number of PW Adults	68,568
Total unpaid services (S$ bn)	**4.3**

7.2 Protection Needs - Personal and Housing Loans

To estimate the costs of personal and housing loans, a methodology in line with the Mortality Protection Gap has been used, but with the projection period reduced to the CI recovery period.

The is similar to the CI calculations for the EAs.

Table 47: CI Protection Needs – Personal and Housing Loans	
Average outstanding loans per PW Adult (S$)	84,808
Number of PW Adults	68,568
Total personal and housing loans (S$ bn)	**5.8**

7.3 Protection Needs - Ongoing expenses

7.3.1 Needs of Children

We have not adjusted the needs of children from the PW Mortality Protection Gap. As CI conditions vary and can result in significantly impaired future earning ability, we have taken the full needs of dependent children till adulthood (age 20) to ensure full protection for dependents.

The methodology is similar to the CI calculations for the EAs.

Table 48: CI Protection Needs – Needs of Children	
Average children needs per PW Adult (S$)	67,374
Number of PW Adults	68,568
Total needs of children (S$ bn)	4.6

7.3.2 Needs of Elderly Parents

The needs of elderly parents are also unchanged from the PW Mortality Protection Gap. Similar to the assumption made for the needs of children, we have taken the full needs of dependent elderly parents till the expected life expectancy to ensure full protection for dependents.

The methodology is similar to the CI calculations for the EAs.

Table 49: CI Protection Needs - Needs of Elderly Parents	
Present value of needs of elderly parents per household (S$)	48,533
Number of PW adults	68,568
Total needs of elderly parents (S$ bn)	3.3

7.3.3 Needs of Surviving Adults

The needs of surviving adults during the CI period comprises two components: rent and future household expenses.

7.3.3.1 Rent

To estimate the costs of rent, a methodology in line with the PW Mortality Protection Gap has been used, reducing the projection period to the CI recovery period.

The methodology is similar to the CI calculations for the EAs.

Table 50: CI Protection Needs – Rent	
Present value of needs of rent per PW (S$)	4,261
Number of PW Adults	68,568
Total rent (S$ bn)	0.3

7.3.3.2 Future Household Expenses

To estimate the future expenses (excluding rent) to the household, a methodology in line with the PW Mortality Protection Gap has been used, reducing the projection period to the CI recovery period.

For the PW Mortality Protection Gap, it is assumed that household expenses will be reduced due to the death of a household member. However, for the PW CI Protection Gap, the critically ill patients are still alive, so there is no reduction to household expenses.

The methodology is similar to the CI calculations for the EAs.

Table 51: CI Protection Needs – Future Household Expenses	
Present value of future household expense per PW (S$)	167,049
Number of PW Adults	68,568
Total future household expense (S$ bn)	**11.5**

7.4 Remaining Spouse's Income

To estimate the spouse's income, a methodology in line with the PW Mortality Protection Gap has been used, reducing the projection period to the CI recovery period.

The methodology is similar to the CI calculations for EA.

Table 52: CI Protection Needs – Remaining Spouse's Income	
Present value of the spouse's income, per PW (S$)	123,135
Number of PW Adults	68,568
Total remaining spouse's income (S$ bn)	**8.4**

7.5 Effect of Zeroisation

The calculation methodology for zeroisation is similar to PW Mortality Protection Gap. We have floored negative Protection Needs at zero to eliminate cross subsidies between those with excess spouse's income and those who have positive Protection Needs.

Table 53: Spouse's Income after Zeroisation (S$ bn)	
Spouse's income before zeroisation of negative needs	8.4
Less: zeroised negative Protection Needs	(0.3)
Spouse's income after zeroisation of negative needs	**8.1**

7.6 Resources Available

Similar to the EA CI Protection Gap, only CI insurance coverage had been assumed when estimating the resources available.

CPF Savings are not included as we have assumed that the MediSave account is only used to offset immediate medical needs, and the remaining CPF account balance cannot be withdrawn to pay for CI expenses.

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 during their retirement.

7.6.1 CI Insurance Coverage

A similar approach to that of the PW Mortality insurance coverage is used to derive the PW CI insurance coverage.

From desktop research, PW platforms do not offer Group CI insurance, as of the date of the 2022 PGS report.

The CI Insurance coverage is presented in the table below.

Table 54: Existing CI Insurance Coverage (S$ bn)	
Group Insurance	0.0
Individual Insurance	2.0
Effect of Capping Sum Assured	(0.2)
Total Existing CI Insurance Coverage	1.8

8. Analysis of EA versus PW Population

8.1 Mortality

This section compares the Mortality Protection Gap, as a % of Mortality Protection Needs, for the average EA and PW in each demographic. Comparing the gap as a % of needs allows us to compare the size of the gap in a consistent manner between different segments with different needs, to further understand what drives the differences between the EAs and PWs.

8.1.1 By Income Quintiles

Figure 15: Mortality Protection Gap (as % of Protection Needs) for Income Quintiles (EA vs. PW)

Commentaries:

- For both the EAs and PWs, those in Q1 to Q4 are observed to have a Protection Gap, with Q1 being the income quintile group with the highest Protection Gap.

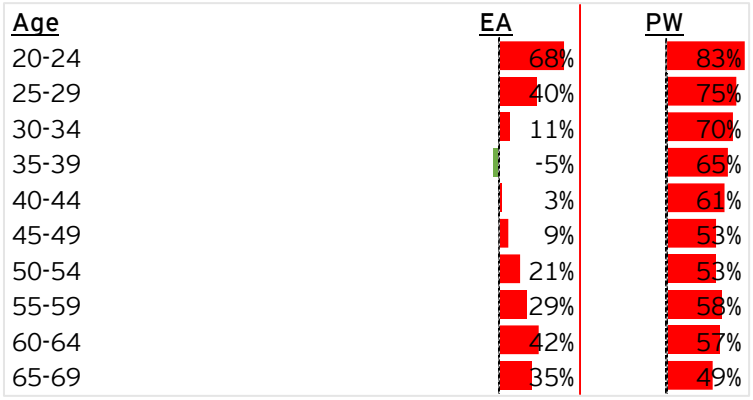
- Notably, PWs in Q1 have a smaller Protection Gap (as a percentage of Protection Needs), as compared to EAs in Q1. This is due to the assumption that all PWs have the same amount of group insurance of $40,650, while EAs in Q1 have a lower group insurance coverage. However, it should be noted that PWs are only covered under group insurance while they are working, such as during deliveries or when in transit.

- From Q1 to Q4, the Protection Gap reduces as income quintile increases. This is in line with the expectation that those in the lower quintiles have a lower amount of savings and lower financial ability to purchase insurance, resulting in a larger Protection Gap.

- For Q5, the Protection Gap for PWs is more negative as compared with EAs. This is mainly due to PWs having lower Protection Needs compared to EAs in Q5 as there is a higher proportion of PWs in the older age groups. Hence with similar levels of resources available at Q5, the Protection Gap for PWs is observed to be more negative as compared with EAs.

8.1.2 By Age Bands

Figure 16: Mortality Protection Gap (as % of Protection Needs) for Age Bands (EA vs. PW)



Commentaries

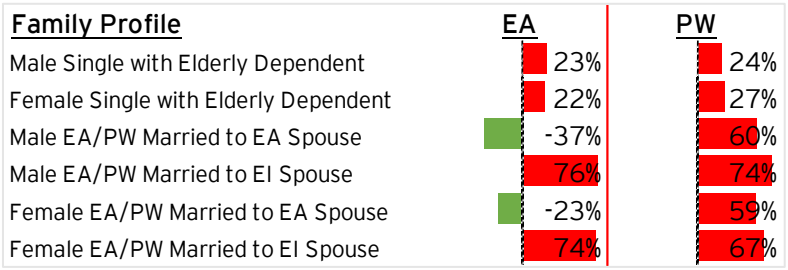
- For both EA and PW, the younger age group (age 20-24) are observed to be the group with the highest Protection Gap. This is aligned with expectation as, on average, this group has the lowest amount of savings and limited financial ability to purchase insurance.

- We observed a negative Protection Gap for EA adults in age band 35-39. This is mainly due to them having higher savings and insurance coverage.

- For the group above age 50, the Protection Gap increasingly gets larger as resources available reduces at a higher rate compared to the reduction in Protection Needs.

8.1.3 By Family Profiles

Figure 17: Mortality Protection Gap (as % of Protection Needs) for Family Profiles (EA vs. PW)



Commentaries

- We observed that the Married with EI Spouse groups have the highest Protection Gap among the 6 family profiles. This is as expected as they are the sole breadwinners of the family, hence are likely to have higher Protection Needs with limited support through spouse income.

- We also observed a negative Protection Gap for those EAs Married with EA Spouse, due to the offsetting impact on Protection Needs from the spouse income.

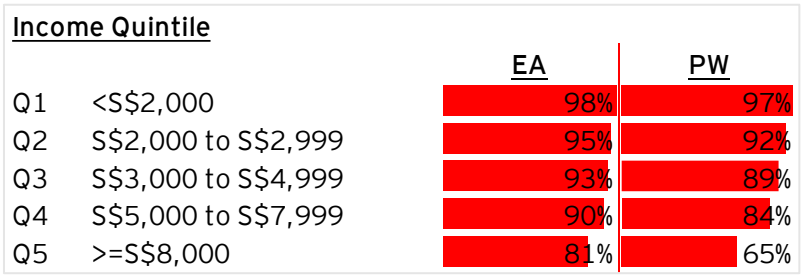
- For PW Married with EA Spouse, their Protection Gap is higher than Single PW, as there is a higher proportion of PW in lower income quintiles, so the spouse income is less than the increase in Protection Needs of the spouse. This assumes the PW's income quintile is representative of the income quintile of his household, and thus his spouse.

8.2 Critical Illness

This section compares the CI Protection Gap, as a % of CI Protection Needs, for the average EA and PW in each demographic. Comparing the gap as a % of needs allows us to compare the size of the gap in a consistent manner between different segments with different needs, to further understand what drives the differences between EA and PW.

8.2.1 By Income Quintiles

Figure 18: CI Protection Gap (as % of Protection Needs) for Income Quintiles (EA vs. PW)



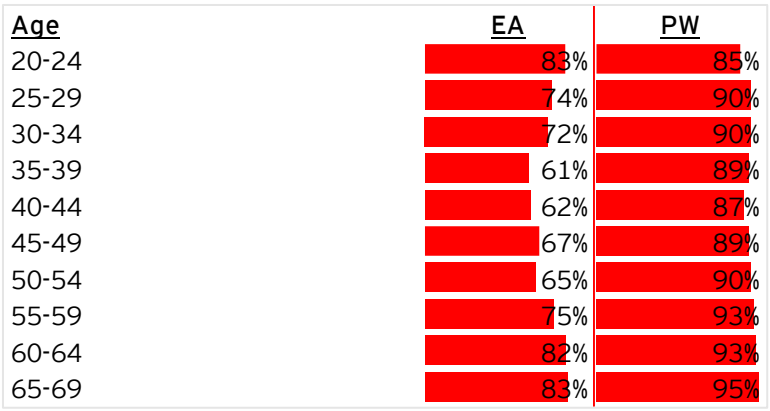
Commentaries

- For both EA and PW, we observed that all income quintiles have a CI Protection Gap, with the gap decreasing as income quintile increases.

- Moving from Q1 to Q5, the CI Protection Gap reduces as income quintile increases. This is in line with expectations, as those in lower quintiles have limited financial ability to purchase insurance.

8.2.2 By Age Bands

Figure 19: CI Protection Gap (as % of Protection Needs) for Age Bands (EA vs. PW)



Commentaries

- For the EA population, our study indicates that the younger age group (age 20-24) have the highest CI Protection Gap. This is aligned with expectations as they are likely to have limited financial ability to purchase insurance.

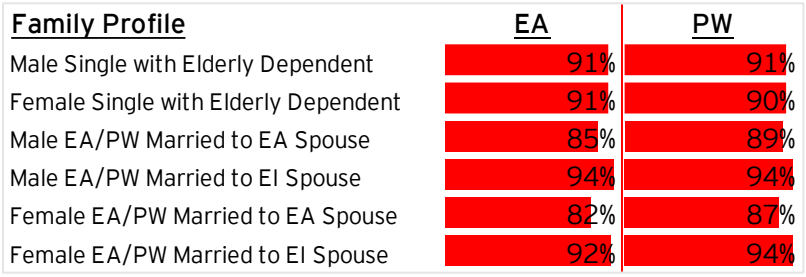
- However, we observed that PWs aged 20-24 purchase proportionally more CI insurance coverage compared to all other PW age groups. This is likely to be due to having a smaller sample size compared to EA.

- We observed a slightly lower CI Protection Gap for EAs between age 35-54. This is mainly due to individuals in this age group having higher insurance coverages.

- The CI Protection Gap increases after age 50 as resources available reduces at a higher rate compared to reduction in Protection Needs.

8.2.3 By Family Profiles

Figure 20: CI Protection Gap (as % of Protection Needs) for Family Profiles (EA vs. PW)



Commentaries

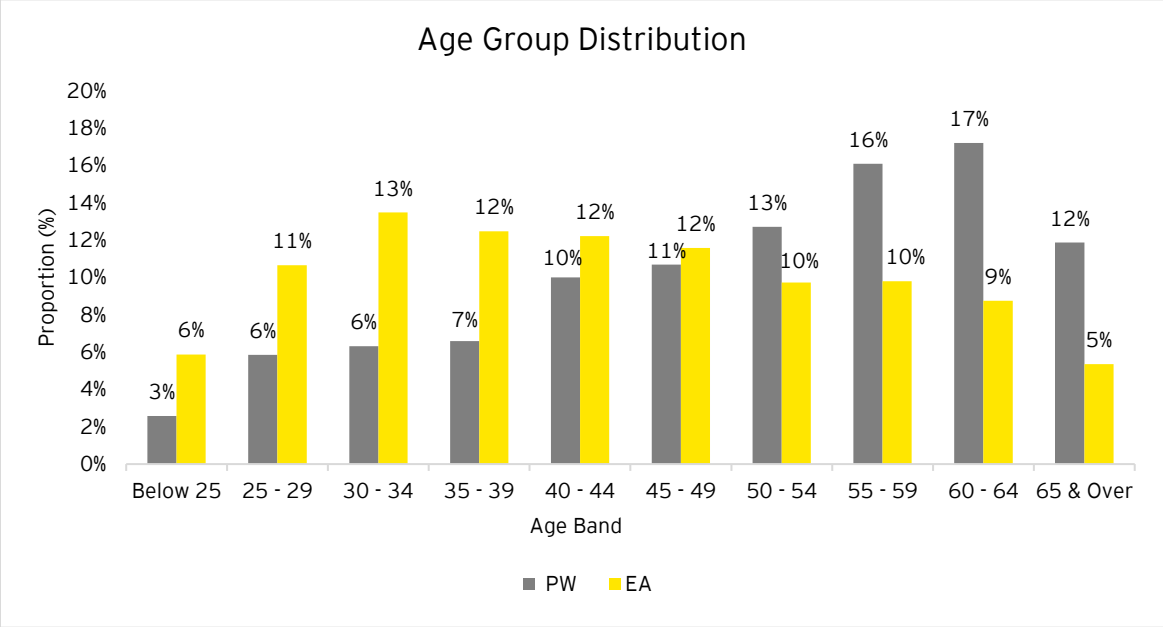
- For both EA and PW populations, we observed that all 6 family profiles have a CI Protection Gap.

- Similar to the analysis on mortality gap by family profiles, we also observed that the 'Married with EI Spouse' groups have the highest CI Protection Gap among 6 family profiles. This is as expected as these EA adults are the sole breadwinners of the family, hence are likely to have higher Protection Needs with limited support through spouse income.

8.3 Main Drivers of Differences between EA and PW

8.3.1 Age Group Distribution

Figure 21: Age Group Distribution for EA vs PW



The figure above illustrates the difference in age group distributions between the EA population and the PW population. Notably, 58% of the PW population are aged 50 or older, compared to only 34% of the EA population.

The higher proportion of PW in the older age groups mainly affects the following components:

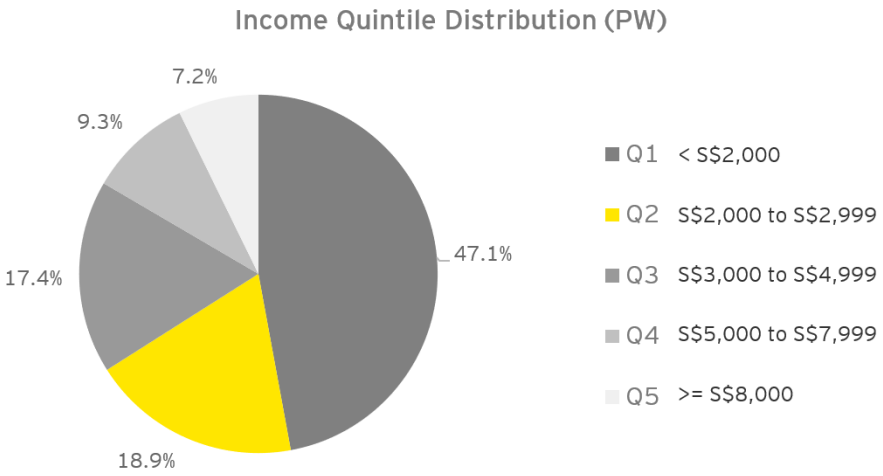
Table 55: Difference in Needs per PW Compared to per EA (%)

Components	Description	Per EA (S$ k)	Per PW (S$ k)	Difference (%)
Needs of elderly parents	Lower needs of elderly due to shorter protection period for taking care of elderly	Mort: 81.0 CI: 81.0	Mort: 56.3 CI: 48.5	Mort: -30.4% CI: -40.1%
Average expenditure on unpaid services	Lower average unpaid services per PW	Mort: 330.1 CI: 65.3	Mort: 299.7 CI: 62.1	Mort: -9.2% CI: -5.0%

A larger proportion of PW are in the older age groups compared to EA. This leads to lower needs of elderly due to shorter projection period to the average life expectancy, and lower average unpaid services per PW.

8.3.2 Income Quintile Distribution

Figure 22: Income Quintile Distribution for PW



The figure above illustrates the split in income quintiles for PW, compared to EA, where 20% of the population belongs to each income quintile. About 66% of the PW population are in income quintiles 1 and 2, while only about 16% are in income quintiles 4 and 5.

This higher proportion of PW in lower income quintile groups mainly impact the following results:

Table 56: Difference in Needs/Resources per PW Compared to per EA (%)

Components	Description	Per EA (S$ k)	Per PW (S$ k)	Difference (%)
Personal & Housing Loans	Lower expected average loans	Mort: 219.0 CI: 114.3	Mort: 162.4 CI: 84.8	Mort: -25.8% CI: -25.8%
Needs of Children	Lower average spending on children's needs	Mort: 69.1 CI: 69.1	Mort: 67.4 CI: 67.4	Mort: -2.5% CI: -2.5%
Rent	Lower expected average expenditure on rent	Mort: 62.7 CI: 8.8	Mort: 29.7 CI: 4.3	Mort: -52.7% CI: -51.4%
Other Savings	Lower expected average savings	Mort: 181.6 CI: 0	Mort: 97.9 CI: 0	Mort: -46.1% CI: No change
Individual Insurance	Lesser insurance purchases leading to lower insurance coverage	Mort: 259.3 CI: 91.9	Mort: 188.9 CI: 30.0	Mort: -27.1% CI: -67.4%

A larger proportion of PWs are in the lower income quintiles. This leads to lower expenses, savings and insurance, compared to EA.

Though there are a higher proportion of PWs in the older age groups and are within the lower income quintiles compared to EA, the difference in the 'Needs of Children' per PW versus per EA is relatively small, as compared to the other components in the Table 56. This can be attributed to the larger proportion of PWs being married as compared to EA adults, leading to a greater proportion of PW households having children, and thus incurring costs for the 'Needs of Children'.

9. Summary of the Supplementary Market Survey

9.1 Background

The supplementary market survey is conducted with the aim of providing further insights to the Protection Needs and resources available of the general population, and to provide relevant insights to the underlying reasons for the Protection Gap that we observed. Questions are also included in the supplementary market survey that are designed to assess the suitability of the model assumptions used in calculating the Protection Gap.

The supplementary market survey questions covered different topics, and these are summarized below:

- **Demographic data:** To understand the demographic background of the respondent which is used to analyse the results
- **Employment data:** To understand the employment type of the respondents
- **Household data**: To understand the household conditions such as household income
- **Insurance coverage data**: To understand the current insurance coverage and understanding how respondents view the adequacy of their existing protection
- **5-Years Trend and Covid-19**: To understand the drivers for any changes in level of protection purchased over the past 5 years
- **Recommendations and improvements**: To understand any expectations or recommendations for insurance providers or policy makers

In total, 775 responses are recorded and analysed for EA adults and 60 responses for PW adults. Refer to Section 16 for details of the survey results.

9.2 Key Insights

A summary of the key insights gathered is included below:

- **Sources of financial concerns:** The top 3 sources of financial concerns are the same for EA and PW, being healthcare expenses (65%, 68%), retirement planning (62%, 45%) and inability to work due to CI (30%, 32%).

- **Group Insurance coverage for PW:** More than half of the respondents (60%) indicated that they are not covered under group insurance, and 16% of the respondents are unaware of any group insurance coverage.

- **Reasons for purchasing insurance:** Top reasons for taking up additional insurance protection for both EA and PW include insufficient existing insurance coverage (45%, 43%) and having financial responsibilities for dependents (32%, 27%).

- **Reasons for not purchasing insurance:** Top reasons for not purchasing additional insurance for both EA and PW include not being able to afford the additional expense (50%, 37%) and insurance premium is too expensive (47%, 47%).

- **Improvement areas for the industry:** Over 50% of respondents indicated the insurance industry can improve by simplifying the products and ensuring insurance products can be understood using simple language.

- **Covid-19 impact:** For both EA and PW, the main reasons leading to the concern includes concerns on own medical expense (41%, 38%) and job/income uncertainty (23%, 33%). Higher proportion of PW compared to EA indicating job/income uncertainty as the main reason also shows that Covid-19 may have resulted in larger impact for PW due to volatility in the nature of their work.

10. Insurance Data Analysis

As part of the 2022 PGS, insurance data for Singaporeans and Permanent Residents as of the end of 2021 were collected for analysis.

Table 57: Insurance Data Received

	Number of Basic Policies	Number of Riders	Number of Policyholders	Life Insurance Coverage (S$ bn)	CI Insurance Coverage (S$ bn)
Received	7,481,476	412,738	3,012,491	949.0	288.2
After removing DPS	5,533,906	412,738	2,457,882	814.0	288.2
After removing DPS, Products with Mortality Coverage	5,521,275	378,235	2,457,519	814.0	-
After removing DPS, Products with CI Coverage	1,884,315	333,272	1,491,042	-	288.2

In the analysis, we have removed 1,947,570 DPS policies worth a total Life Insurance coverage of $135.0 bn 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.

The comments below therefore apply only to individual insurance policies, excluding Group Insurance and DPS.

10.1 Key Findings from Insurance Data Received

Through analysing the policy data received for individual insurance policies (excluding Group Insurance and DPS), we observed the following:

- 62% of Singaporeans and PRs own at least one insurance policy.
- On average, an insured person purchase 3.43 policies (excluding riders) covering mortality and/or CI.
- Of the policies with Mortality coverage, the average number of life insurance policies (excluding rider) per person is 3.00 and the average life insurance coverage per person (including rider) is S$331,228.
- Of the policies with CI coverage, the average number of CI policies (excluding rider) per person is 0.91 and the average CI insurance coverage per person (including riders) is S$193,288. Riders account for 15.0% of CI insurance policies in terms of policy count and 13.7% in terms of CI insurance coverage.
- The coverage for children (ages 0-19) mainly consists of Whole of Life policies, closely followed by Endowments.

- Within the EA working population, Whole of Life and Term Insurance are the dominant products, in terms of total insurance coverage purchased through these products. On the other hand, Annuity products are much less prominent, reducing in coverage provided from S$2.3 bn in 2017 PGS to S$0.6 bn in 2022 PGS.

- We have noted that the amount of life Term Insurance coverage has almost doubled, from S$144 bn in 2017 PGS to S$243 bn in 2022 PGS. This is even more striking for CI Term Insurance coverage, which has increased by over 10 times, from S$6.3 bn in 2017 PGS to S$68.2 bn in 2022 PGS.

- CI coverage are generally Whole of Life policies, or Riders with CI coverage added on top of other main life insurance policies.

- For PW, Whole of Life and Term Insurance products are the dominant products, making up 76% of sum assured out of all life policies owned. However, in terms of types of policies, Whole of Life and Endowment products are most commonly owned by PW.

11. Reliance and Limitations

Reliance

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

- The report as shared by the Life Insurance Association ("LIA"), titled "2017 Protection Gap Study – Singapore", dated 26 April 2018.

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.

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.

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.

EY will owe no responsibility or liability to third parties in respect of the Protection Gap Study 2022, 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

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 by relied upon for any other purpose.

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.

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 any 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 any queries or questions regarding the above, please do not hesitate to contact us.

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 parameters used would alter the Protection Gap results significantly. These assumptions and parameters 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 studied in this report is intended to represent the average protection requirement for that profile. The actual Protection Needs and Protection Gap of an individual is likely to vary depending on the individual's specific circumstances for that profile.

12. Appendix: Summary Statistics on Individual Insurance

As of the end of 2021, there are 7,894,214 policies in-force and 3,012,491 unique policyholders worth S$949.0 bn of Life Insurance coverage and S$288.2 bn of CI coverage, including the 1,947,570 DPS policies. This includes all Singaporeans and Permanent Residents, not only EA.

It should be noted that PWs are a subset of the EA population within this PGS, therefore the policy data information and summary statistics below includes the PW population.

Excluding the DPS, we have 5,946,644 policies and 2,457,882 unique policyholders (S$814.0 bn of Life Insurance sum assured), implying that 554,609 people only possess DPS and no other coverage.

The S$814.0 bn of Life Insurance coverage comes from 5,899,510 policies (5,521,275 basic policies and 378,235 riders) and 2,457,519 unique policyholders, which implies that 363 policyholders only possess CI coverage. The S$288.2 bn of CI coverage comes from 2,217,587 policies (1,884,315 basic policies and 333,272 riders) and 1,491,042 unique policyholders.

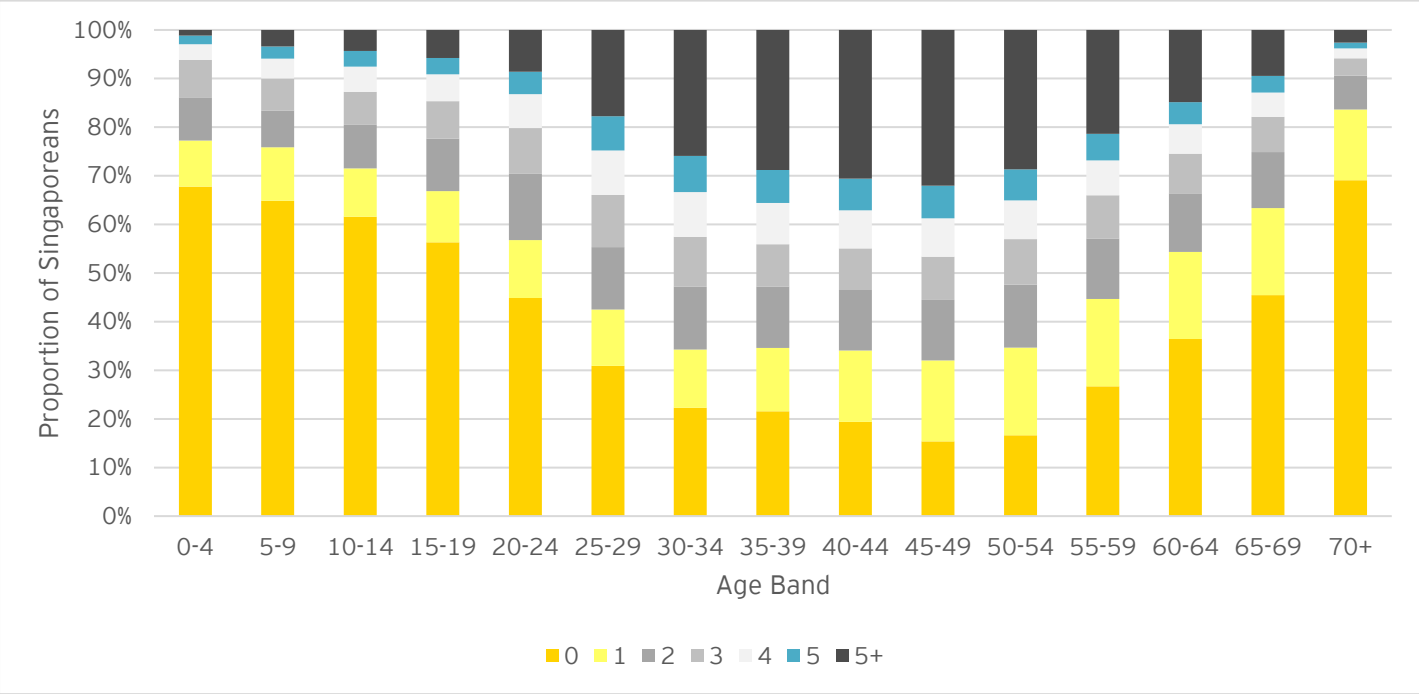
Our summary statistics on individual insurance include the following analyses:

12.1 Information from Policy Data

12.1.1 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. In general, 38% of the total population do not have a single insurance policy. This is an improvement from the 2017 PGS, which found that 46% of the total population did not have a single insurance policy. In addition, the number of people with 5 or more insurance policies has increased from 338,233 in 2017 PGS to 666,150 in 2022 PGS, which contributed to the increase in average number of policies.

Figure 23: 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 58: 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	120,909	128,888	123,122	115,396	106,569	85,900	67,021	62,414	56,685	46,199	47,471	79,608	102,927	107,004	278,847
1	16,940	21,870	19,959	21,534	28,435	32,330	36,213	37,656	43,077	49,887	51,638	53,507	50,620	42,208	58,804
2	15,823	15,124	17,849	22,118	32,417	35,643	38,783	36,473	36,453	37,356	37,125	37,129	33,989	27,084	27,996
3	13,749	13,007	13,517	15,794	22,253	29,857	30,858	25,250	24,909	26,750	26,699	26,632	23,190	17,024	14,327
4	5,817	8,112	10,503	11,374	16,629	25,370	27,699	24,479	23,070	23,620	22,681	21,323	17,168	11,760	8,255
5	3,079	5,007	6,385	6,850	11,011	19,624	22,571	19,687	19,121	20,177	18,433	16,358	12,809	7,990	4,914
5+	2,118	6,752	8,658	11,847	20,406	49,313	77,915	83,262	89,455	96,136	81,915	63,669	41,909	22,321	10,474
Total	**178,435**	**198,760**	**199,993**	**204,913**	**237,720**	**278,037**	**301,060**	**289,221**	**292,770**	**300,125**	**285,962**	**298,226**	**282,612**	**235,391**	**403,617**

12.1.2 Average Number of Insurance Policies for People who have at least 1 Policy (excluding Riders)

The general trend has remained similar in comparison to 2017 PGS. Females are observed to have a higher average number of policies than males from age 25 onwards.

Figure 24: Average number of policies by age band and gender of those with insurance

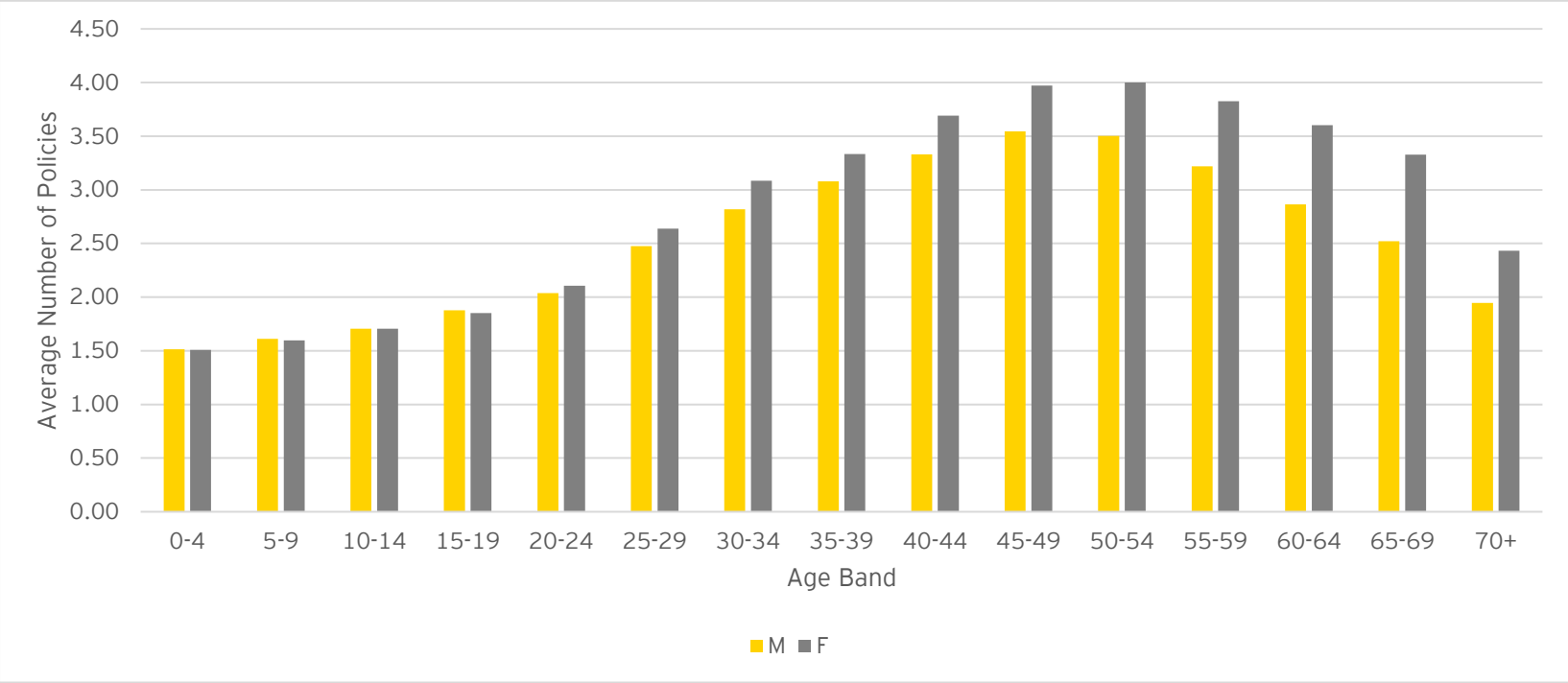


Table 59: Average Number of Policies by Age Band and Gender of those with Insurance (Excluding Riders)

	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	1.51	1.61	1.71	1.88	2.04	2.47	2.82	3.08	3.33	3.55	3.50	3.22	2.87	2.52	1.95
F	1.51	1.60	1.71	1.85	2.11	2.64	3.09	3.33	3.69	3.97	4.00	3.82	3.60	3.33	2.43

12.1.3 Average Insurance Coverage

The general trend for the average mortality insurance coverage has remained similar in comparison to 2017 PGS. In 2022 PGS, we observed that males generally purchase a higher coverage per person, as compared to females, from age 30 onwards.

The average mortality insurance coverage per person has increased from $290,086 in 2017 PGS to $331,228 in 2022 PGS.

Figure 25: Average life insurance coverage by age band and gender (S$)

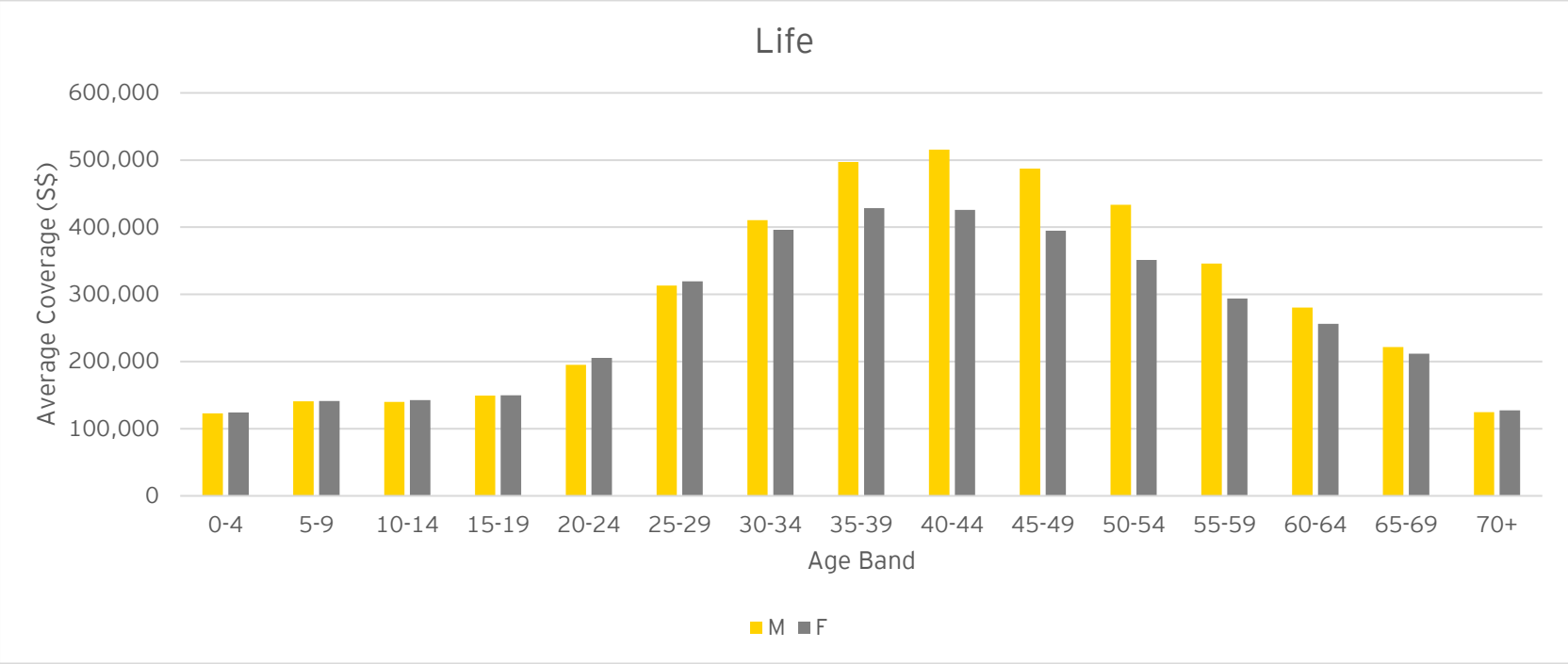


Table 60: Average Life Insurance Coverage by Age Band and Gender (S$)

	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	122,961	140,986	139,780	149,517	195,161	312,975	410,400	497,188	515,623	487,145	433,300	345,786	280,287	221,641	124,799
F	124,412	141,147	142,402	149,904	205,313	319,203	395,944	428,534	425,622	394,652	351,261	293,885	255,972	211,859	127,224

The general trend for the average CI insurance coverage has remained similar in comparison to 2017 PGS. In the 2022 PGS, males are observed to have a higher average CI insurance coverage as compared to females, from age 35 onwards.

The average CI coverage per person has increased from $128,861 in 2017 PGS to $193,288 in 2022 PGS.

Figure 26: Average CI insurance coverage by age band and gender (S$)

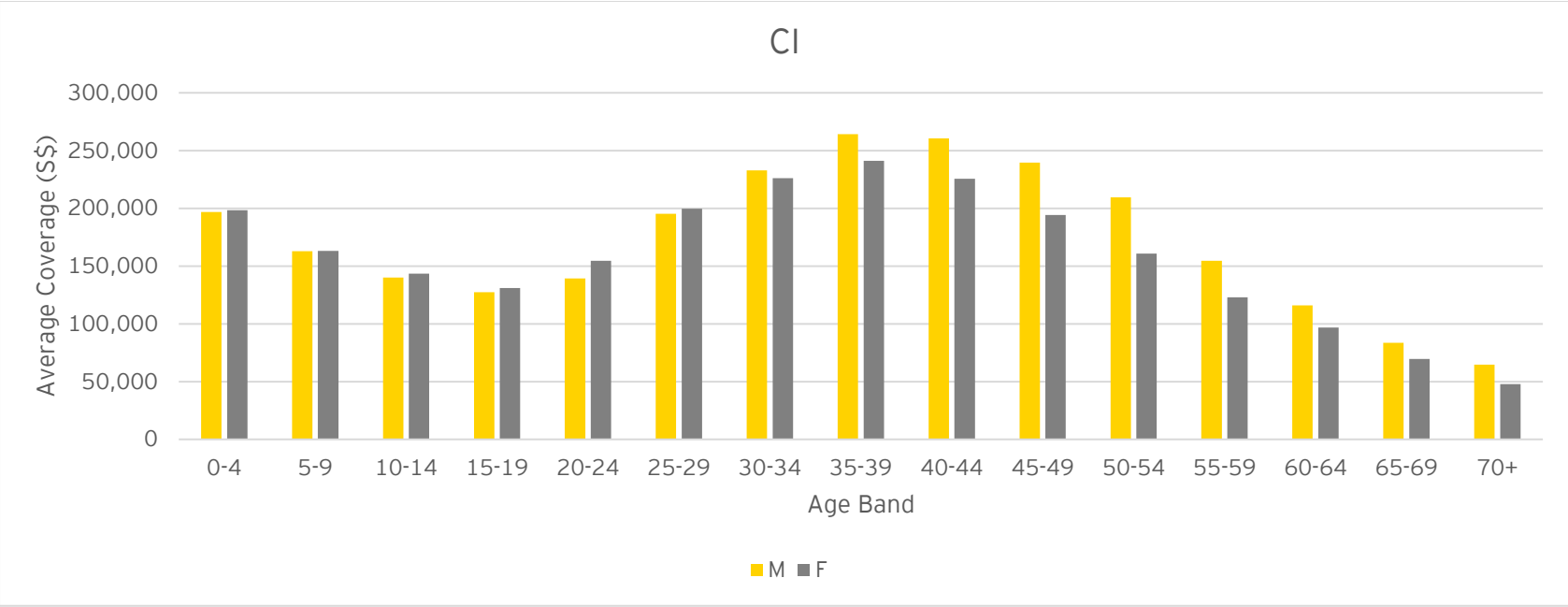


Table 61: Average CI Insurance Coverage by Age Band and Gender (S$)

	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	196,701	162,775	140,064	127,341	139,392	195,292	232,886	264,092	260,469	239,677	209,486	154,471	116,022	83,580	64,669
F	198,303	163,138	143,461	131,102	154,550	199,624	226,023	241,052	225,581	194,321	160,844	122,934	96,739	69,604	47,893

12.1.4 Total Insurance Coverage

The total insurance coverage refers to the sum of mortality or CI insurance coverage within each age band.

In general, males have a greater amount of mortality insurance coverage compared to females, especially for ages 35 to 59, consistent with the observation in the 2017 PGS.

Figure 27: Total life insurance coverage by age band and gender (S$ m)

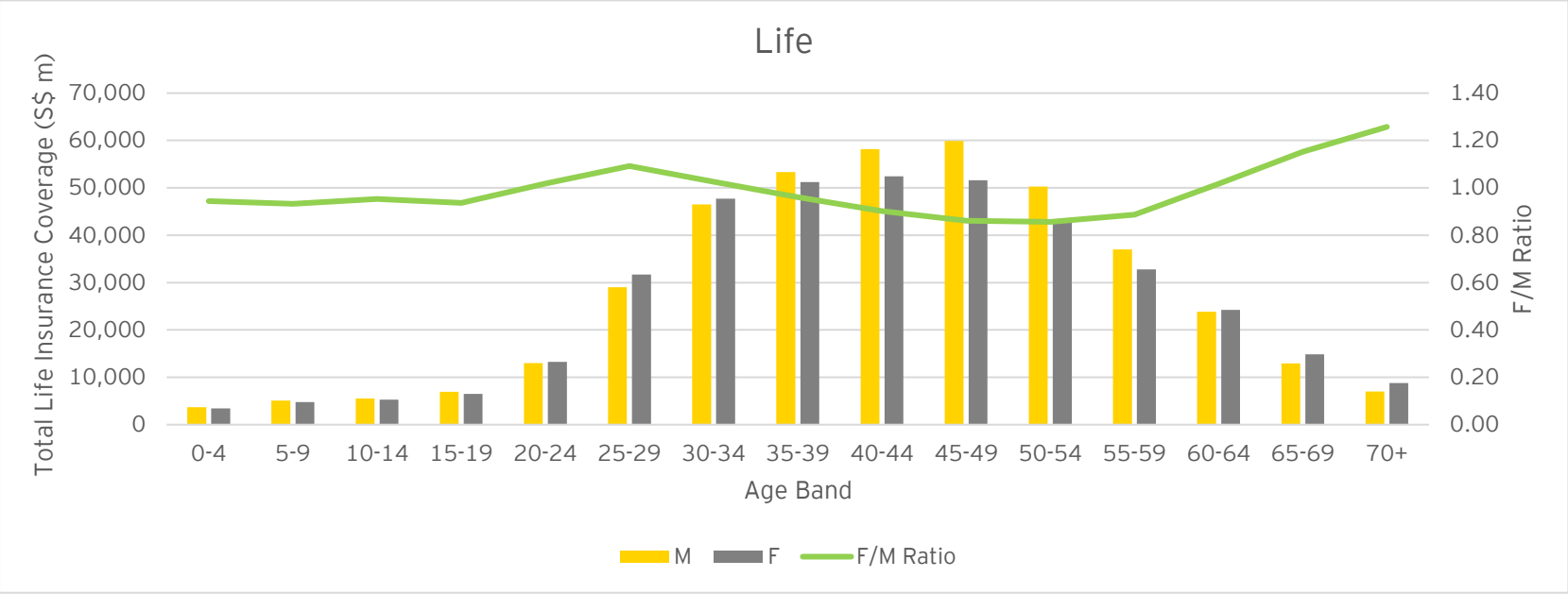


Table 62: Total Life Insurance Coverage by Age Band and Gender (S$ m)

	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	3,660	5,100	5,552	6,923	13,007	29,010	46,499	53,300	58,148	59,921	50,244	36,991	23,845	12,911	6,982
F	3,453	4,757	5,291	6,479	13,241	31,666	47,690	51,200	52,416	51,634	43,025	32,786	24,231	14,872	8,779
F/M Ratio	0.94	0.93	0.95	0.94	1.02	1.09	1.03	0.96	0.90	0.86	0.86	0.89	1.02	1.15	1.26

For CI, females generally have a higher amount of CI insurance coverage than males, except for ages 35-59. This trend is also consistent to what was observed in the 2017 PGS.

Figure 28: Total CI insurance coverage by age band and gender (S$ m)

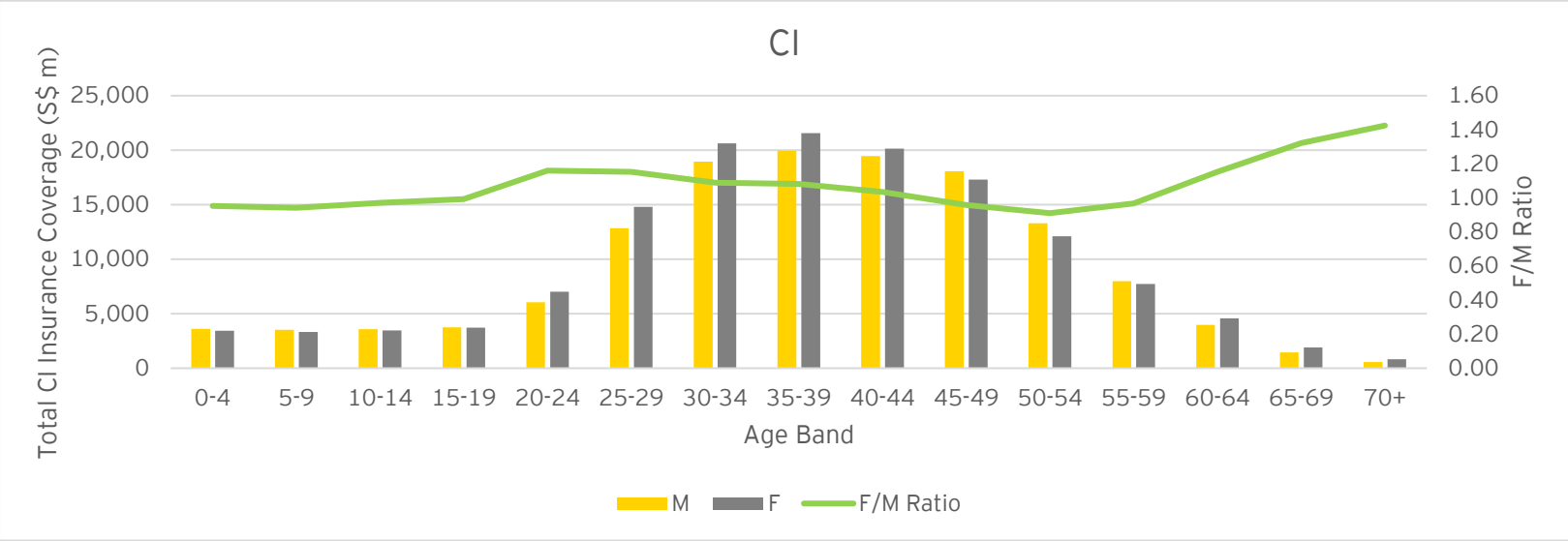


Table 63: Total CI Insurance Coverage by Age Band and Gender (S$ m)

	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	3,598	3,523	3,577	3,744	6,051	12,846	18,944	19,950	19,453	18,060	13,303	7,976	3,973	1,451	574
F	3,428	3,318	3,474	3,719	7,015	14,808	20,619	21,571	20,133	17,311	12,113	7,719	4,579	1,917	818
F/M Ratio	0.95	0.94	0.97	0.99	1.16	1.15	1.09	1.08	1.03	0.96	0.91	0.97	1.15	1.32	1.42

12.1.5 Total Insurance Coverage by Product Type

Overall, the trend of mortality insurance coverage by product types has remained similar to the 2017 PGS. Whole of Life (WoL) policies continue to dominate the total coverage for the younger ages (i.e. age 0-19), however, this has reduced since the 2017 PGS where the proportion of WoL policies within these ages were above 60%. Separately, term products have become more dominant during the working years (i.e ages 30 to 49). The insurance coverage for endowments are observed to be increasing, particularly for ages 55 and above, likely to be fuelled by the purchase of endowments for short term savings or retirement purposes.

Figure 29: Total life insurance coverage by age band and product type

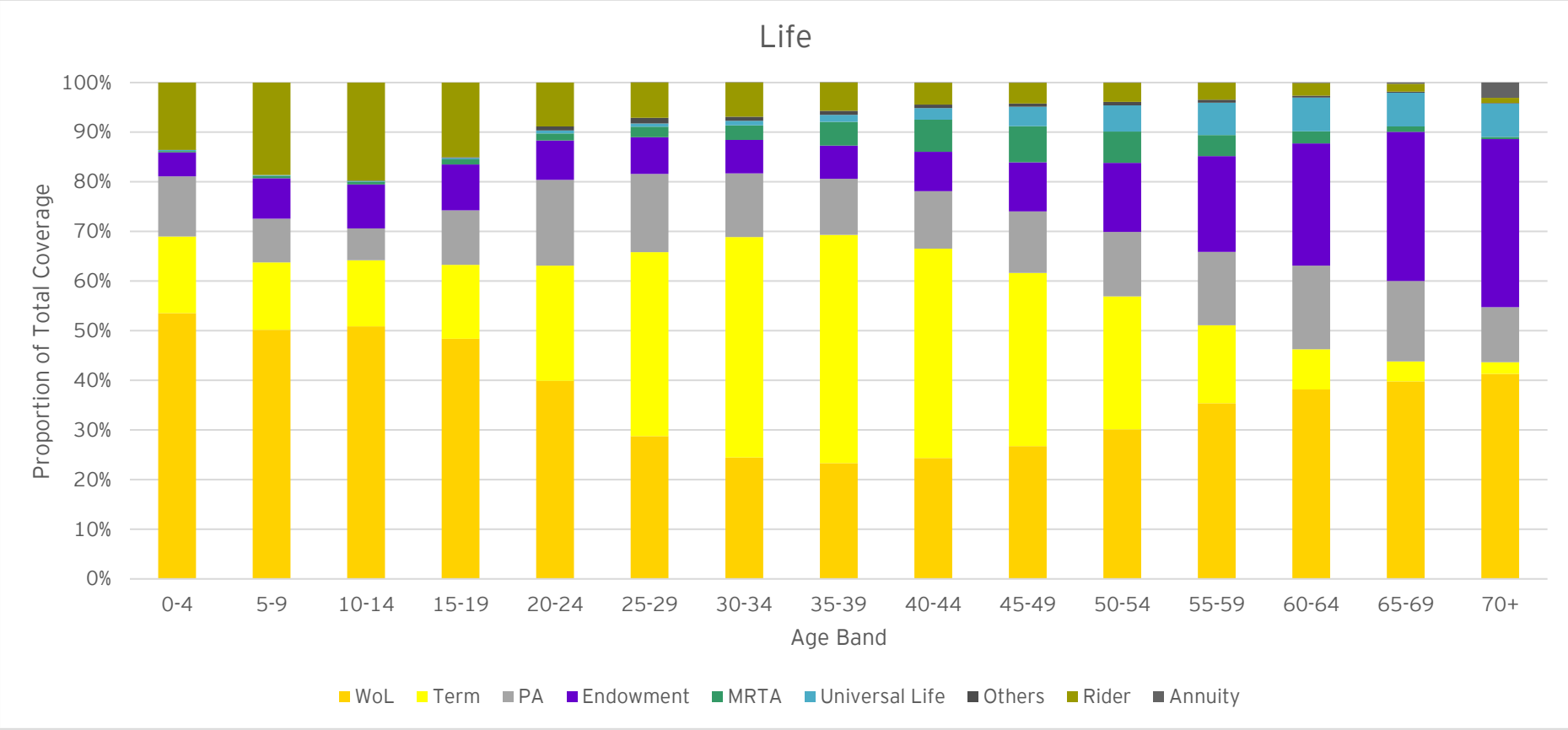


Table 64: Total Life Insurance Coverage by Age Band and Product Type (S$ m)

	WoL	Term	PA	Endowment	MRTA	Universal Life	Others	Rider	Annuity	**Total**
0 - 4	3,822	1,104	863	348	20	14	0.04	969	-	**7,140**
5 - 9	4,884	1,321	855	790	49	18	-	1,809	-	**9,726**
10 - 14	5,618	1,468	707	978	62	22	0.1	2,180	-	**11,035**
15 - 19	6,547	2,016	1,487	1,246	140	37	23	2,037	-	**13,533**
20 - 24	10,842	6,317	4,689	2,156	382	175	209	2,408	-	**27,178**
25 - 29	18,131	23,326	9,935	4,665	1,342	419	692	4,482	0.3	**62,992**
30 - 34	23,804	43,256	12,506	6,539	2,874	881	779	6,723	1	**97,363**
35 - 39	25,109	49,527	12,179	7,197	5,175	1,546	842	6,139	3	**107,717**
40 - 44	27,844	48,135	13,206	9,066	7,386	2,620	820	5,061	7	**114,145**
45 - 49	30,438	39,606	14,116	11,248	8,280	4,412	749	4,789	13	**113,651**
50 - 54	27,600	24,565	11,907	12,785	5,771	4,854	614	3,562	20	**91,678**
55 - 59	24,334	10,789	10,145	13,287	2,904	4,466	422	2,356	25	**68,728**
60 - 64	17,955	3,795	7,923	11,571	1,145	3,187	180	1,210	41	**47,007**
65 - 69	10,678	1,082	4,334	8,072	291	1,820	50	424	72	**26,823**
70+	6,305	354	1,698	5,160	69	1,026	15	164	465	**15,256**
Total	**243,911**	**256,661**	**106,550**	**95,108**	**35,890**	**25,497**	**5,395**	**44,313**	**647**	**813,972**

WoL: Whole of Life; PA: Personal Accident; MRTA: Mortgage Reducing Term Assurance

For the 2022 PGS, the CI coverage from Rider has reduced compared to the 2017 PGS, where Riders were observed to be the dominant CI product type. In the 2022 PGS, WoL policies have become the dominant CI product type for all ages, compared to being the second most common product type in the previous PGS. The proportion of CI coverage from Term policies has also increased significantly since the 2017 PGS, making up a significant portion of CI coverage for ages 30 to 49.

Figure 30: Total CI insurance coverage by age band and product type

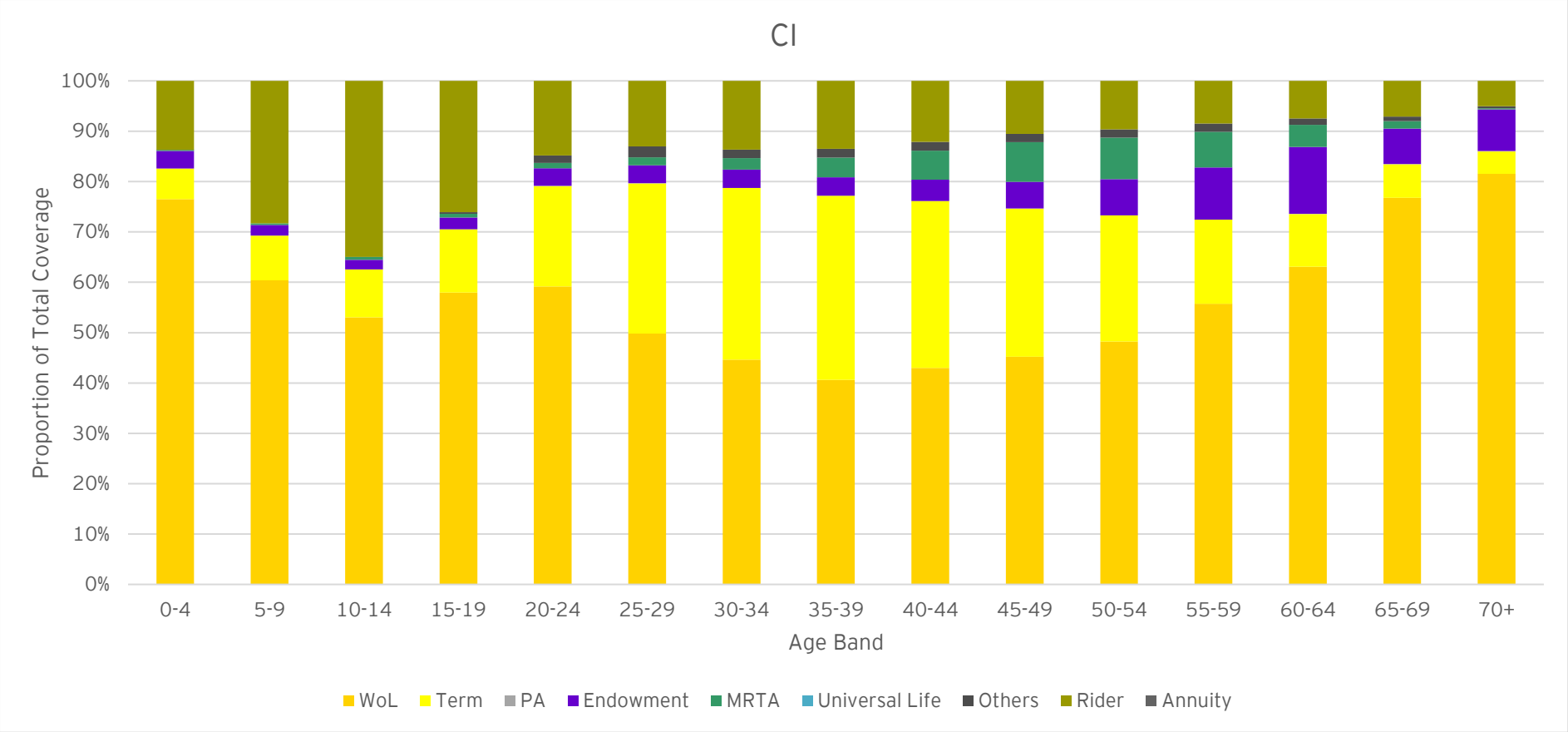


Table 65: Total CI Insurance Coverage by Age Band and Product Type (S$ m)

	WoL	Term	PA	Endowment	MRTA	Universal Life	Others	Rider	Annuity	Total
0 - 4	5,388	427	-	247	12	-	0.01	966	-	**7,040**
5 - 9	4,073	601	-	142	21	-	-	1,909	-	**6,746**
10 - 14	3,810	684	-	138	40	-	0.1	2,512	-	**7,184**
15 - 19	4,363	946	1	177	55	-	23	1,965	-	**7,530**
20 - 24	8,077	2,724	2	479	146	-	198	2,025	-	**13,651**
25 - 29	14,635	8,770	7	1,045	475	-	632	3,824	-	**29,388**
30 - 34	18,754	14,330	7	1,534	947	-	716	5,744	-	**42,032**
35 - 39	17,870	16,106	11	1,588	1,734	-	769	5,937	-	**44,015**
40 - 44	17,868	13,776	8	1,763	2,397	-	723	5,036	0.1	**41,571**
45 - 49	16,467	10,722	8	1,927	2,871	-	600	3,835	0.07	**36,430**
50 - 54	11,979	6,225	8	1,785	2,048	-	407	2,395	0.07	**24,847**
55 - 59	8,462	2,537	5	1,569	1,079	-	248	1,287	-	**15,187**
60 - 64	5,130	853	4	1,081	357	-	101	608	-	**8,134**
65 - 69	2,427	210	2	222	47	-	29	224	-	**3,161**
70+	1,077	59	1	109	3	-	6	67	-	**1,322**
Total	**140,380**	**78,970**	**64**	**13,806**	**12,232**	**-**	**4,452**	**38,334**	**0.24**	**288,238**

WoL: Whole of Life; PA: Personal Accident; MRTA: Mortgage Reducing Term Assurance

12.1.6 Average Insurance Coverage by Product Type

Universal life and MRTA continues to dominate the coverage per product, as in 2017, and is left out of the chart. The average mortality insurance coverage from Term policies are observed to be higher compared to Endowments and Whole of Life policies.

Figure 31: Average life insurance coverage per life insured by age band and product type (S$)

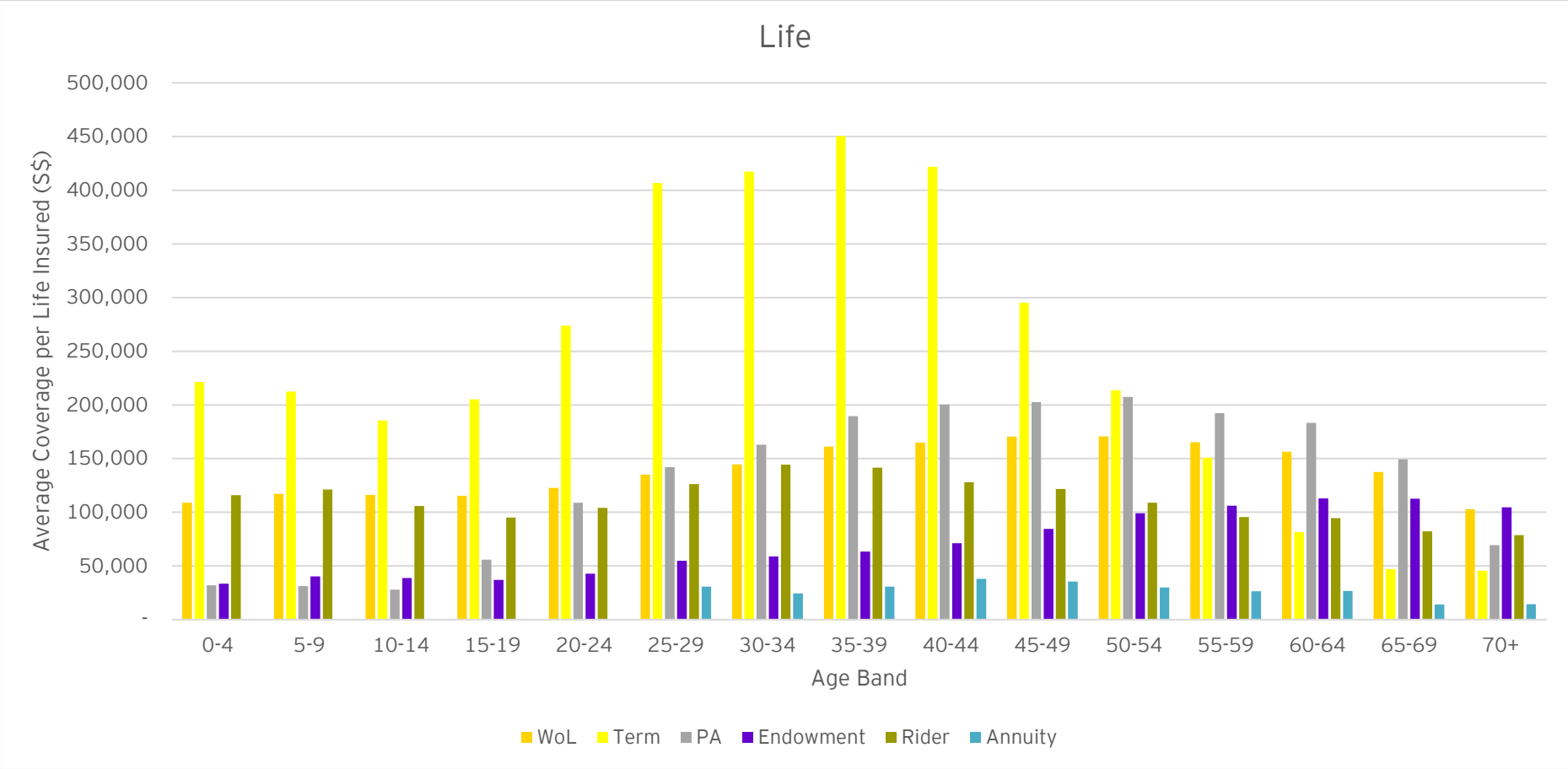


Table 66: Average Life Insurance Coverage per Life Insured by Age Band and Product Type (S$)

	WoL	Term	PA	Endowment	MRTA	Universal Life	Others	Rider	Annuity
0 - 4	108,771	221,327	31,976	33,574	1,220,776	700,000	10,422	115,889	-
5 - 9	117,161	212,567	31,176	40,172	1,584,262	768,750	-	121,104	-
10 - 14	116,278	185,508	27,832	38,802	1,685,667	1,110,000	100,000	105,938	-
15 - 19	115,430	205,044	55,774	36,949	1,387,493	1,112,121	73,049	95,080	-
20 - 24	122,745	273,837	108,871	42,861	1,170,627	1,572,402	59,149	104,063	-
25 - 29	134,913	406,756	142,130	54,853	1,116,071	1,641,373	64,300	126,111	30,650
30 - 34	144,678	417,242	162,875	58,950	1,004,013	1,943,786	63,280	144,264	24,488
35 - 39	161,267	450,602	189,600	63,489	762,843	2,230,344	68,453	141,528	30,824
40 - 44	164,863	421,793	200,496	71,176	652,321	2,058,255	83,138	128,014	38,034
45 - 49	170,537	295,218	202,743	84,407	571,161	2,206,047	105,071	121,785	35,461
50 - 54	170,742	213,810	207,404	99,082	505,675	2,136,233	113,478	108,858	29,887
55 - 59	165,210	150,972	192,262	106,084	385,701	2,051,219	108,391	95,675	26,535
60 - 64	156,292	81,416	183,208	112,805	319,991	2,086,848	82,894	94,543	26,699
65 - 69	137,558	46,940	149,465	112,744	321,966	2,013,781	55,633	82,216	14,015
70+	102,833	45,483	69,533	104,685	465,328	2,056,092	3,186	78,622	14,431

WoL: Whole of Life; PA: Personal Accident; MRTA: Mortgage Reducing Term Assurance

Notably, the average CI insurance coverage from Term policies has increased significantly in 2022 PGS, as compared to 2017 PGS.

Figure 32: Average CI insurance coverage per life insured by age band and product type (S$)

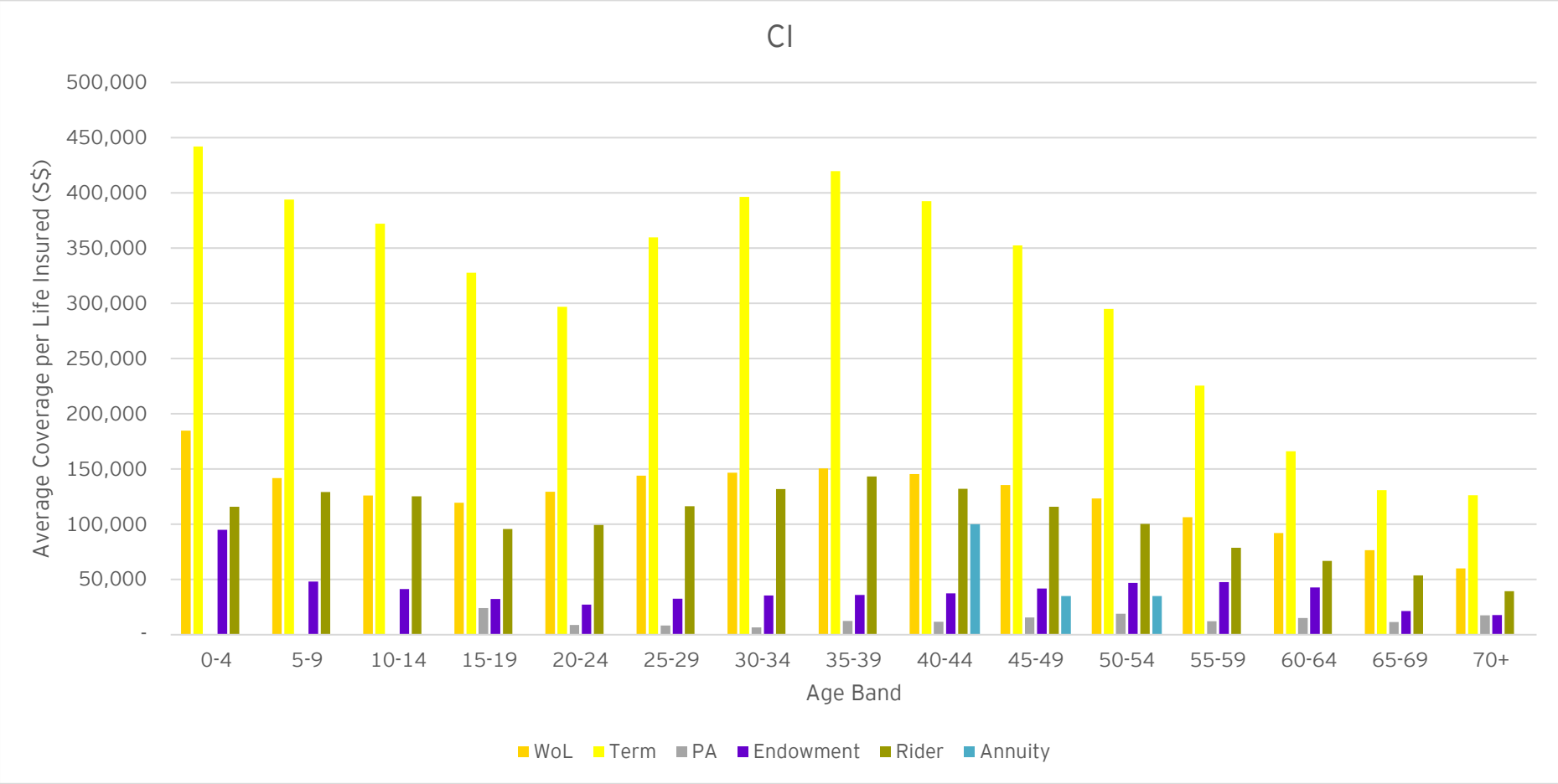


Table 67: Average CI Insurance Coverage per Life Insured by Age Band and Product Type (S$)

	WoL	Term	PA	Endowment	MRTA	Universal Life	Others	Rider	Annuity
0 - 4	184,712	442,126	-	95,005	1,355,556	-	10,000	115,907	-
5 - 9	141,859	394,136	-	48,071	1,010,953	-	-	129,233	-
10 - 14	126,101	372,295	-	41,329	1,385,172	-	100,000	125,386	-
15 - 19	119,538	327,708	24,087	32,254	695,583	-	73,269	95,787	-
20 - 24	129,359	296,973	8,931	27,260	543,494	-	58,858	99,461	-
25 - 29	143,999	359,796	8,309	32,540	479,405	-	65,766	116,290	-
30 - 34	146,715	396,437	6,598	35,402	457,164	-	71,964	131,807	-
35 - 39	150,668	419,833	12,526	36,021	466,273	-	83,758	143,355	-
40 - 44	145,400	392,547	11,679	37,460	469,159	-	93,490	132,123	100,000
45 - 49	135,454	352,601	15,529	41,840	436,425	-	97,713	115,860	35,000
50 - 54	123,308	295,031	18,966	46,887	406,995	-	88,985	100,373	35,000
55 - 59	106,367	225,654	12,272	47,569	359,330	-	78,662	78,671	-
60 - 64	91,961	166,164	15,156	42,842	295,596	-	63,779	66,926	-
65 - 69	76,541	130,982	11,424	21,553	190,044	-	55,065	53,723	-
70+	60,119	126,342	17,663	17,902	250,818	-	48,839	39,453	-

WoL: Whole of Life; PA: Personal Accident; MRTA: Mortgage Reducing Term Assurance

12.1.7 Number of Lives Covered by Product Type

On an overall, there has been a general increase in number of lives covered per age band for ages above 20, as compared to the 2017 PGS. It should be noted that the same life can be represented multiple times, once for each product type.

Figure 33: Total number of lives covered by life insurance by age band and product type

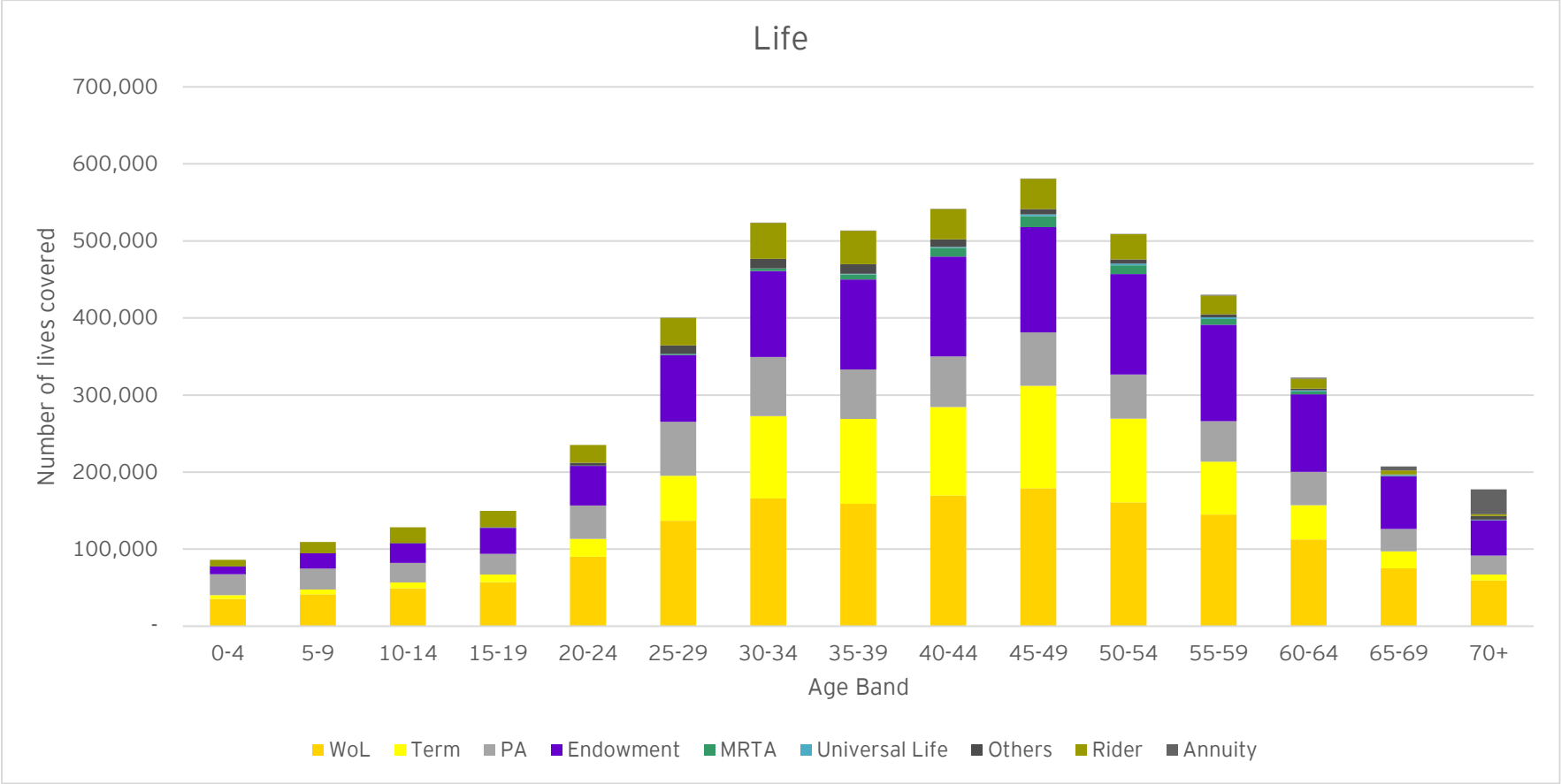


Table 68: Total Number of Lives Covered by Life Insurance by Age Band and Product Type

	WoL	Term	PA	Endowment	MRTA	Universal Life	Others	Rider	Annuity	**Total**
0 - 4	35,356	4,995	26,992	10,411	16	20	4	8,359	-	**86,153**
5 - 9	41,257	6,197	27,440	19,542	31	24	-	14,913	-	**109,404**
10 - 14	48,930	7,933	25,406	25,456	37	20	1	20,663	-	**128,446**
15 - 19	57,142	9,882	26,779	33,962	101	33	309	21,410	-	**149,618**
20 - 24	90,131	23,324	43,266	51,311	326	111	3,540	23,168	-	**235,177**
25 - 29	136,653	58,448	70,046	86,987	1,202	255	10,769	35,579	10	**399,949**
30 - 34	165,843	106,712	76,750	111,791	2,869	453	12,335	46,747	37	**523,537**
35 - 39	158,709	110,337	64,365	116,478	6,803	693	12,317	43,459	94	**513,255**
40 - 44	169,344	115,084	65,854	129,338	11,366	1,273	9,849	39,436	189	**541,733**
45 - 49	178,982	132,834	69,583	136,434	14,490	2,000	7,117	39,248	373	**581,061**
50 - 54	160,695	108,623	57,334	130,216	11,400	2,272	5,415	32,604	656	**509,215**
55 - 59	144,999	68,446	52,721	124,972	7,460	2,177	3,896	24,570	952	**430,193**
60 - 64	112,416	44,759	43,150	100,703	3,543	1,527	2,177	12,756	1,540	**322,571**
65 - 69	75,163	21,961	28,903	68,355	901	904	906	5,146	5,162	**207,401**
70+	59,461	7,649	24,414	46,121	148	499	4,797	2,085	32,244	**177,418**
Total	**1,635,081**	**827,184**	**703,003**	**1,192,077**	**60,693**	**12,261**	**73,432**	**370,143**	**41,257**	**4,915,131**

WoL: Whole of Life; PA: Personal Accident; MRTA: Mortgage Reducing Term Assurance

Similar to the observation for mortality, there has been an increase in the number of lives covered (by a CI product) per age band for ages above 20.

Figure 34: Total number of lives covered by CI insurance by age band and product type

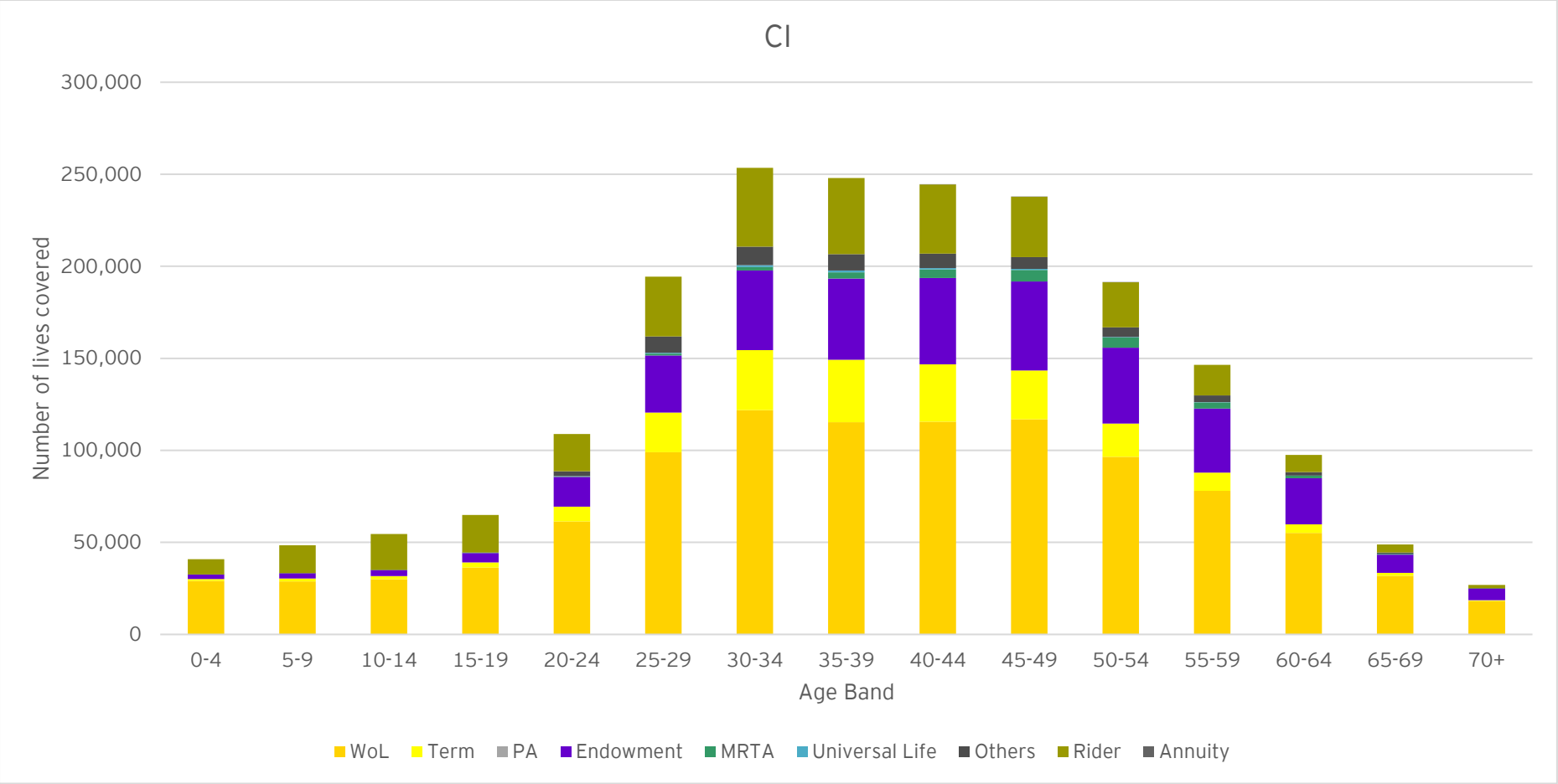


Table 69: Total Number of Lives Covered by CI Insurance by Age Band and Product Type

	WoL	Term	PA	Endowment	MRTA	Universal Life	Others	Rider	Annuity	**Total**
0 - 4	29,264	970	-	2,599	9	-	1	8,336	-	**41,179**
5 - 9	28,581	1,521	-	2,942	21	-	-	14,729	-	**47,794**
10 - 14	30,480	1,840	-	3,363	29	-	1	20,112	-	**55,825**
15 - 19	36,838	2,910	23	5,560	79	-	308	20,499	-	**66,217**
20 - 24	63,866	9,332	251	18,069	268	-	3,371	20,392	-	**115,549**
25 - 29	103,405	25,405	821	33,109	990	-	9,609	32,914	-	**206,253**
30 - 34	128,884	37,982	1,062	43,976	2,073	-	9,966	43,703	-	**267,646**
35 - 39	121,084	38,541	841	45,430	3,742	-	9,189	41,449	-	**260,276**
40 - 44	122,691	35,488	698	47,905	5,156	-	7,717	37,997	1	**257,653**
45 - 49	120,787	29,316	532	47,218	6,578	-	6,128	33,074	2	**243,635**
50 - 54	95,300	18,685	399	38,055	4,999	-	4,574	23,784	2	**185,798**
55 - 59	76,966	10,364	375	32,797	2,957	-	3,151	16,330	-	**142,940**
60 - 64	53,274	4,730	272	21,722	1,196	-	1,584	9,064	-	**91,842**
65 - 69	30,032	1,472	172	8,666	248	-	527	4,158	-	**45,275**
70+	17,202	442	80	5,773	11	-	116	1,686	-	**25,310**
Total	**1,058,654**	**218,998**	**5,526**	**357,184**	**28,356**	**-**	**56,242**	**328,227**	**5**	**2,053,192**

WoL: Whole of Life; PA: Personal Accident; MRTA: Mortgage Reducing Term Assurance

12.1.8 Number of Policies per Life Insured within each Product Type

The average number of WoL policies owned increases from 1.21 (infant ages) to 2.01 (age 50 – 54), and drops to 1.43 for ages 70+. This could indicate that the rate of purchase of WoL fell below the rate of surrender for people above 55 years old.

For savings products such as Endowment and Annuity, the average number of policies continues growing up to older ages (i.e. age 64). Thereafter, the average number of policies reduces per life insured from age 65 onwards.

Figure 35: Life insurance - number of policies per life insured within each product type by age band

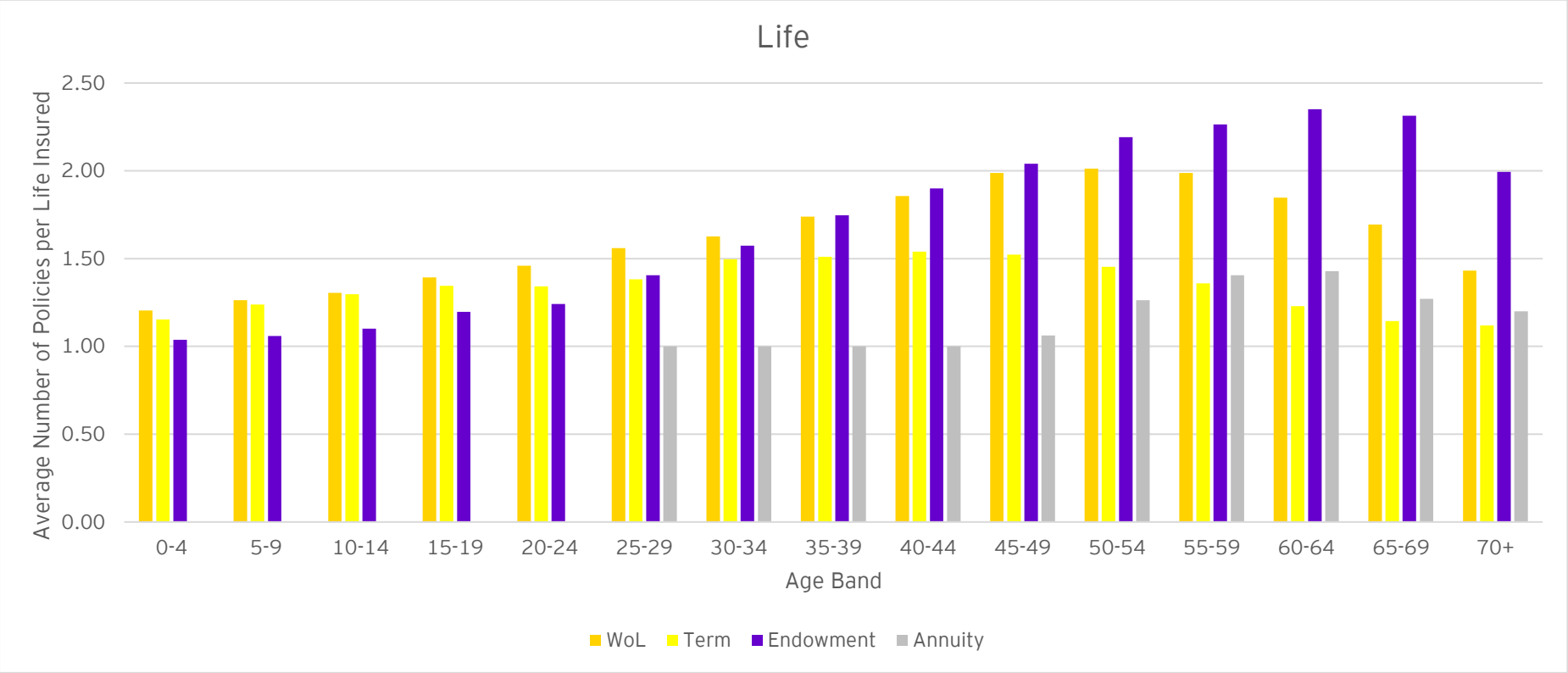


Table 70: Number of Policies per Life Insured within each Product Type by Age Band

	WoL	Term	PA	Endowment	MRTA	Universal Life	Others	Rider	Annuity
0 - 4	1.21	1.15	1.05	1.04	2.19	1.00	1.25	1.36	-
5 - 9	1.26	1.24	1.09	1.06	2.26	1.00	-	1.45	-
10 - 14	1.30	1.30	1.23	1.10	3.11	1.05	1.00	1.52	-
15 - 19	1.39	1.34	1.28	1.20	2.76	1.00	1.14	1.59	-
20 - 24	1.46	1.34	1.19	1.24	2.60	1.01	1.09	1.48	-
25 - 29	1.56	1.38	1.16	1.41	2.44	1.02	1.10	1.60	1.00
30 - 34	1.63	1.50	1.22	1.57	2.07	1.02	1.12	1.74	1.00
35 - 39	1.74	1.51	1.34	1.75	1.60	1.03	1.17	1.68	1.00
40 - 44	1.86	1.54	1.47	1.90	1.48	1.04	1.20	1.59	1.00
45 - 49	1.99	1.52	1.48	2.04	1.45	1.05	1.22	1.55	1.06
50 - 54	2.01	1.45	1.43	2.19	1.39	1.04	1.19	1.47	1.26
55 - 59	1.99	1.36	1.35	2.26	1.24	1.04	1.17	1.36	1.41
60 - 64	1.85	1.23	1.31	2.35	1.19	1.05	1.13	1.27	1.43
65 - 69	1.69	1.14	1.29	2.31	1.19	1.06	1.15	1.14	1.27
70+	1.43	1.12	1.27	1.99	1.20	1.05	1.11	1.08	1.20

WoL: Whole of Life; PA: Personal Accident; MRTA: Mortgage Reducing Term Assurance

The average number of Term (CI) policies per life insured is notably higher for the younger ages of 0-19.

Figure 36: CI insurance - number of policies per life insured within each product type by age band

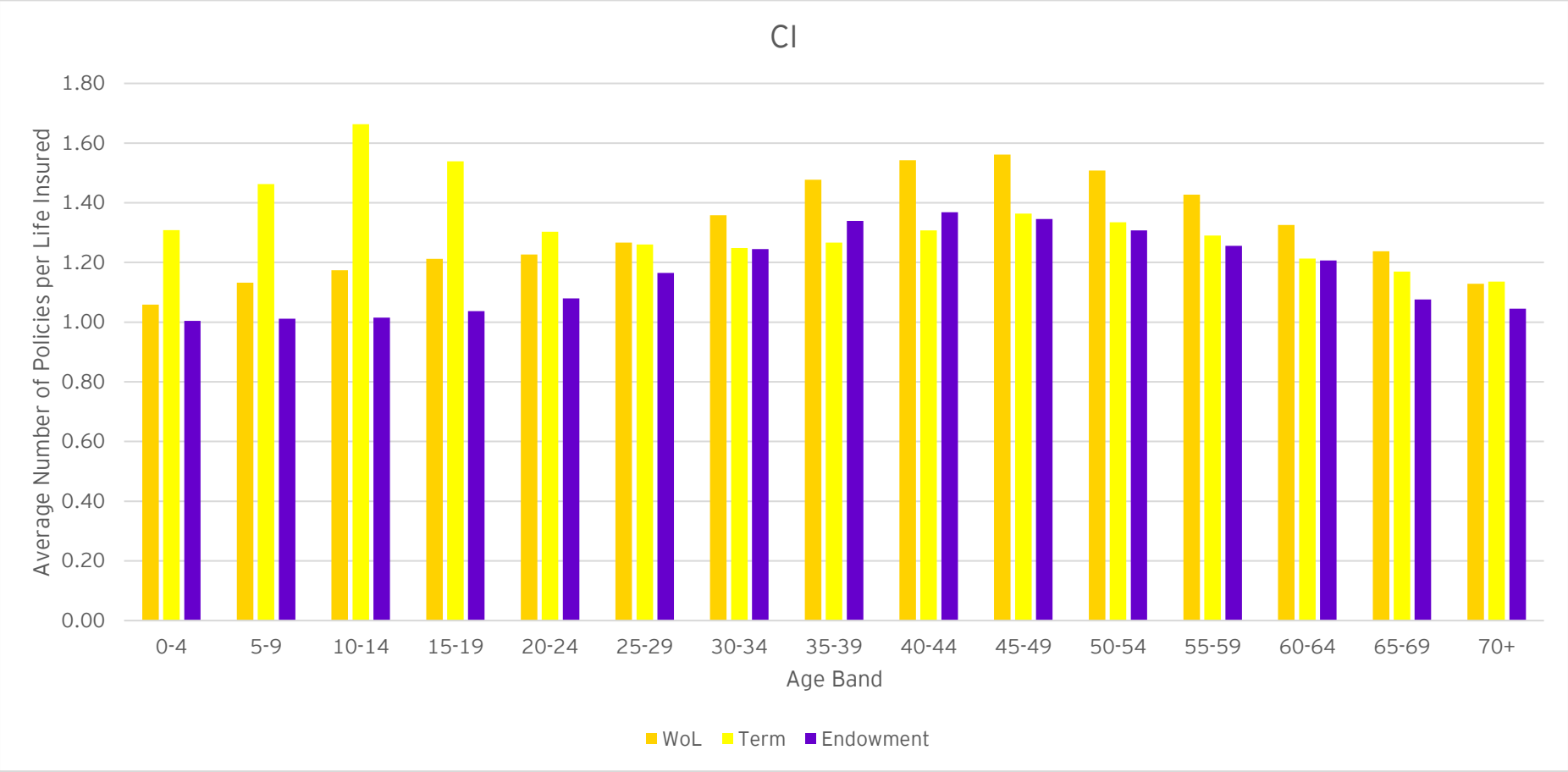


Table 71: CI Insurance - Number of Policies per Life Insured within each Product Type by Age Band

	WoL	Term	PA	Endowment	MRTA	Universal Life	Others	Rider	Annuity
0 - 4	1.06	1.31	-	1.00	1.89	-	1.00	1.21	-
5 - 9	1.13	1.46	-	1.01	1.67	-	-	1.58	-
10 - 14	1.17	1.66	-	1.02	2.28	-	1.00	1.57	-
15 - 19	1.21	1.54	1.00	1.04	2.08	-	1.14	1.39	-
20 - 24	1.23	1.30	1.01	1.08	1.80	-	1.09	1.31	-
25 - 29	1.27	1.26	1.03	1.16	1.60	-	1.10	1.36	-
30 - 34	1.36	1.25	1.09	1.24	1.48	-	1.12	1.53	-
35 - 39	1.48	1.27	1.22	1.34	1.35	-	1.15	1.61	-
40 - 44	1.54	1.31	1.37	1.37	1.33	-	1.21	1.53	1.00
45 - 49	1.56	1.36	1.29	1.35	1.31	-	1.22	1.41	1.00
50 - 54	1.51	1.33	1.20	1.31	1.26	-	1.20	1.31	1.00
55 - 59	1.43	1.29	1.09	1.26	1.13	-	1.16	1.20	-
60 - 64	1.33	1.21	1.05	1.21	1.11	-	1.10	1.15	-
65 - 69	1.24	1.17	1.03	1.08	1.09	-	1.08	1.08	-
70+	1.13	1.14	1.01	1.04	1.09	-	1.06	1.03	-

WoL: Whole of Life; PA: Personal Accident; MRTA: Mortgage Reducing Term Assurance

12.1.9 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 trend observed is similar to the 2017 PGS.

Figure 37: Number of policies and lives insured by sum assured band

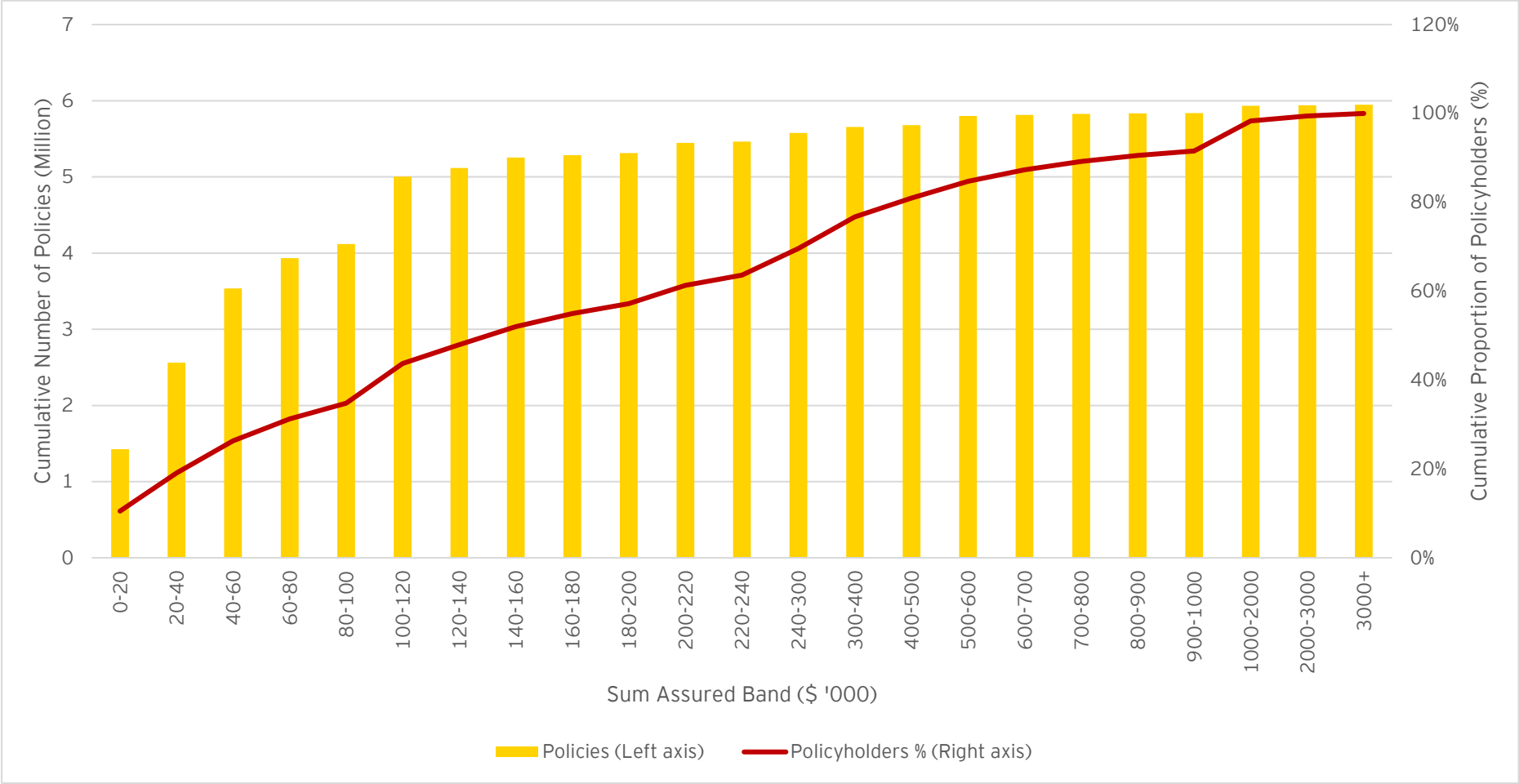


Table 72: Number of Policies and Lives Insured by Sum Assured Band

SA Bands (In S$'000)	Cumulative Number of Policies		Cumulative Number of Policyholders	
0 - 20	1,426,371	24%	258,416	11%
20 - 40	2,562,922	43%	469,302	19%
40 - 60	3,536,233	59%	646,652	26%
60 - 80	3,933,934	66%	768,855	31%
80 - 100	4,118,358	69%	855,276	35%
100 - 120	5,005,019	84%	1,074,989	44%
120 - 140	5,116,753	86%	1,178,703	48%
140 - 160	5,253,210	88%	1,279,060	52%
160 - 180	5,287,008	89%	1,350,521	55%
180 - 200	5,312,325	89%	1,406,481	57%
200 - 220	5,446,301	92%	1,507,252	61%
220 - 240	5,462,395	92%	1,563,414	64%
240 - 300	5,576,884	94%	1,710,840	70%
300 - 400	5,656,111	95%	1,886,223	77%
400 - 500	5,681,334	96%	1,989,913	81%
500 - 600	5,800,031	98%	2,082,013	85%
600 - 700	5,813,835	98%	2,145,478	87%
700 - 800	5,828,727	98%	2,192,358	89%
800 - 900	5,834,228	98%	2,226,267	91%
900 - 1,000	5,836,625	98%	2,250,596	92%
1,000 - 2,000	5,935,500	100%	2,417,070	98%
2,000 - 3,000	5,942,214	100%	2,443,333	99%
Above 3,000	5,946,644	100%	2,457,882	100%

13. Appendix: LIA Industry Statistics Summary

Table 73: Life Insurance – LIA Statistics vs. Policy Data Received

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	118,691	113,578	89,033	78.39%
Par	289,412	289,412	281,213	97.17%
Non-par	669,653	669,136	443,712	67.22%
Total Individual	**1,077,755**	**1,072,124**	**813,958**	**75.92%**
Total Group	**621,086**	**620,120**	**260,217**	**41.96%**

The comparison presented in the table above refers to the insurance coverage in the whole industry covering both EA and EI 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 also includes death coverage for foreigners.

- Some insurers report other product types (such as A&H and Medical) for LIA total industry statistics, which are not within the scope of our study. These product types have been removed from the policy data provided by the insurers. This makes up the bulk of the discrepancy between total Group life insurance coverage of insurers in scope compared to policy data collected.

- 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.

14. Appendix: Graphical Representation of the Aggregate Protection Needs

This section shows the aggregated Mortality and CI Protection Needs for each family profile. As PWs are a subset of the EA population, the Protection Needs of PW have been included in the Protection Needs presented in this section.

Protection Needs (In S$ bn)	Mortality	CI
Married EA, with EA Spouse	769.6	257.6
Married EA, with EI Spouse	428.6	141.7
Single EA	575.0	383.4

14.1 Mortality Protection Needs for Economically Active Adults

Married Economically Active Adults with Economically Active Spouses (Male EA: S$352.4 bn, Female EA: S$417.2 bn)

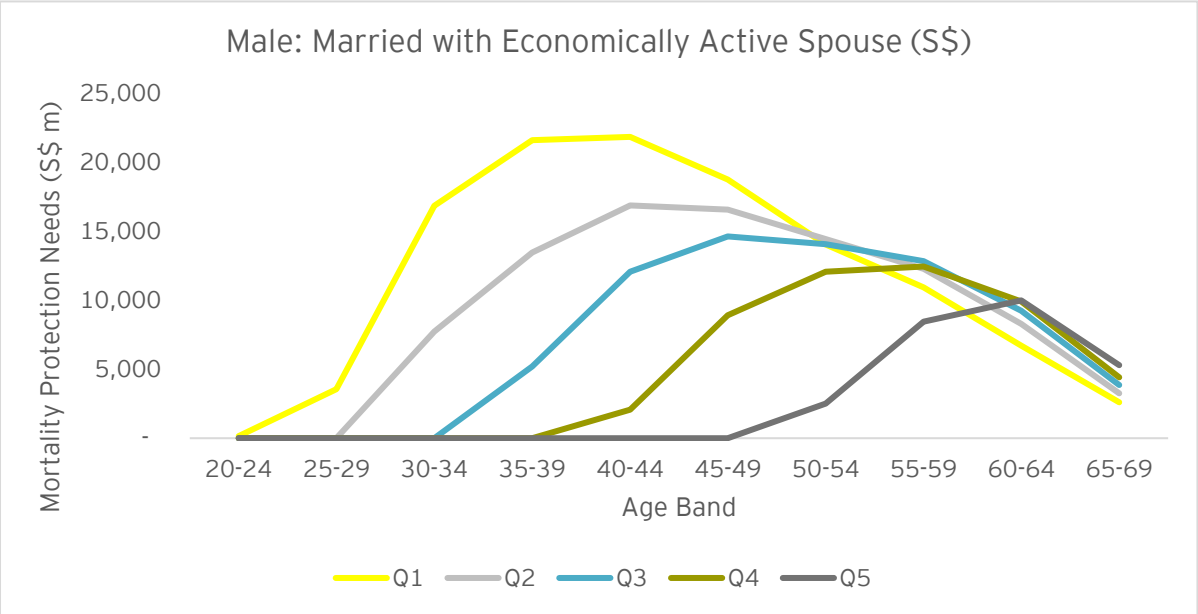


Table 74: Mortality Protection Needs for Married EA Males with EA Spouses (S$ million)

	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	Total
Q1	153	3,557	16,852	21,603	21,835	18,743	14,026	10,918	6,709	2,607	**117,003**
Q2	-	4	7,733	13,466	16,867	16,553	14,434	12,274	8,285	3,262	**92,878**
Q3	-	-	-	5,201	12,054	14,622	14,068	12,819	9,243	3,849	**71,856**
Q4	-	-	-	-	2,074	8,901	12,072	12,440	9,899	4,402	**49,788**
Q5	-	-	-	-	-	-	2,499	8,446	9,986	5,300	**20,931**
Total	**153**	**3,561**	**24,585**	**40,270**	**52,830**	**58,819**	**57,099**	**56,897**	**44,122**	**14,120**	**352,456**

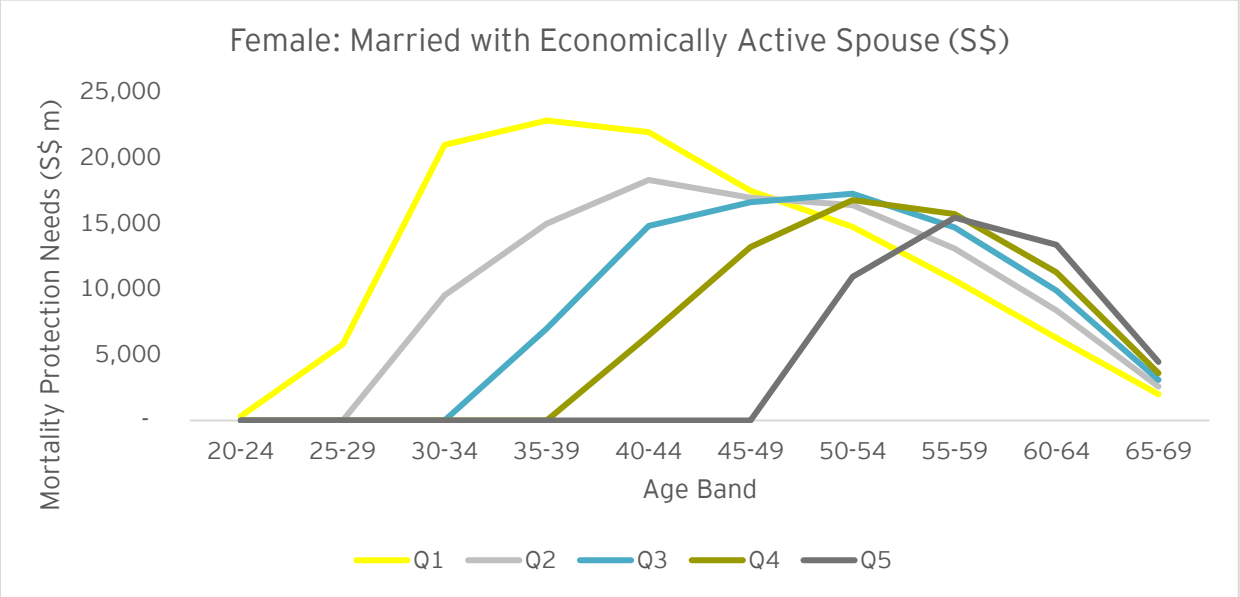


Table 75: Mortality Protection Needs for Married EA Females with EA Spouses (S$ million)

	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	Total
Q1	322	5,791	20,946	22,793	21,917	17,463	14,705	10,655	6,279	2,001	**122,872**
Q2	-	-	9,501	14,963	18,277	16,916	16,378	13,052	8,366	2,574	**100,027**
Q3	-	-	-	6,985	14,775	16,587	17,233	14,658	9,869	3,093	**83,200**
Q4	-	-	-	-	6,472	13,181	16,748	15,679	11,260	3,593	**66,933**
Q5	-	-	-	-	-	-	10,915	15,412	13,350	4,454	**44,131**
Total	**322**	**5,791**	**30,447**	**44,741**	**61,441**	**64,147**	**75,979**	**69,456**	**49,124**	**15,715**	**417,163**

Married Economically Active Adults with Economically Inactive (EI) Spouses (Male EA: S$381.8 bn, Female EA: S$46.8 bn)

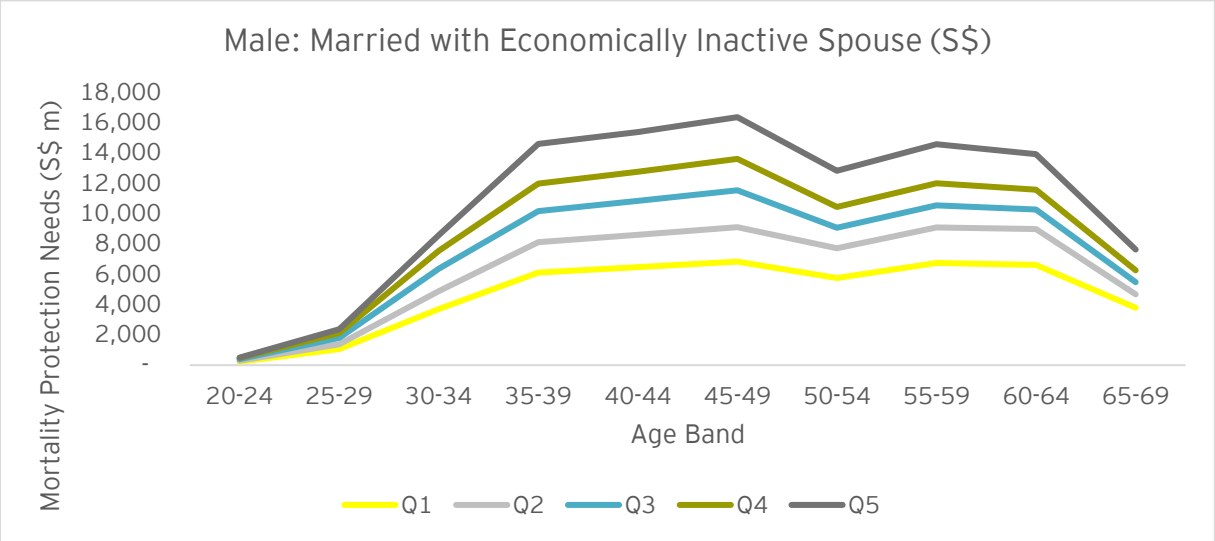
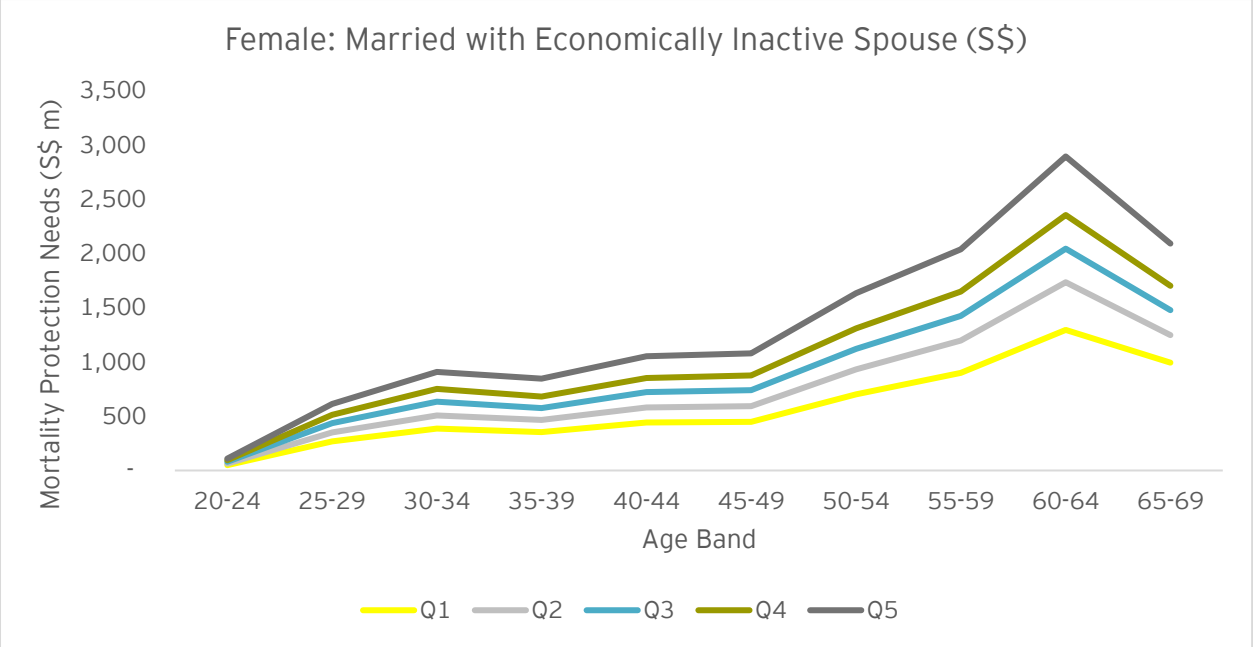


Table 76: Mortality Protection Needs for Married EA Males with EI Spouses (S$ million)

	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	Total
Q1	226	1,051	3,695	6,105	6,456	6,826	5,742	6,737	6,613	3,774	**47,225**
Q2	294	1,373	4,876	8,111	8,589	9,098	7,716	9,077	8,979	4,663	**62,776**
Q3	396	1,794	6,353	10,158	10,836	11,530	9,059	10,530	10,258	5,466	**76,380**
Q4	469	2,120	7,537	11,982	12,760	13,602	10,434	12,000	11,575	6,256	**88,735**
Q5	497	2,367	8,575	14,581	15,379	16,353	12,810	14,571	13,916	7,615	**106,664**
Total	**1,882**	**8,705**	**31,036**	**50,937**	**54,020**	**57,409**	**45,761**	**52,915**	**51,341**	**27,774**	**381,780**



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 (37,000) than males married with economically inactive spouse (229,000)

Table 77: Mortality Protection Needs for Married EA Females with EI Spouses (S$ million)

	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	Total
Q1	49	269	385	353	441	449	702	899	1,296	993	**5,836**
Q2	63	350	506	466	581	593	932	1,196	1,735	1,247	**7,669**
Q3	80	436	635	576	722	741	1,120	1,424	2,045	1,477	**9,256**
Q4	95	513	751	681	852	877	1,310	1,651	2,355	1,703	**10,788**
Q5	109	615	907	846	1,052	1,080	1,634	2,040	2,895	2,092	**13,270**
Total	**396**	**2,183**	**3,184**	**2,922**	**3,648**	**3,740**	**5,698**	**7,210**	**10,326**	**7,512**	**46,819**

Single Economically Active Adults (Male EA: S$280.7 bn, Female EA: S$294.3 bn)

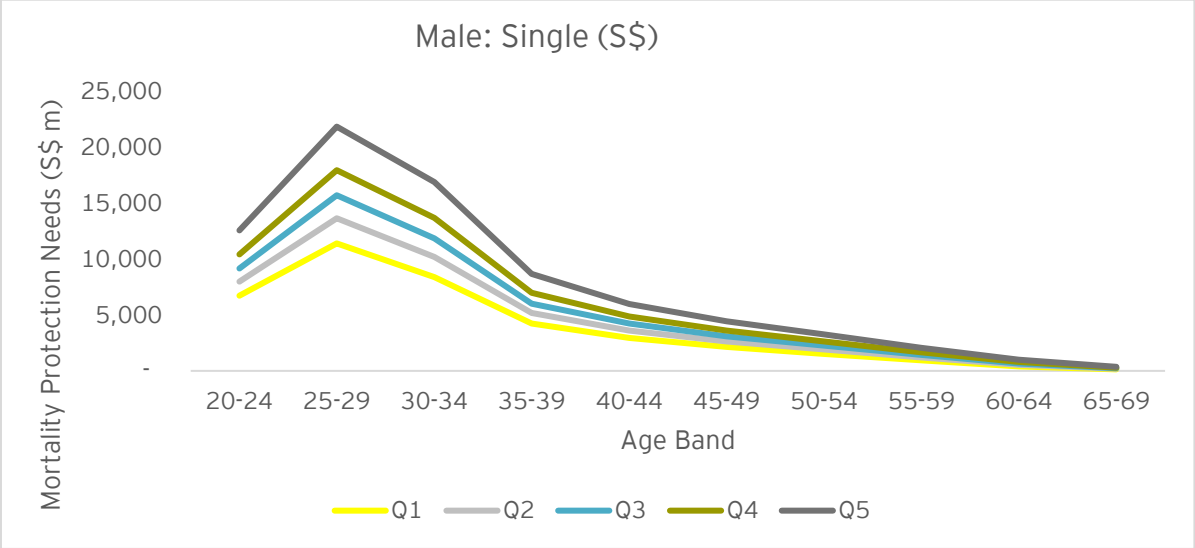


Table 78: Mortality Protection Needs for Single EA Males (S$ million)

	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	Total
Q1	6,741	11,406	8,394	4,248	2,957	2,135	1,522	938	399	136	**38,876**
Q2	8,002	13,655	10,205	5,172	3,611	2,631	1,911	1,198	541	189	**47,115**
Q3	9,169	15,713	11,858	6,026	4,222	3,095	2,271	1,434	669	238	**54,695**
Q4	10,419	17,959	13,695	6,991	4,869	3,593	2,637	1,666	792	284	**62,905**
Q5	12,577	21,855	16,890	8,665	5,979	4,450	3,266	2,064	1,004	363	**77,113**
Total	**46,908**	**80,588**	**61,042**	**31,102**	**21,638**	**15,904**	**11,607**	**7,300**	**3,405**	**1,210**	**280,704**

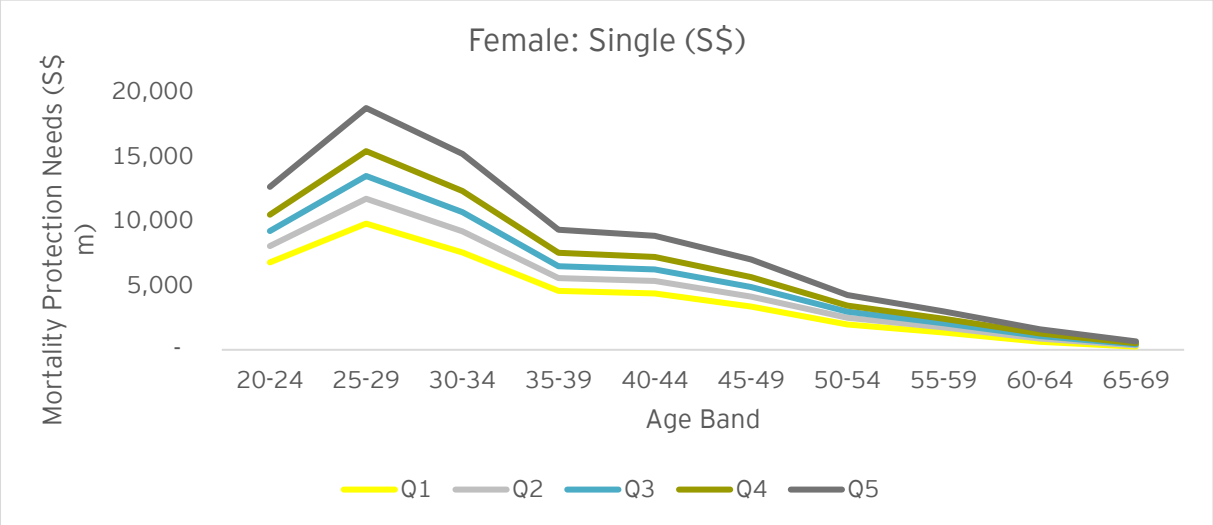


Table 79: Mortality Protection Needs for Single EA Females (S$ million)

	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	Total
Q1	6,763	9,770	7,541	4,561	4,364	3,348	1,970	1,352	632	243	**40,544**
Q2	8,028	11,696	9,168	5,553	5,329	4,126	2,474	1,727	857	340	**49,298**
Q3	9,199	13,458	10,654	6,470	6,231	4,854	2,939	2,067	1,060	426	**57,358**
Q4	10,453	15,382	12,304	7,506	7,185	5,635	3,414	2,401	1,255	508	**66,043**
Q5	12,617	18,719	15,174	9,304	8,824	6,979	4,228	2,974	1,591	651	**81,061**
Total	**47,060**	**69,025**	**54,841**	**33,394**	**31,933**	**24,942**	**15,025**	**10,521**	**5,395**	**2,168**	294,304

14.2 CI Protection Needs for Economically Active Adults

Married Economically Active Adults with Economically Active Spouses (Male EA: S$130.3 bn, Female EA: S$127.6 bn)

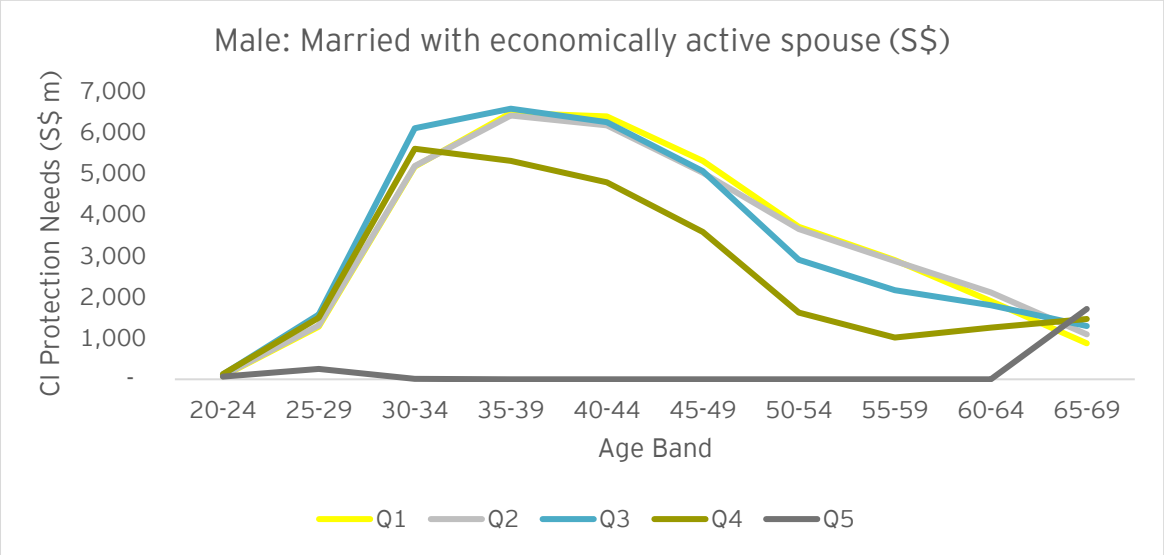


Table 80: CI Protection Needs for Married EA Males with EA Spouses (S$ million)

	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	Total
Q1	75	1,280	5,172	6,483	6,397	5,317	3,712	2,901	1,906	873	**34,116**
Q2	85	1,312	5,191	6,420	6,181	5,024	3,656	2,874	2,111	1,097	**33,951**
Q3	117	1,576	6,111	6,585	6,255	5,063	2,911	2,170	1,802	1,295	**33,885**
Q4	126	1,503	5,610	5,312	4,794	3,583	1,620	1,017	1,258	1,468	**26,291**
Q5	63	254	15	-	-	-	-	-	-	1,712	**2,044**
Total	**466**	**5,925**	**22,099**	**24,800**	**23,627**	**18,987**	**11,899**	**8,962**	**7,077**	**6,445**	**130,287**

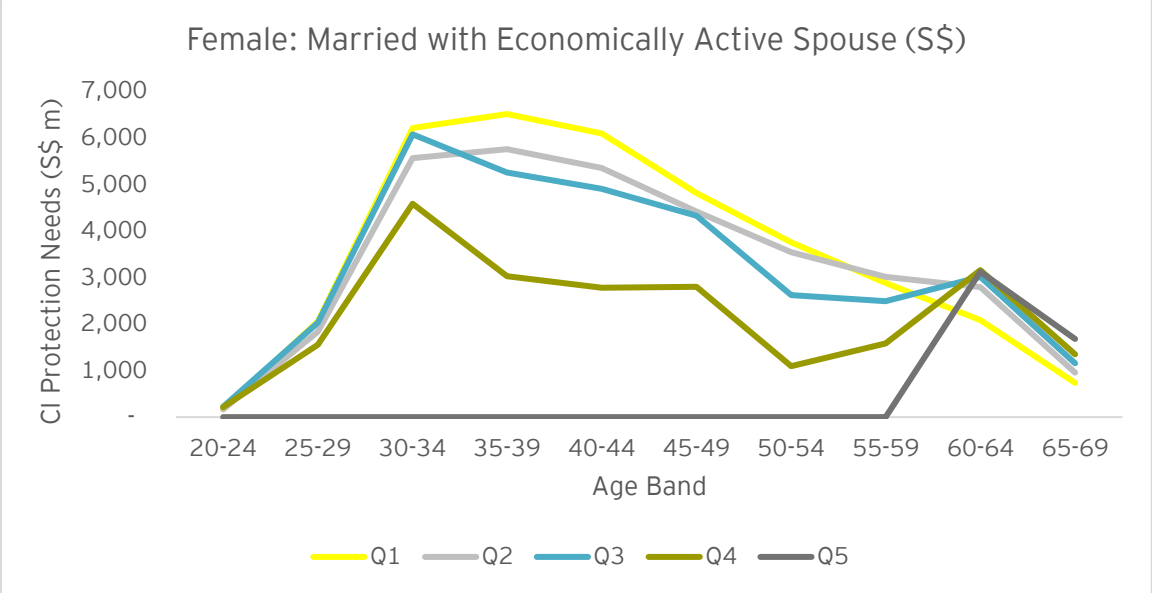


Table 81: CI Protection Needs for Married EA Females with EA Spouses (S$ million)

	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	Total
Q1	165	2,052	6,200	6,502	6,084	4,806	3,749	2,877	2,085	736	**35,256**
Q2	167	1,836	5,554	5,748	5,342	4,410	3,540	3,009	2,791	958	**33,355**
Q3	222	2,025	6,065	5,247	4,898	4,319	2,620	2,489	3,012	1,158	**32,055**
Q4	214	1,555	4,577	3,024	2,774	2,798	1,095	1,583	3,155	1,349	**22,124**
Q5	-	-	-	-	-	-	-	-	3,118	1,677	**4,795**
Total	**768**	**7,468**	**22,396**	**20,521**	**19,098**	**16,333**	**11,004**	**9,958**	**14,161**	**5,878**	**127,585**

Married Economically Active Adults with Economically Inactive Spouses (Male EA: S$126.7 bn, Female EA: S$15.0 bn)

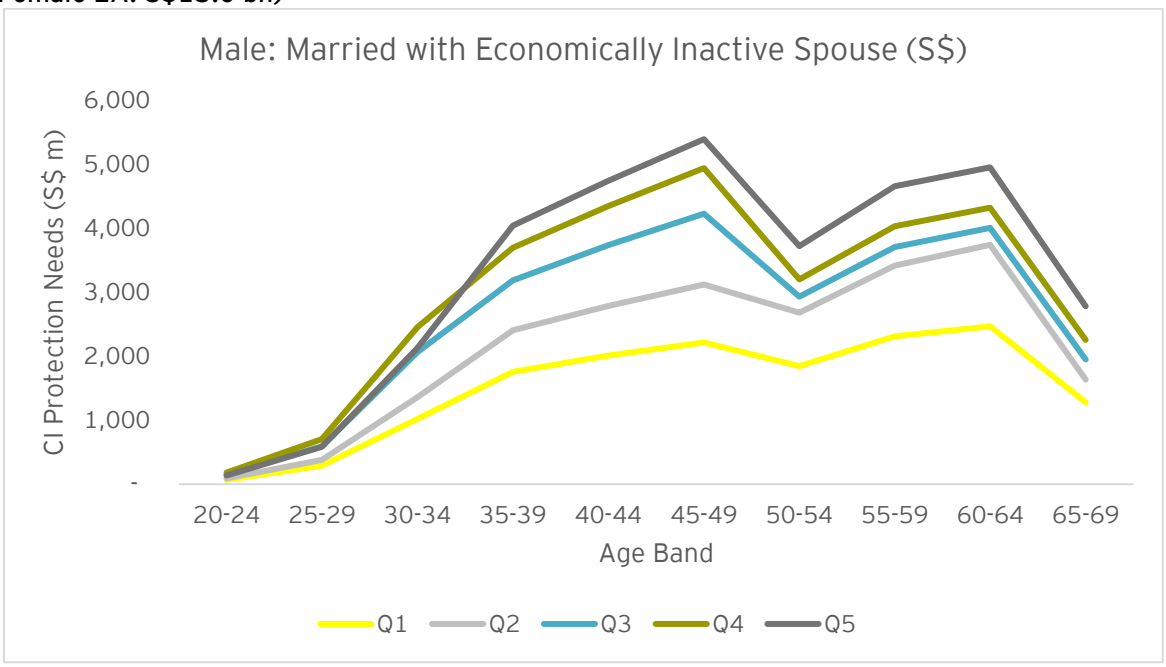
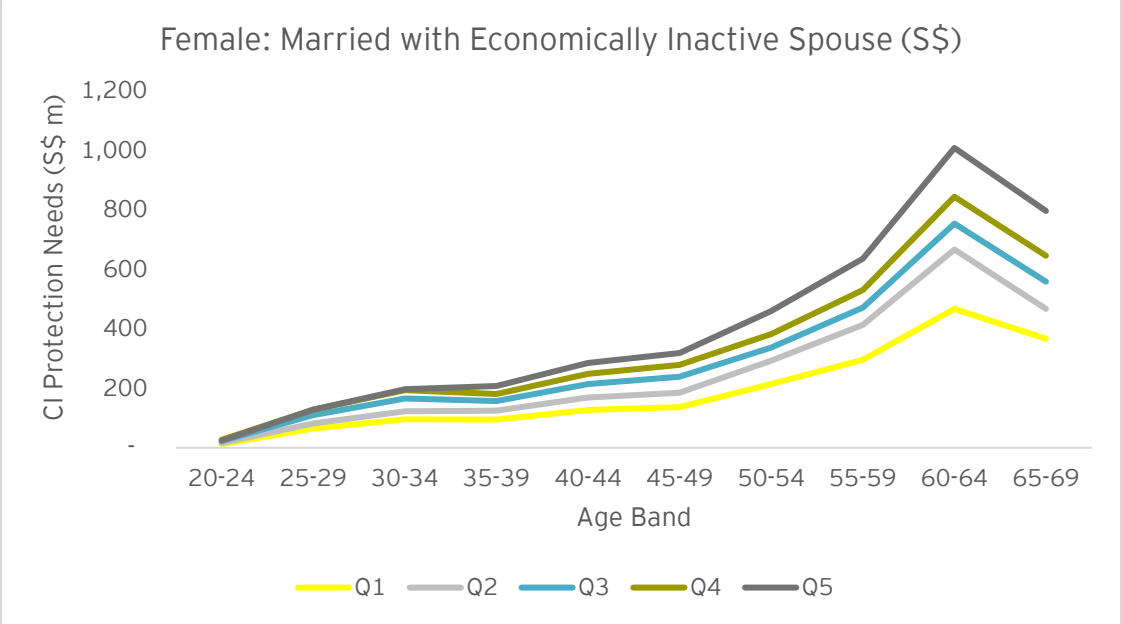


Table 82: CI Protection Needs for Married EA Males with EI Spouses (S$ million)

	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	Total
Q1	67	287	1,022	1,755	2,010	2,215	1,845	2,310	2,468	1,282	**15,261**
Q2	90	381	1,359	2,407	2,789	3,121	2,684	3,417	3,743	1,634	**21,625**
Q3	151	592	2,065	3,187	3,736	4,230	2,930	3,706	4,009	1,951	**26,557**
Q4	181	704	2,456	3,696	4,347	4,943	3,204	4,031	4,324	2,258	**30,144**
Q5	135	585	2,130	4,044	4,744	5,395	3,721	4,659	4,955	2,784	**33,152**
Total	**624**	**2,549**	**9,032**	**15,089**	**17,626**	**19,904**	**14,384**	**18,123**	**19,499**	**9,909**	126,739



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 (37,000) than males married with Economically Inactive spouse (229,000)

Table 83: CI Protection Needs for Married EA Females with EI Spouses (S$ million)

	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	Total
Q1	12	64	96	95	128	137	214	296	467	367	**1,876**
Q2	16	82	123	124	169	185	293	413	666	468	**2,539**
Q3	23	110	165	157	214	239	337	471	754	558	**3,028**
Q4	27	128	193	181	248	279	382	530	844	646	**3,458**
Q5	24	128	197	207	285	319	460	636	1,008	797	**4,061**
Total	**102**	**512**	**774**	**764**	**1,044**	**1,159**	**1,686**	**2,346**	**3,739**	**2,836**	**14,962**

Single Economically Active Adults (Male EA: S$185.5 bn, Female EA: S$197.9 bn)

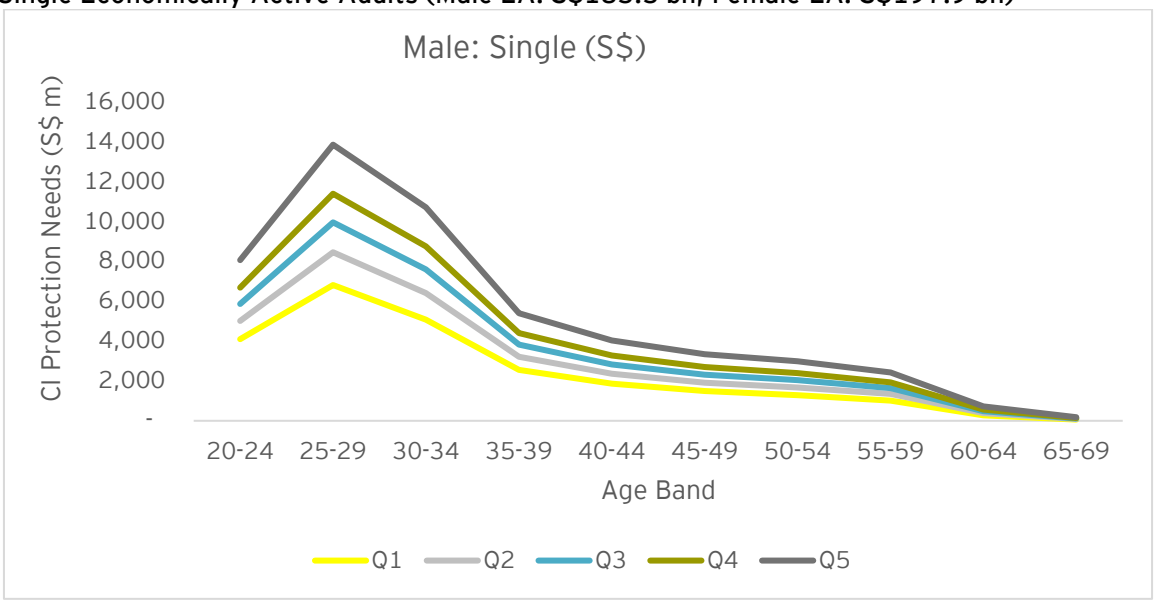


Table 84: CI Protection Needs for Single EA Males (S$ million)

	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	Total
Q1	4,079	6,796	5,072	2,549	1,855	1,486	1,275	1,018	281	61	**24,472**
Q2	4,995	8,436	6,387	3,206	2,349	1,905	1,663	1,340	383	89	**30,753**
Q3	5,843	9,932	7,581	3,813	2,814	2,302	2,030	1,640	476	114	**36,545**
Q4	6,658	11,367	8,725	4,396	3,261	2,685	2,383	1,929	565	138	**42,107**
Q5	8,045	13,822	10,688	5,388	4,018	3,330	2,979	2,418	717	180	**51,585**
Total	**29,620**	**50,353**	**38,453**	**19,352**	**14,297**	**11,708**	**10,330**	**8,345**	**2,422**	**582**	**185,462**

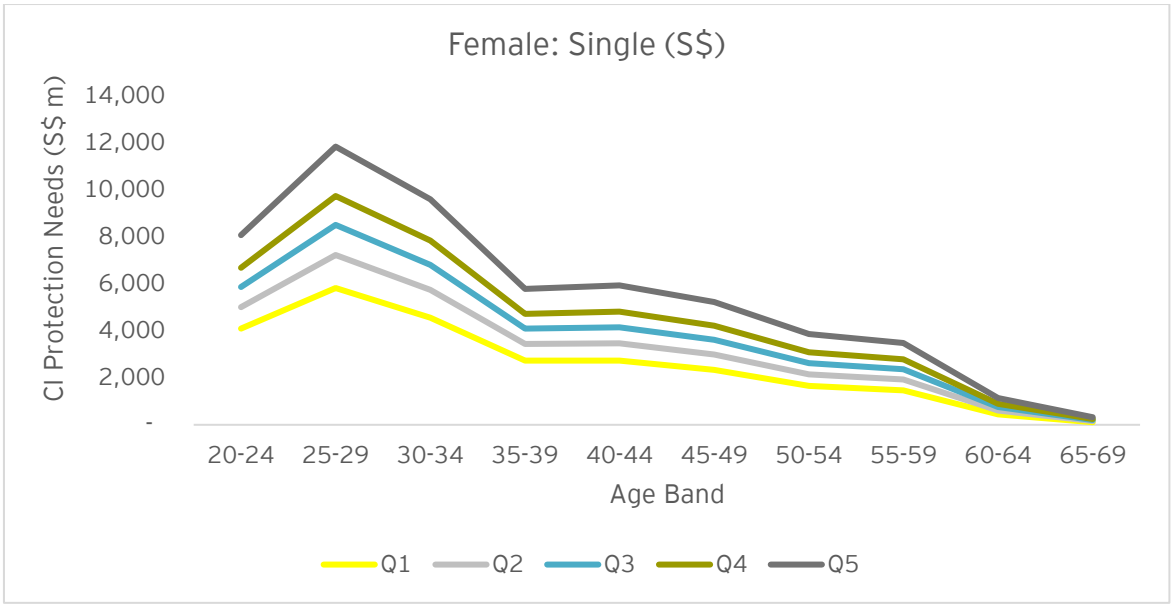


Table 85: CI Protection Needs for Single EA Females (S$ million)

	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	Total
Q1	4,092	5,821	4,556	2,737	2,738	2,331	1,651	1,468	446	109	**25,949**
Q2	5,011	7,226	5,738	3,443	3,466	2,988	2,152	1,931	608	160	**32,723**
Q3	5,862	8,507	6,811	4,094	4,153	3,611	2,627	2,364	755	205	**38,989**
Q4	6,680	9,736	7,839	4,719	4,813	4,210	3,084	2,780	895	248	**45,004**
Q5	8,071	11,838	9,602	5,785	5,931	5,223	3,857	3,485	1,137	322	**55,251**
Total	**29,716**	**43,128**	**34,546**	**20,778**	**21,101**	**18,363**	**13,371**	**12,028**	**3,841**	**1,044**	**197,916**

15. Appendix: Assumptions and Data Sources

15.1 Key PGS Assumption: CI Recovery Period

15.1.1 Background

To calculate the CI Protection Needs, the calculation assumes an average CI recovery period of 5 years. This means that the expenditure items considered under Protection Needs are projected for 5 years to establish the CI Protection Needs. This methodology does not apply to the needs of children and elderly parents, where the projection period for these needs remains unchanged from the Mortality Protection Needs.

For the purpose of PGS, the CI recovery period is defined as the time period from CI diagnosis till the time when the individual is able to return to work. This definition is consistent with the 2017 PGS.

CI covers a wide range of illnesses with varying recovery periods. CI recovery period may vary significantly due to factors such as the type of CI suffered, severity upon diagnosis and medical treatments available.

Furthermore, the employment status and lifestyle of CI survivors may also differ significantly, with the following possibilities:

- Ability to continue working while receiving treatment
- Downgrade of employment (full-time to part-time, or having to change jobs due to medical conditions)
- Permanent unemployment

These factors have been considered when evaluating the CI recovery period assumption of 5 years.

15.1.2 Summary of Findings

To assess whether the assumption for CI recovery period of 5 years remains suitable for the 2022 PGS, we have referenced the following external studies to derive a weighted average CI recovery period. It is to be noted that there are limited studies available in Singapore on CI recovery period and therefore, we have relied on studies conducted overseas.

- Based on a review paper published by the National Institute of Health[4] in USA investigating the rate of return to work of Intensive Care Unit (ICU) survivors, we have studied the CI recovery period results from the paper as a comparison to the assumed CI recovery period duration of 5 years. Please refer to Section 15.1.3 for more details.

- Based on a study conducted in Taiwan[5] investigating the likelihood of return to work among cancer survivors, we have referenced this study to evaluate the cancer recovery period as a comparison to the assumed CI recovery period duration of 5 years. Please refer to Section 15.1.4 for more details.

We have exercised judgements, where required, in assessing the average CI recovery period assumption of 5 years using these studies. Key assumptions and judgements are detailed in the subsequent sections.

Based on our assessment, we have maintained the 5-year assumption for average CI recovery period in 2022 PGS.

15.1.3 External Study A: Return to Work (ICU Survivors Case Study)

Evaluation of Source

We have studied and utilized the "Return to Work After Critical Illness: A Systematic Review and Meta-Analysis"[4] review paper, published by the National Institute of Health in USA, as our key reference paper for the average CI recovery period. This review paper compiled and evaluated data from other studies published globally from 1984 to 2018 on the rate of return to work following general ICU hospitalization of CI survivors. Under this review paper, there were 38 studies selected (with discrete follow-up time points) that were analysed based on pre-determined criteria.

Applicability

The paper investigated the effects of three factors on rate of return to work, as follows:

- **ICU admission diagnosis / CI category**: The paper reviewed the differences in rate of return to work post-ICU hospitalization across various CIs, to investigate any differences in rate of return to work due to different CI recovery durations.
- **Geographic location**: The paper also reviewed the differences in rate of return to work due to geographical location by looking at the studies conducted in Europe, North America, Australia and New Zealand, to investigate any differences in rates of return to work due to potential differences in procedures for care in different regions of the world.
- **Survivor enrollment dates**: The paper also looked at the difference in rate of return to work for survivors who enrolled pre-1990, 1991-2000, 2001-2010 and after 2010, which investigates the impact of temporal trends in employment (such as the global financial crisis in 2007 leading to economic downturn from 2008 to 2010), as well as improvements in treatment.

From the review paper, the three factors did not have a statistically significant effect on rates of return to work.

Limitations

There are a few limitations to be noted:

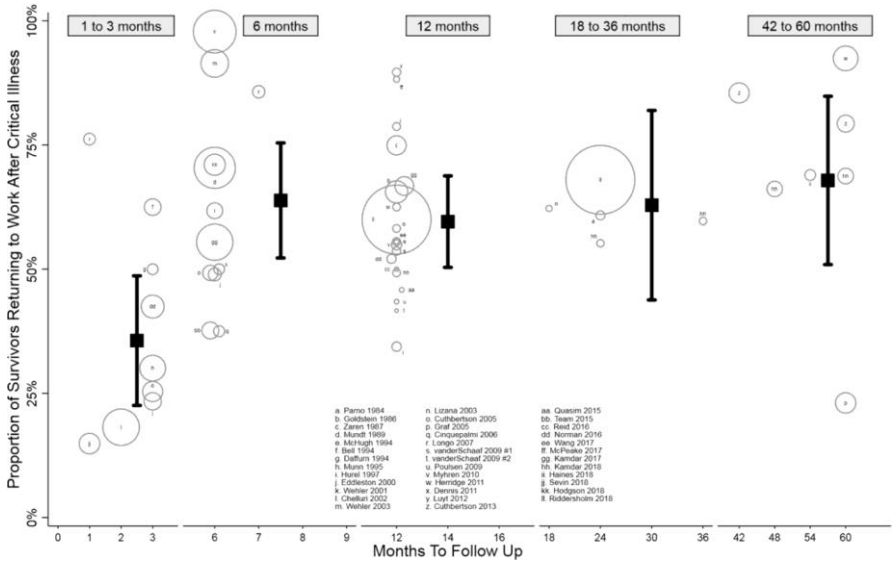
- The review paper mainly represented the rate of return to work for Major CIs, as the treatment of Early CIs do not typically involve hospitalization in an ICU. Furthermore, not all Major CIs require admission into an ICU.
- The review paper also considers a list of CIs that may be different than the type of CIs typically covered under an insurance policy in Singapore.

Results from Source

Figure 38 shows the proportion of survivors returning to work at each follow-up period. Each circle corresponds to results from one study, with the size of each circle corresponding to the sample size of the study.

The pooled proportion of survivors returning to work after CI for each follow-up period is as such: 36% after 1-3 months, 64% after 6 months, 60% after 12 months, 63% after 18-36 months, and 68% after 42-60 months, as shown below.

Figure 38: Proportion of Survivors Returning to Work After Diagnosis of CI



From this graph, the rate of return to work decreases from 6 months to 36 months, which suggests that returning to work is short-lived for some survivors. This is further supported by a national database study of 5,762 patients (Riddensholm, 2018, taken from the paper) reporting a cumulative incidence of job loss (after return to work) of nearly 50%, 3 years after intensive care. This suggests that the average CI recovery period should be no less than 3 years.

Assumptions

The studies considered in the paper do not have any data on rates of return to work beyond 5 years, as the maximum term considered is 5 years. Thus, we have assumed that CI survivors who do not return to work within 5 years will not return to work permanently. There are different reasons for not returning to work after 5 years, and this may be due to reasons such as physical or cognitive impairments, mental health issues, ongoing fatigue, long term medical treatments required, fear of recurrence, workplace accommodation challenges and a shift in priorities.

For the purpose of assessing the weighted average CI recovery period, we have further assumed that these CI survivors will not have any form of income until the retirement age of 65. As the average age of claiming for Major CI[6] in Singapore is 52, the duration to retirement age is 13 years (or 156 months).

This is a key area of judgement in assessing the suitability of the CI recovery period using this study.

Assessment of the average CI recovery period using results from source

The rates of return to work for each follow-up period are used to derive a weighted average CI recovery period, as laid out below:

Table 86: Weighted Average CI Recovery Period

Follow-up Period	Number of Months	Rate of Return to Work	Proportion of Survivors (Cumulative rate)	Explanation
1 to 3 months	2	36%	36% (36%)	-
6 months	6	64%	24% (60%)	We assume that at 6 months, only 60% have permanently returned to work, as the rate decreases from 6 months, up to 36 months
12 months	12	60%	0% (60%)	-
18 to 36 months	27	63%	3% (63%)	-
42 to 60 months	51	68%	5% (68%)	-
Others	156	-	32% (100%)	For individuals who have not returned to work within 5 years, we have assumed an average duration of 13 years (or 156 months), as mentioned in assumptions above
Weighted average of CI recovery period				**55.4 months, or 4.6 years**

15.1.4 External Study B: Return to Work (Cancer Case Study)

Evaluation of Source

We further looked into a study conducted in Taiwan[5], investigating the likelihood of return to work among cancer survivors, to evaluate the cancer recovery period as a comparison to our assumed CI recovery period duration of 5 years.

Limitations

- The study consists of survivors of different stages of cancer, where 72% of survivors were in Stages 0-2 (Early CI), which might result in the above recovery period being lower than expected, according to a Gen Re survey done in Singapore from 2015-2019 which indicated that Major CI makes up the 82% of all claims[6].
- The recovery periods in consideration within this study are only for cancer, while the recovery period for other types of CIs may vary significantly from person to person, and can potentially be longer.

Assumptions

A similar methodology to the paper on ICU survivors was used to evaluate this study, with the following assumptions:

- **Survivors not returning to work in 5 years**: We have assumed that CI survivors who do not return to work within 5 years, will not return to work permanently. Similar to assumption in the previous sub-section, there are different reasons for not returning to work after 5 years, and this may be due to reasons such as physical or cognitive impairments, mental health issues, ongoing fatigue, long term medical treatments required, fear of recurrence, workplace accommodation challenges and a shift in priorities.

  For the purpose of assessing the weighted average CI recovery period, we have further assumed that these CI survivors will not have any form of income until the retirement age of 65. As the average age of claiming for Major CI[6] in Singapore is 52, the duration to retirement age is 13 years.

- **Employment rate of survivors**: The CI Protection Gap from the PGS is calculated on the assumption that the adult survives CI. As such, we have only considered the employment rate of cancer survivors from this study.

- **Permanent return to work**: The definition of CI recovery period under the PGS considers the duration from CI diagnosis until permanent return to work. In this study, we consider the employment to be permanent if the Year-on-Year employment rate does not decrease. For example, given that employment rate has decreased from 83.65% to 78.67% from Year 1 to Year 5, we assume that the difference of 4.98% were not able to permanently return to work, thus only 78.67% successfully returned to work.

Assessment of the average recovery period for Cancer using results from source

The rates of return to work for each follow-up period are used to derive a weighted average CI recovery period, as summarized below:

Table 87: Weighted Average Cancer Recovery Period

Time after diagnosis (yrs)	Employment rate of survivors (%) – RTOW + Change work	Scenario 1: RTOW + Change work in Year 1 (%)	Scenario 2: RTOW + Change work in Year 2 (%)	Scenario 3: RTOW + Change work in Year 3 (%)
1	83.65%	78.67%	-	-
2	81.57%	-	78.67%	-
3	80.13%	-	-	78.67%
4	79.14%	-	-	-
5	78.67%	-	-	-
13	100.00%	21.33%	21.33%	21.33%
Implied weighted average recovery period (yrs)		3.56	4.35	5.13

The study divides the 'Work status' of cancer survivors into 3 categories – 'Change Work', 'Return to Original Work (RTOW)', and 'Unemployed'.

The study suggests that "cancer survivors return to work within the first 2-6 years after diagnosis with cancer". To test the sensitivity of cancer recovery period, the 3 scenarios considers different years on which the survivor returns to work.

Scenarios considered in sensitivity test above:
For the first 3 scenarios, we assumed survivors categorized as "Change work" have successfully returned to work (through any occupation / job) - this term is not defined in the study. Therefore, we consider both 'Change Work' and 'RTOW' survivors returning to work in different years post-CI diagnosis to derive the weighted average CI recovery period.

15.1.5 Sensitivity of PGS CI Results to the CI Recovery Period Assumption

Purchasing a CI insurance coverage based on needs for a 5-year CI recovery period does not guarantee that the individual will have sufficient coverage. This would ultimately depend on each individual's circumstances. For example, other types of insurance coverage the individual owns (e.g. hospitalization plans), the type of CI being covered, and family profile.

Certain types of CI may be less severe and therefore require a shorter recovery period, and this will allow the individual to return to work sooner. On the other hand, there are CI conditions that may have a longer or higher impact to one's lifestyle, thus impeding the individual's ability to return to work.

To understand how the CI Protection Gap changes with the CI recovery period assumed, we have conducted a sensitivity analysis to compare the base assumption of 5 years versus 3 and 7 years. The table below shows the sensitivity of the CI Protection Needs and Gap results.

Table 88: Sensitivity of CI Protection Needs and Protection Gap to Recovery Period Assumption

(S$ bn)	CI Recovery Period Assumption		
	(Base) 5 years	3 years	7 years
Unpaid Services	143.0	86.1	199.1
Personal and Housing Loans	250.1	170.4	295.9
Needs of Children	151.2	151.2	151.2
Needs of Elderly Parents	177.1	177.1	177.1
Needs of Remaining Adults	528.3	317.9	736.3
Rent	19.2	11.5	26.8
Household needs	1,268.8	914.2	1,586.4
Less: Remaining Spouse's Income	-526.1	-311.9	-736.1
Protection need before zeroisation	742.8	602.3	850.2
Zeroisation	40.2	6.6	82.6
Protection need after zeroisation	782.9	608.9	933.1
Total resources available	204.1	204.1	204.1
Protection Gap	578.9	404.8	729.0
Protection Gap as a % of Protection Needs	**73.9%**	**66.5%**	**78.1%**
Protection Needs (as a multiple of annual income)^	**3.9x**	**3.1x**	**4.7x**

15.2 Key PGS Assumption: Inflation

15.2.1 Comparison of Inflation Rates (2017 PGS vs 2022 PGS)

The 2022 PGS uses prospective economic assumptions as of 31st December 2021 to project future Protection Needs. These include wage inflation rates, general expense inflation rate, housing inflation rate and discount rate. The following table shows the prospective economic assumptions adopted in the calculation of the Protection Needs:

Table 89: Prospective Economic Assumptions as of 31st December 2021

Item	Methodology	2017 PGS Assumption (YE 2016)	2022 PGS Assumption (YE 2021)	Application
Wage inflation rate	Change from 5 to 15-year CAGR based on average gross monthly income from work from "Household income from work" time series, from Singapore Department of Statistics • 2017: Data used from 2011 to 2016 • 2022: Data used from 2006 to 2021	3.80%	4.02%	Elderly needs, Remaining spouse's income
General expense inflation rate	Change from 10 to 15-year CAGR of CPI of all items • 2017: Data used from 2006 to 2016 • 2022: Data used from 2006 to 2021	2.40%	1.85%	Unpaid services, Children needs, Future household expense
Housing inflation rate	Change from 10 to 15-year CAGR of Housing & Utilities component of CPI • 2017: Data used from 2006 to 2016 • 2022: Data used from 2006 to 2021	3.04%	1.78%	Rent
Discount rate	15-year Singapore government bond • 2017: Data as of end Dec 2016 • 2022: Data as of end Dec 2021	2.74%	1.93%	Unpaid services, Children needs, Elderly needs, Future household expense, Rent, Remaining spouse's income

In 2022 PGS, there is a change in methodology in deriving the inflation rates where 15-year Compound Annual Growth Rates ("CAGR") were used instead of 5 or 10-year CAGR. This is mainly due to relatively low inflation rate in recent years, significantly lowering the CAGR of consumer price index (CPI), which may not be reflective of the recent outlook on inflation.

The general expense inflation rate used for 2022 PGS of 1.85% is lower than the reported headline inflation rate in Singapore at the end of 2022 (4% to 5%). However, the inflation rate used considers a longer-term outlook and will be more appropriate for the cashflow projections of the items within the Protection Needs, where most items are projected to the life expectancy age of 88.

15.2.2 Scenario Testing of Inflation Rates

Considering the recent news on a high inflation environment, we have included a scenario testing on the PGS results to demonstrate the potential impacts to the results.

The following table shows the prospective economic assumptions used for scenario testing. The assumptions under 'YE 2022 (for scenario testing)' are derived from the rebased rates as of 31st December 2022.

Table 90: Prospective Economic Assumptions as of 31st December 2022

Item	Methodology	YE 2021 (Base)	YE 2022 (Scenario Testing)	Application
Wage inflation rate^	Change from 5 to 15-year CAGR based on average gross monthly income from work from "Household income from work" time series, from Singapore Department of Statistics • 2017: Data used from 2011 to 2016 • 2022: Data used from 2006 to 2021 • 2023: Data used from 2007 to 2022	4.02%	3.86%	Elderly needs Remaining spouse's income
General expense inflation rate^	Change from 10 to 15-year CAGR of CPI of all items • 2017: Data used from 2006 to 2016 • 2022: Data used from 2006 to 2021 • 2023: Data used from 2007 to 2022	1.85%	2.11%	Unpaid services Children needs Future household expense
Housing inflation rate^	Change from 10 to 15-year CAGR of Housing & Utilities component of CPI • 2017: Data used from 2006 to 2016 • 2022: Data used from 2006 to 2021 • 2023: Data used from 2007 to 2022	1.78%	2.22%	Rent
Discount rate	15-year Singapore government risk free yield • 2017: Data as of end Dec 2016 • 2022: Data as of end Dec 2021 • 2023: Data as of end Dec 2022	1.93%	3.08%	Unpaid services Children needs Elderly needs Future household expense Rent Remaining spouse's income

^ As of date of assessment in 2023, the actual data as of 31st December 2022 have not been published. Therefore, we have made necessary adjustments (for example, based on November 2022 rates) to derive an estimated YE2022 figure.

Step-Change of the Protection Gap Results

For scenario testing, we have re-calculated the Mortality Protection Gap results using latest data (where available), as of 31st December 2022. This is shown under 'YE 2022 (Scenario Testing)'

Table 91: Scenario Testing Results using 31st December 2022 Inflation Rates

In S$ bn	YE 2021 (Base)	YE 2022 (Scenario Testing)
Wage Inflation	4.02%	3.86%
General Inflation	1.85%	2.11%
Rent inflation	1.78%	2.22%
Discount rate / VIR	1.93%	3.08%
Funeral Cost	21.9	21.9
Unpaid Services	722.2	608.8
Personal and Housing Loans	479.0	479.0
Needs of Children	151.2	142.9
Needs of Elderly Parents	177.1	153.6
Needs of Remaining Adults	2,191.9	1,820.6
Rent	137.3	118.5
Household needs	3,880.6	3,345.1
Less: Remaining Spouse's Income	-2,603.0	-2,190.3
Protection need before zeroisation	1,277.6	1,154.8
Zeroisation	**503.0**	**411.0**
Protection need after zeroisation	1,780.6	1,565.9
CPF Savings	299.8	299.8
Other Savings	397.3	397.3
Group Insurance	240.9	240.9
Individual Insurance	567.2	567.2
Capping of Resources	-115.1	-160.1
Total resources available	1,390.2	1,345.2
Protection gap	390.5	220.7

The numbers in green represent items that lead to a decrease in Protection Gap, whereas the numbers in red represent items that lead to an increase in Protection Gap.

In general, the increases in inflation rates lead to an increase in Protection Needs. On the other hand, the increase to the discount rates lead to a decrease in Protection Needs. The resources available (savings, insurance coverages) are not affected by these rates, as these are taken from values as of year-end 2021.

There are a few considerations when deciding the assumptions for inflation and discount rates, namely:

- For all other data and assumptions, the 2022 PGS utilises data as of 31st December 2021 to derive the Protection Needs and Gap (for example, data from Labour Force Survey 2021 and insurance data from participating insurers).
- There is a lag in publishing full inflation data as of 31st December 2022, thus actual data is not available when PGS results were produced.

Therefore, we have then taken into consideration the rates as of 31st December 2021 to conclude the results of 2022 PGS, for consistency and accuracy purposes.

15.3 Other Assumptions Used

15.3.1 Historic economic assumptions

These are used to inflate historical data from prior years to the present year (31 December 2021).

Assumption	Rate	Source	Application
Wage inflation rate	0.38%	3-year CAGR from 2018 to 2021 based on Department of Statistics report entitled "Household income from work time series"[7]	Remaining spouse's income: HES 2017/18, 3 years to end 2021 Elderly needs: NSSC 2011, 10 years to end 2021
General expense inflation rate	0.89%	3-year CAGR of CPI from 2018 to 2021 based on Department of Statistics report entitled "Consumer Price Index (CPI)"[8]	Future Household Expenses: HES 2017/18, 3 years to end 2021
Housing inflation rate	0.03%	3-year CAGR of Housing and Utilities index from 2018 to 2021 based on Department of Statistics report entitled "Consumer Price Index (CPI)" [8]	Rent: HES 2017/18, 3 years to end 2021
Education inflation rate	1.00%	3-year CAGR of Education index from 2018 to 2021 based on Department of Statistics report entitled "Consumer Price Index (CPI)" [8]	Children needs: HES 2017/18: 3 years to end 2021

15.3.2 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	4.02%	15-year CAGR based on average gross monthly income from work from 2006 to 2021 based on Department of Statistics report entitled "Household income from work time series"[7]	Elderly needs Remaining spouse's income
General expense inflation rate	1.85%	15-year CAGR of CPI from 2006 to 2021 based on Department of Statistics report entitled "Consumer Price Index (CPI)" [8]	Unpaid services Children needs Future household expenses
Housing inflation rate	1.78%	15-year CAGR of Housing and Utilities index from 2006 to 2021 based on Department of Statistics report entitled "Consumer Price Index (CPI)" [8]	Rent

Discount rate	1.93%	15-year Singapore government risk free yields as of 31st Dec 2021[9]	Unpaid services Children needs Elderly needs Future household expense Rent Remaining spouse's income

15.3.3 Key non-economic assumptions

Assumption	Rate	Source	Application
Life expectancy	88.0 years	Life expectancy of elderly dependents in 2021 is based on life expectancy of a female at age 65, from Population And Vital Statistics, Ministry of Health Statistics[10]	Elderly needs
Age of spouse setback	2 years	Assessed using supplementary market survey results, consistent with 2017 PGS assumptions	Unpaid services Future household expense
Age of elderly	65 years or 25 years older than child's age, whichever is higher	Consistent with 2017 PGS assumption	Unpaid services Elderly needs Future household expense Rent Remaining spouse's income

15.4 Other Data Sources

Section	Item	Value	Source
Funeral Costs	Cost of funeral	S$10,000	http://casketfairprice.com/ http://directfuneral.com.sg/ http://simplicitycasket.com.sg/
Unpaid Services	Cost of part-time helper	S$22/ hour	http://www.homecleaning.com.sg/rates/ http://www.domestic1.com.sg/parttimemaids.html http://www.auntiecleaner.com.sg/parttimecleaner.html
Personal and Housing Loans	Percentage of SG and PR in total loans	83%	From Table 4.2, Yearbook of Statistics Singapore 2022, total resident households, private housing is 297,600. From Annex E-1, Urban Redevelopment Authority 2021 Q4 Real Estate Statistics, total private residential units is 359,135. Percentage of SG and PR is 297,600/359,135 = 83%.
	Number of EA per household	1.57	The number of EA is 2,187,833. From Resident Households by Type of Dwelling, Annual, from Singapore Department of Statistics, number of resident households in 2021 is 1,390,600. Therefore, number of EA per household is 2,187,833/1,390,600 = 1.57.

	Maximum Tenure of HDB Mortgage (and FI Mortgage)	30 years	According to MAS, the maximum loan tenure for HDB flats is 30 years, while for non-HDB properties this is 35 years. For financial institutions, the maximum loan tenure is 25 years according to SingSaver. We take the middle of the range, of 30 years.
	Maximum Tenure of Vehicle Loans and Other Personal Loans	7 years	According to MAS, the maximum loan tenure for vehicles is 7 years. According to SingSaver, the maximum loan tenures offered by banks for personal loans is 7 years.
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. Supported by Table 51, Labour Force in Singapore 2021, the proportion of employed residents with each highest qualification attained is multiplied by the expected age at which they joined workforce.
	Age when an individual has the first child	31 years	From 2020 Median Age of Resident Live Births for First Time Mothers, ICA, SingStat
	Age setback of each subsequent child	3 years	Consistent with 2017 PGS assumption
	Difference between expenses for households with and without children	N/A	Table 41, 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	88.0	Expected life expectancy of a female aged 65 years, calculated from 2021 Complete Life Table for Resident Females, Singapore, SingStat
Rent	Actual rent figures over age groups and income quintiles	N/A	Rentals for housing over income quintiles from Table 16A, HES17/18 Rentals for housing over age groups from table 21A, HES17/18
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 dependent. 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	33%	From HES17/18 Table 23, average monthly household expenditure per member is S$1,627.60. From HES17/18 Table 7, average monthly household expenditure is S$4,906.00. Therefore, each household member accounts for approximately 1627.6/4906 = 33% of household expenditure.
	Ratio of single-income household expense (married to EI spouse) to average household expense	83%	From HES 17/18 Table 7, average monthly expenditure of households with one working person is S$4,064.00, and the average monthly household expenditure is S$4,906.00. Therefore, the ratio is 4064/4906 = 83%.
	Ratio of double-income household expense (married to EA spouse) to average household expense	119%	From HES 17/18 Table 7, average monthly expenditure of households with two working people is S$5.819.00, and the average monthly household expenditure is S$4,906.00. Therefore, the ratio is 5819/4906 = 119%.
Remaining Spouse's Income	Ratio of single-income household income (married to EI spouse) to average household income	79%	From HES 17/18 Table 12, average monthly income of single-income household is S$7,849.85, and the average monthly income of all households is S$9,941.00. Therefore, the ratio is 7849.85/9941 = 79%.
	Ratio of double-income household income (married to EA spouse) to average household income	127%	From HES 17/18 Table 12, average monthly income of double-income household is S$12,649.50, and the average monthly income of all households is S$9,941.00. Therefore, the ratio is 12649.5/9941 = 127%.
	Split of household income according to gender, male to female	54:46	From Yearbook of Manpower Statistics 2021 Table B.2: Median Gross Monthly Income from Work, the ratio of male and female median income from 2016 to 2021 is obtained. The average of the 5-year ratio is 54:46.

15.4.1 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 Manpower[11].
The table numbers quoted are the statistical tables from the "Labour Market Statistical Information" on MOM website.
The labour force data at June 2021 has been used without any adjustments to the data as we do not expect significant demographic changes between June 2021 and Year End 2021.

Table 1 - Labour Force, Employed, Unemployed and Unemployment rate, 2011 - 2021 (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
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	2.0	2.8	2.6	3.8
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
2017	3,657.0	2,269.7	3,550.1	2,175.3	106.9	94.4	2.2	3.1	2.9	4.2
2018	3,675.6	2,292.7	3,575.3	2,203.7	100.2	89.0	2.1	2.9	2.7	3.9
2019	3,742.5	2,328.5	3,631.7	2,230.4	110.8	98.1	2.2	3.1	3.0	4.2
2020	3,713.9	2,345.5	3,574.0	2,222.6	139.9	122.9	2.8	3.9	3.8	5.2
2021	3,607.6	2,397.8	3,483.5	2,286.5	124.1	111.2	2.7	3.5	3.4	4.6

Table 4 - Resident population aged fifteen years and over by labour force status, age and sex, June 2021

Age (Years)	Labour Force									Outside the Labour Force		
	Total			Employed			Unemployed					
	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females
Total	**2,397.8**	**1,275.6**	**1,122.2**	**2,286.5**	**1,220.3**	**1,066.2**	**111.2**	**55.3**	**56.0**	**1,004.4**	**377.7**	**626.7**
15 - 19	28.8	16.6	12.2	26.9	15.9	11.0	1.9	0.7	1.2	154.4	77.8	76.6
20 - 24	139.0	68.5	70.5	124.0	63.2	60.8	15.0	5.3	9.7	83.7	47.5	36.1
25 - 29	243.7	122.8	120.9	229.2	114.6	114.6	14.5	8.2	6.3	26.0	13.3	12.6
30 - 34	305.6	151.2	154.4	293.9	145.5	148.3	11.7	5.7	6.1	21.7	4.7	17.0
35 - 39	283.6	146.4	137.3	274.1	141.6	132.5	9.5	4.8	4.7	27.3	3.9	23.4
40 - 44	280.6	143.7	136.9	268.6	138.9	129.8	12.0	4.9	7.1	29.0	4.3	24.7
45 - 49	266.7	142.1	124.6	252.3	135.2	117.1	14.5	6.9	7.5	35.5	5.4	30.0
50 - 54	221.2	118.1	103.1	213.0	113.9	99.0	8.2	4.2	4.0	39.6	7.3	32.3
55 - 59	222.5	124.8	97.8	213.9	120.3	93.6	8.6	4.5	4.1	63.7	14.7	49.0
60 - 64	199.4	115.3	84.1	192.0	110.6	81.4	7.4	4.8	2.6	103.1	30.3	72.8
65 - 69	125.4	75.3	50.1	120.9	72.3	48.7	4.5	3.0	1.4	121.2	47.9	73.2
70 & Over	81.1	50.8	30.3	77.6	48.3	29.3	3.5	2.4	1.0	299.3	120.4	178.9

Table 6 - Resident labour force participation rate by age, sex and marital status, June 2021

Age (Years)	Total				Males				Females			
	Total	Single	Married	Widowed/ Divorced	Total	Single	Married	Widowed/ Divorced	Total	Single	Married	Widowed/ Divorced
Total	70.5	68.9	74.0	51.5	77.2	68.2	82.7	65.7	64.2	69.6	65.2	46.2
15 - 19	15.7	15.7	s	s	17.6	17.6	s	s	13.7	13.7	s	s
20 - 24	62.4	62.2	69.4	s	59.0	58.5	93.8	s	66.1	66.4	60.3	s
25 - 29	90.4	90.6	89.9	s	90.2	88.8	97.4	s	90.5	92.8	85.7	s
30 - 34	93.4	95.3	92.1	91.0	97.0	95.0	98.7	94.3	90.1	95.7	86.9	89.4
35 - 39	91.2	93.7	90.4	92.9	97.4	93.0	98.8	95.5	85.4	94.4	82.6	91.7
40 - 44	90.6	94.1	89.5	96.5	97.1	91.5	98.3	96.3	84.7	96.2	80.9	96.6
45 - 49	88.3	90.6	87.5	91.9	96.3	88.8	97.7	93.8	80.6	91.9	76.6	90.9
50 - 54	84.8	87.7	83.9	88.8	94.2	88.3	95.4	90.4	76.2	87.2	72.6	87.8
55 - 59	77.7	78.0	77.5	79.0	89.5	76.1	91.7	86.9	66.6	79.7	62.7	75.2
60 - 64	65.9	67.4	66.1	63.2	79.2	65.5	81.0	78.8	53.6	68.9	50.1	57.2
65 - 69	50.9	49.1	51.5	48.7	61.1	47.3	63.1	55.9	40.6	50.4	37.5	45.7
70 & Over	21.3	25.2	24.5	13.9	29.7	29.4	30.6	24.0	14.5	22.8	16.0	11.4
15 - 24	41.3	40.9	69.7	s	40.4	40.0	93.8	s	42.3	41.8	60.7	s
25 - 64	85.4	90.0	83.9	82.3	92.7	89.0	94.4	89.0	78.6	91.1	73.9	79.1
25-54	89.9	92.3	88.7	91.5	95.5	91.1	97.8	93.3	84.7	93.6	80.4	90.6
55-64	71.7	72.7	71.7	70.5	84.2	70.9	86.2	82.9	59.9	74.2	56.3	65.2
65 & Over	32.9	36.7	36.4	21.7	42.8	38.7	44.5	33.6	24.2	35.5	25.9	18.3

s: Data suppressed due to small number covered

Table 15 - Resident labour force aged fifteen years and over by marital status and sex, 2011 - 2021 (June)

Sex / Marital Status	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Total	2,080.1	2,119.6	2,138.8	2,185.2	2,232.3	2,257.6	2,269.7	2,292.7	2,328.5	2,345.5	2,397.8
Single	610.0	619.3	626.4	650.5	658.2	663.3	651.8	664.7	672.6	689.9	732.7
Married	1,358.0	1,383.2	1,392.2	1,414.2	1,433.6	1,456.2	1,484.6	1,483.7	1,507.4	1,498.8	1,512.5
Widowed / Divorced	112.1	117.0	120.2	120.5	140.6	138.2	133.3	144.3	148.5	156.9	152.6
Males	1,160.4	1,177.6	1,183.1	1,202.6	1,216.2	1,224.5	1,238.7	1,243.6	1,251.1	1,260.1	1,275.6
Single	323.0	329.3	328.7	339.5	341.8	342.9	338.2	344.9	343.5	350.9	369.1
Married	800.1	808.5	813.6	823.5	827.7	833.2	856.4	852.0	858.0	855.1	853.7
Widowed / Divorced	37.3	39.8	40.8	39.5	46.7	48.4	44.1	46.8	49.6	54.0	52.8
Females	919.7	942.0	955.7	982.6	1,016.1	1,033.1	1,031.0	1,049.1	1,077.4	1,085.4	1,122.2
Single	287.0	290.0	297.8	311.0	316.4	320.4	313.6	319.9	329.1	339.0	363.6
Married	557.8	574.7	578.6	590.6	605.9	623.0	628.2	631.7	649.5	643.7	658.8
Widowed / Divorced	74.8	77.3	79.3	81.0	93.9	89.8	89.2	97.5	98.8	102.8	99.8

Table 16 – Resident Labour Force Aged Fifteen Years and Over by Marital Status, Age and Sex, June 2021

Age (Years)	Total			Single			Married			Widowed/ Divorced		
	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females
Total	2,397.8	1,275.6	1,122.2	732.7	369.1	363.6	1,512.5	853.7	658.8	152.6	52.8	99.8
15 - 19	28.8	16.6	12.2	28.7	16.6	12.1	0.1	-	0.1	-	-	-
20 - 24	139.0	68.5	70.6	134.3	66.7	67.6	4.7	1.8	3.0	-	-	-
25 - 29	243.7	122.8	120.9	188.4	101.0	87.4	54.2	21.4	32.8	1.2	0.4	0.8
30 - 34	305.6	151.2	154.4	125.7	67.7	58.1	174.0	81.6	92.5	5.8	1.9	3.9
35 - 39	283.6	146.4	137.3	62.8	32.7	30.2	209.3	110.0	99.3	11.5	3.7	7.8
40 - 44	280.6	143.7	136.9	50.7	21.8	28.9	215.5	117.4	98.1	14.4	4.5	9.9
45 - 49	266.7	142.1	124.6	40.7	17.0	23.8	204.9	118.0	86.9	21.1	7.2	14.0
50 - 54	221.2	118.1	103.1	29.7	14.4	15.3	170.8	96.0	74.9	20.7	7.7	12.9
55 - 59	222.5	124.8	97.8	27.9	12.8	15.2	171.2	103.5	67.7	23.4	8.5	14.9
60 - 64	199.4	115.3	84.1	24.2	10.5	13.7	153.5	97.3	56.2	21.8	7.6	14.2
65 - 69	125.4	75.3	50.1	12.6	5.1	7.5	96.4	64.6	31.7	16.5	5.7	10.8
70 & Over	81.1	50.8	30.3	6.9	2.9	4.0	57.9	42.2	15.7	16.3	5.7	10.6

Table 101 - Unemployed residents aged fifteen years and over by marital status, age and sex, June 2021

Age (Years)	Total			Single			Marries			Widowed/ Divorced		
	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females
Total	111.2	55.3	56.0	50.3	24.3	26.0	53.1	27.0	26.1	7.8	3.9	3.9
15 - 29	31.3	14.1	17.2	29.1	13.5	15.6	2.1	0.5	1.5	0.2	0.1	0.1
30 - 39	21.2	10.4	10.8	10.0	6.1	3.9	10.3	4.1	6.2	0.9	0.2	0.7
40 - 49	26.5	11.8	14.7	5.7	2.2	3.4	19.0	8.8	10.2	1.8	0.8	1.0
50 & Over	32.2	18.9	13.3	5.5	2.5	3.0	21.8	13.7	8.2	4.9	2.7	2.1

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

Main Source of Financial Support	Total			65 - 69 Years			70 - 74 Years		
	Total	Males	Females	Total	Males	Females	Total	Males	Females
Total	460.9	203.6	257.4	183.3	86.2	97.1	105.3	48.6	56.7
Allowances given by Children	240.9	82.4	158.5	61.4	18.7	42.7	55.9	20.4	35.4
Allowances given by Spouse	21.8	3.8	18.0	14.2	2.1	12.1	4.3	0.9	3.4
Income from Employment/Business	93.6	60.3	33.3	61.7	39.2	22.4	20.5	13.7	6.8
Savings/Interests Earned	46.6	25.3	21.3	18.5	10.3	8.2	11.7	6.3	5.4
Income from Rent/Dividends/Annuity/Trusts	21.3	10.4	11.0	9.3	4.7	4.6	5.0	2.7	2.3
Other Sources	36.7	21.4	15.3	18.2	11.2	7.0	7.9	4.5	3.3

Table B2 - Median Gross Monthly Income from Work

	Male	Female
2016	3,991	3,382
2017	4,095	3,543
2018	4,331	3,627
2019	4,437	3,803
2020	4,437	3,803
2021	4,505	3,866

Source: Singapore Yearbook of Manpower Statistics, 2021

15.4.2 General Household Survey 2015 Data

In this appendix, we have set out the key data we have used in the General Household Survey 2015[12] conducted by the Department of Statistics, Singapore. The table numbers quoted are the statistical tables from the General Household Survey 2015 report. The General Household Survey is conducted every 10 years, as such this is the most up-to-date source for these statistics.

Where data is available, we have referenced GHS 2015 to derive relevant statistics for proportions of the population, as we do not expect significant demographic changes between 2015 and Year End 2021. We then scale these proportions using the population as at Year End 2021 to derive the numbers required.

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
Below 35	**159.0**	**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
35 to 49	**404.2**	**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
50 to 64	**379.0**	**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
65 and over		**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

15.4.3 Household Expenditure Survey 17/18 Data

In this appendix, we have set out the key data we have used from the Household Expenditure Survey 17/18[13] conducted by the Department of Statistics, Singapore. The table numbers quoted are the statistical tables from the HES 17/18 report. The Household Expenditure Survey 22/23 is conducted every 5 years, and is in the process of being conducted at the date of producing the report.

As mentioned in Section 15.3.1, historic economic assumptions for inflation rates were used to extrapolate the survey results to the Year End 2021 position.

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 12 – Resident Households by Monthly Household Income 1/ and Number of Working Persons

Monthly Income Group ($)	Total	No Working Person	Employed Households by Number of Working Persons		
			1	2	3 or More
Total	100.0	100.0	100.0	100.0	100.0
Below 1,000	6.0	46.0	1.5	-	-
1,000 - 1,999	6.1	27.7	7.6	0.2	0.1
2,000 - 2,999	6.3	10.7	12.3	1.6	0.3
3,000 - 3,999	6.4	4.7	11.4	4.7	0.5
4,000 - 4,999	6.3	2.9	9.8	6.2	1.4
5,000 - 5,999	5.8	1.6	8.1	6.0	3.1
6,000 - 7,999	11.3	2.8	13.1	12.6	10.3
8,000 - 9,999	9.5	1.2	9.2	11.5	11.8
10,000 - 11,999	8.0	0.4	6.3	9.8	13.5
12,000 - 14,999	9.2	0.6	7.0	11.4	15.6
15,000 - 19,999	10.1	0.7	5.5	13.8	18.8
20,000 & Over	15.0	0.6	8.1	22.2	24.6
Average Monthly Household Income ($)	11,777	2,006	9,106	15,422	16,644
Number of Resident Households	1,349,146	160,158	479,504	496,675	212,808

Table 16A –Average Monthly Household Expenditure Among Resident Households by Type of Goods and Services (Detailed) and Income Quintile

	Total	Income Quintile				
		1st – 20th	21st to 40th	41st to 60th	61st to 80th	81st to 100th
Rentals for Housing	140.9	42.5	66.4	91.3	175.1	329.1
Educational Services	339.2	178.5	273.1	336.9	396.4	511.0

Table 21A - Average Monthly Household Expenditure Among Resident Households by Type of Goods and Services and Age Group of Main Income Earner

	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	140.9	120.5	161.7	217.9	250.7	149.9	190.2	121.7	54.8	59.3	56.5
Educational Services	339.2	271.2	166.5	149.3	325.9	556.3	586.2	575.7	363.1	212.7	42.4

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

	Total	Income Quintile				
		1st – 20th	21st to 40th	41st to 60th	61st to 80th	81st to 100th
Average Monthly Household Income	11,777	2,235	5,981	9,678	14,407	26,587

Table 30 - Average Monthly Household Income Among Resident Households 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	11,777	7,289	10,565	12,827	14,193	15,120	15,167	13,198	11,860	8,442	5,045

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	35,778	53,520	50,073	197,317	36,410	23,574	59,811	25,352	38,801	233,907	77,935	69,236	447,432
By Income Quintile													
1st - 20th	429	9,409	2,567	25,727	6,184	1,429	11,944	8,374	9,714	26,153	35,097	11,528	121,274
21st - 40th	1,786	10,061	3,417	35,935	8,175	5,502	15,642	7,743	12,018	52,607	21,035	15,805	80,104
41st - 60th	3,214	13,425	6,346	46,203	7,494	7,118	10,549	4,388	6,788	64,204	11,430	18,749	69,923
61st - 80th	8,825	14,121	11,219	49,927	8,288	5,688	9,894	2,784	5,653	56,170	4,764	14,820	77,676
81st - 100th	21,525	6,503	26,524	39,525	6,269	3,837	11,782	2,063	4,627	34,772	5,608	8,334	98,457

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	139	505	919	1,600	681	-	3,830	502	970	1,874	8,491	719	60,587	
1,000 - 1,999	138	1,242	214	2,195	657	-	3,695	1,529	1,136	2,899	15,952	2,165	50,189	
2,000 - 2,999	436	1,325	1,784	2,774	719	151	6,233	1,276	2,105	5,668	14,657	2,946	44,842	
3,000 - 3,999	622	2,772	1,093	6,901	1,339	617	8,537	2,092	2,119	8,355	11,412	4,227	36,919	
4,000 - 4,999	289	3,032	2,101	6,233	1,948	994	5,469	1,801	2,680	11,684	7,955	4,862	35,961	
5,000 - 5,999	1,372	3,029	2,286	7,241	2,432	905	6,091	1,488	1,896	11,110	4,292	4,638	31,062	
6,000 - 7,999	3,225	5,537	4,737	19,956	5,036	3,105	6,461	4,388	6,526	29,261	5,723	8,030	50,192	
8,000 - 9,999	4,072	7,235	3,991	18,324	2,248	4,968	3,848	3,092	3,442	28,529	2,076	10,163	36,324	
10,000 - 11,999	5,269	6,444	5,184	16,595	3,695	1,909	4,098	2,055	3,813	25,953	1,478	5,508	26,208	
12,000 - 14,999	5,898	8,198	5,544	22,587	5,073	2,833	2,258	2,337	3,475	31,800	816	6,751	26,733	
15,000 - 19,999	7,179	7,510	8,801	33,873	3,582	3,427	3,484	1,857	3,733	31,672	1,514	7,068	22,141	
20,000 & Over	7,140	6,690	13,420	59,037	9,001	4,665	5,809	2,933	6,905	45,102	3,569	12,159	26,273	

Table 39 - Average Monthly Household Expenditure 1/ Among Resident Households by Age Group of Main Income Earner and Type of Dwelling (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	4,906	4,201	4,549	5,229	5,563	6,040	5,733	5,758	4,713	3,823	2,699

Table 41 - Monthly Household Expenditure Among Resident Households by Household Living Arrangement and Income Quintile ($)

Household Living Arrangement	Total	Income Quintile				
		1st - 20th	21st - 40th	41st - 60th	61st - 80th	81st - 100th
Total	4,906	2,570	3,753	4,812	5,826	7,573
Couple-Based Households	5,758	3,065	4,203	5,330	6,674	9,285
Head Aged Below 35 Years	5,427	3,344	4,901	5,096	5,568	6,463
No Children in Household	5,160	4,136	4,291	3,428	4,178	5,914
With Children in Household	5,606	3,308	5,009	5,495	6,436	8,282
Head Aged 35 - 49 Years	6,679	3,584	4,875	5,997	6,982	9,699
No Children in Household	5,220	2,054	3,023	3,118	3,746	6,937
With Youngest Child Below 12 Years	7,140	3,703	5,151	6,439	7,686	11,318
With Youngest Child Aged 12 - 15 Years	6,510	3,944	4,508	6,469	7,024	11,020
With Youngest Child Aged 16 Years & Over	6,182	2,634	4,772	5,196	7,129	9,949
Head Aged 50 - 64 Years	5,738	3,360	4,275	5,242	6,664	10,167
No Children in Household	4,050	2,129	2,340	3,358	4,805	8,254
With Youngest Child Below 12 Years	5,345	3,433	4,831	6,372	7,267	10,256
With Youngest Child Aged 12 - 15 Years	6,166	3,785	4,490	6,383	8,440	12,422
With Youngest Child Aged 16 Years & Over	6,141	3,742	4,720	5,354	6,782	10,509
Head Aged 65 Years & Over	4,083	2,252	2,839	4,223	6,823	9,337
No Children in Household	2,789	1,975	2,301	3,201	4,936	7,046
With Children in Household	5,539	3,093	3,557	4,846	7,430	10,878
Other Households	3,191	1,962	2,685	3,331	3,728	4,592
One-Person Households	2,137	1,204	1,189	1,603	2,110	3,466
Others	4,000	2,542	3,345	4,187	4,740	6,711

15.4.4 National Survey of Senior Citizens 2011 Data

In this appendix, we have set out the key data we have used in the National Survey of Senior Citizens 2011[14] conducted by Ministry of Community Development, Singapore. The table numbers quoted are the statistical tables from the NSSC 2011 report. This survey is conducted periodically, with the most recent survey published in 2011.

As mentioned in Section 15.3.1, historic economic assumptions for inflation rates were used to extrapolate the survey results to the Year End 2021 position.

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

15.4.5 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, 2021 Annual Report[15].

Age Band	Male		Female		Unspecified		Total	
	Number ('000)	CPF balance (S$ '000)	Number ('000)	CPF balance (S$ '000)	Number ('000)	CPF balance (S$ '000)	Number ('000)	CPF balance (S$ '000)
Up to age 20	220	881,145	212	871,983	-	-	432	1,753,128
>20-25	119	986,890	109	1,472,886	-	-	228	2,459,776
>25-30	143	6,354,506	144	8,250,859	-	-	287	14,605,365
>30-35	157	15,200,381	170	16,956,210	-	-	327	32,156,591
>35-40	148	21,012,758	164	22,148,305	-	-	312	43,161,063
>40-45	157	29,230,058	170	28,992,761	0	46	327	58,222,865
>45-50	169	37,554,694	174	35,201,063	0	208	343	72,755,965
>50-55	170	40,797,425	172	35,334,464	0	341	342	76,132,230
>55-60	199	39,812,428	179	33,656,267	0	854	378	73,469,549
Above 60	566	71,255,912	567	59,709,972	0	1,513	1,133	130,967,397
Unspecified	14	24,197	3	6,021	4	4,671	17	34,889
All Groups	2,062	263,110,394	2,064	242,600,791	5	7,633	4,126	505,718,818

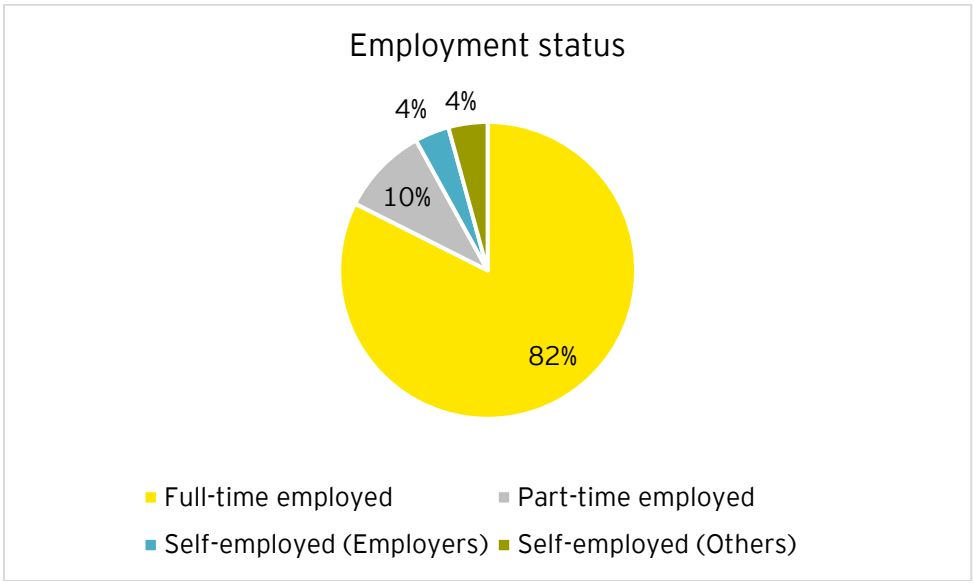
The total CPF Savings are estimated to be $ 299.8 billion.

Number of CPF members aged >20 (000)	3,677
Total CPF balance of members aged >20 (S$000)	503,930,801
Average CPF Savings per member (S$)	137,049
Number of EA	2,187,833
Total CPF Savings for the EA population (S$)	**299,841,339,168**

16. Appendix: Detailed Supplementary Market Survey

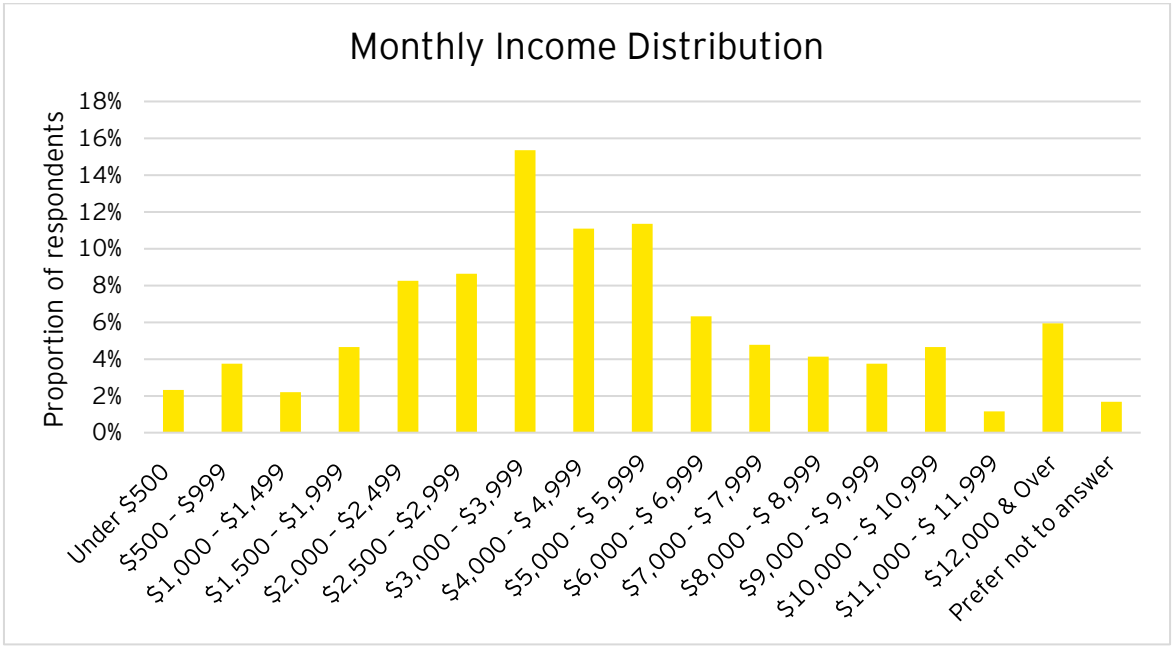
16.1 Demographic Statistics for EA Survey Respondents

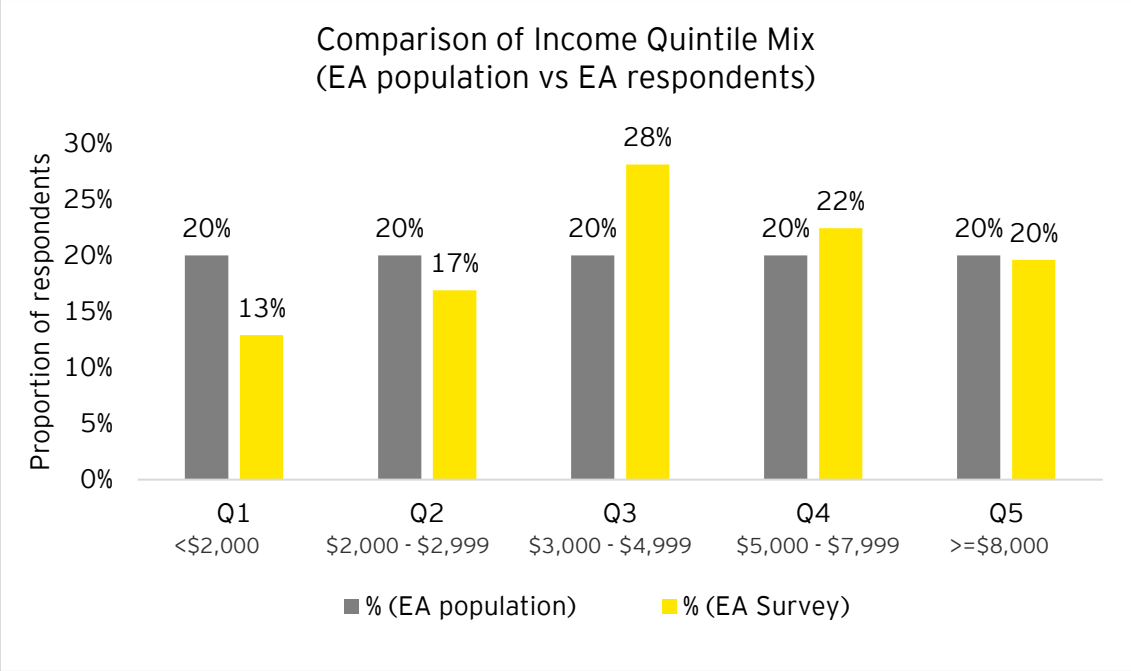
Employment Status



92% of the respondents are employed, consisting of 82% full time employed and 10% part time employed. 8% of the respondents indicated that they are self employed, of which 4% are employers themselves.

Income Status





In the supplementary market survey, we have also asked respondents for an estimate of the monthly income they are receiving. Comparing the monthly income per EA adult between the EA adult survey respondents and EA population (derived from the Labour Force Survey), we observed:

- A lower proportion of EA survey respondents are from Q1 (13%) as compared to the EA population (20%);
- A higher proportion of EA survey respondents are from Q3 (28%) as compared to the EA population (20%); and
- A similar proportion of EA survey respondents in Q2, Q4 and Q5, as compared to the EA population.

16.2 Supplementary Market Survey Questions (EA Respondents)

16.2.1 Sources of Financial Concerns

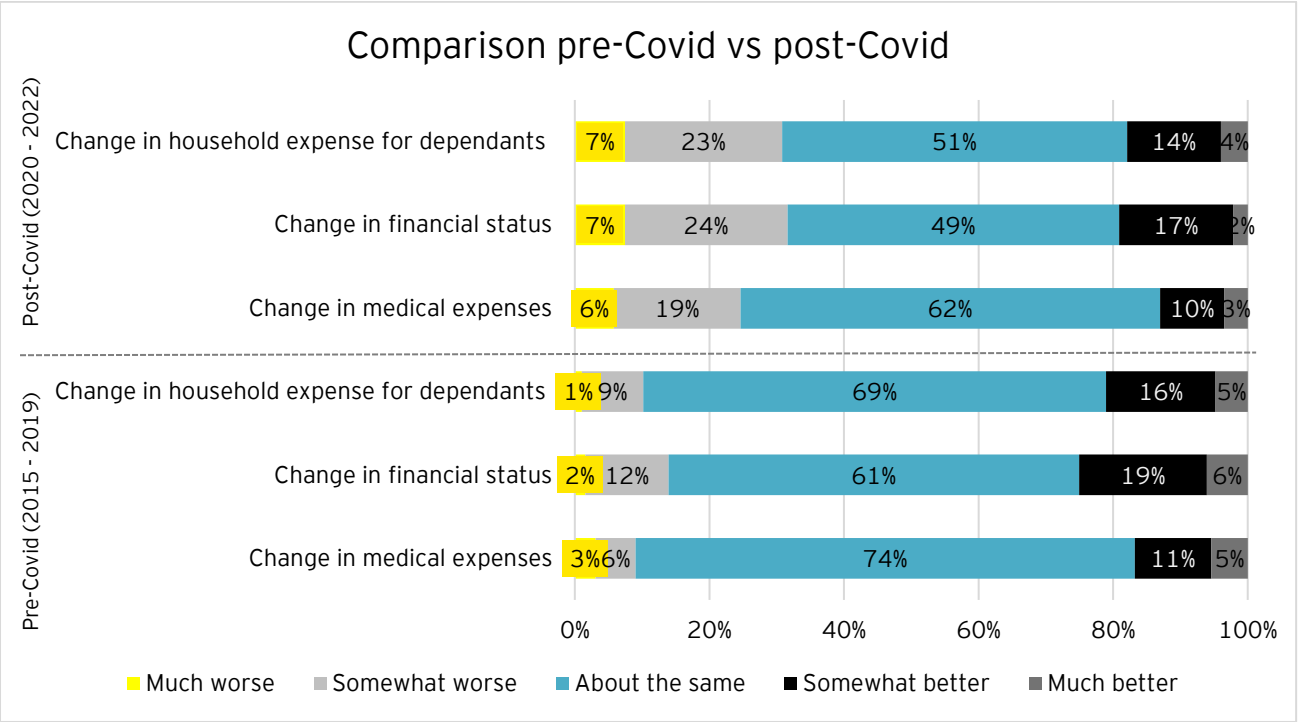
In the supplementary market survey, we have asked respondents to indicate their sources of financial concerns.

Most respondents indicated healthcare expenses (65%) and retirement planning (62%) as the main sources of financial concern. A significant proportion of respondents indicated that inability to work due to CI (30%) as a source of financial concern.

The results show that people have the awareness that the healthcare expenses and inability to work due to CI are sources of financial concern. However, despite this awareness, many people still have inadequate coverage for CI. This is also evident from the CI protection gap calculated in the Protection Gap study.

Many respondents also indicated that funding expenses of children (26%) and ageing parents (25%) as the sources of financial concern. This shows a significant amount of financial commitments for the Singapore EA population, hence pointing to a need for savings.

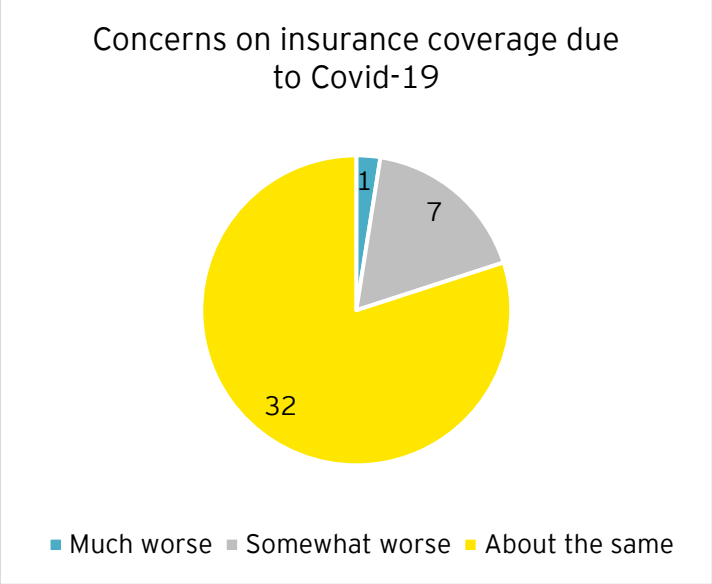
16.2.2 Covid-19 Impact



In the supplementary market survey, respondents are asked to indicate how their household expenses for dependents, medical expenses and financial status have evolved pre-Covid (2015-2019) vs. post-Covid (2020-2022).

Comparing the survey respondents' assessment of their respective situation pre-Covid and post-Covid, we note that a significantly higher proportion of respondents indicated that their expenses incurred and financial status has worsened post-Covid. For example, for financial status, 14% of the respondents indicated that their financial status worsened pre-covid, compared to 31% of respondents indicating their financial status worsened post-covid.

16.2.3 Insurance Coverage Concerns (Post Covid-19)



In the supplementary market survey, we have asked the respondents on whether Covid-19 has impacted their concerns on insurance coverage.

41% of respondents indicated that Covid-19 has resulted in concerns on their current insurance coverage.

The main reasons leading to the concern includes concerns on own medical expense (41%) and job/income uncertainty (23%). These results also support the observation where insurers are seeing a higher demand from certain insurance products as people start to be more concerned on their insurance coverage amidst Covid-19 and to rethink their health and financial plans[17].

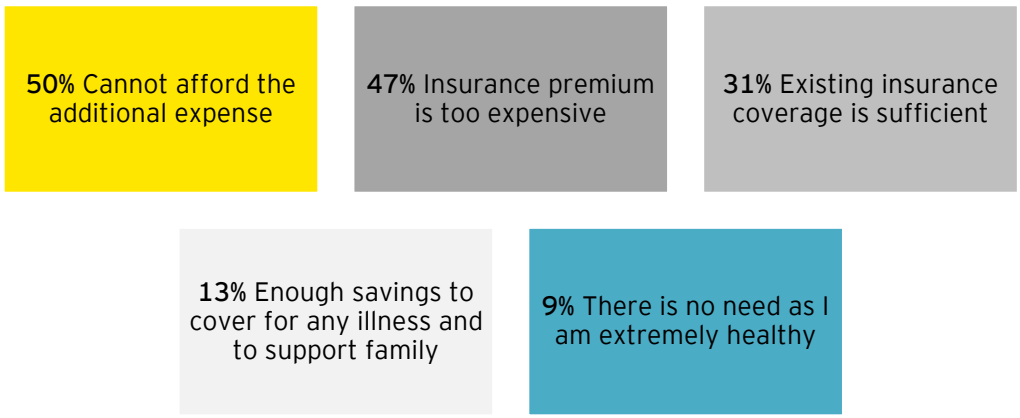
16.2.4 Reasons for Purchasing Insurance

In the supplementary market survey, we have asked respondents on the reasons for purchasing insurance.

Top reasons for taking up additional insurance protection includes insufficient existing insurance coverage (45%) and having financial responsibilities for dependents (32%). These results further support the sources of financial concern where a significant number of people have concerns on their financial commitments such as funding of expenses of ageing parents and children. It also shows that the public are increasingly purchasing insurance products as a form of financial protection for their dependents, whether in the form of protection or savings.

Other reasons also include purchasing insurance due to feeling less healthy than before (22%). This may also be the reason for the Protection Gap due to people purchasing insurance only after deterioration in health.

16.2.5 Reasons for Not Purchasing Additional Insurance



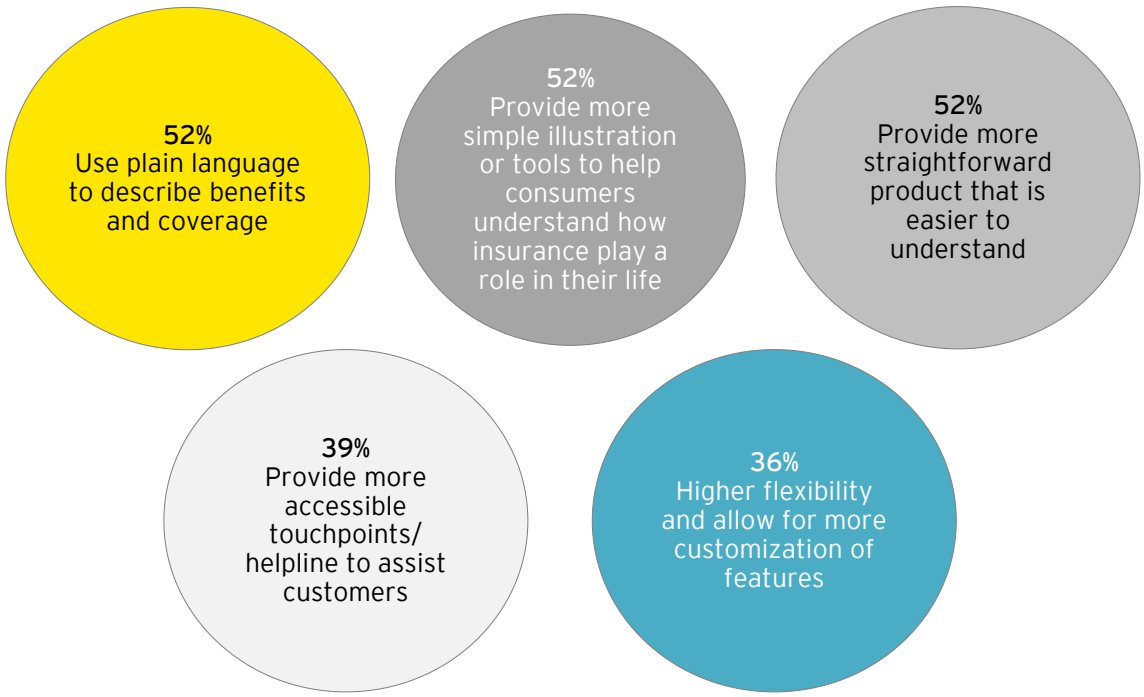
In the supplementary market survey, we have asked respondents on the reasons for not purchasing additional insurance.

Top reasons for not purchasing additional insurance include not being able to afford the additional expense (50%) and insurance premium is too expensive (47%).

This points to a potential concern on how the insurance industry is being perceived by the EA population, where many people may feel that insurance premiums are too expensive and therefore, they are unable to afford such expenses. It also supports our understanding on the importance of constant education on the benefits of insurance to the public to allow the population to better appreciate the value of insurance.

In addition, 31% of respondents perceive that their existing insurance coverage is sufficient. This may explain the Protection Gap observed where people underestimate their Protection Needs hence do not purchasing additional insurance, especially when their financial circumstances have changed.

16.2.6 Improvements Expected from the Insurance Industry



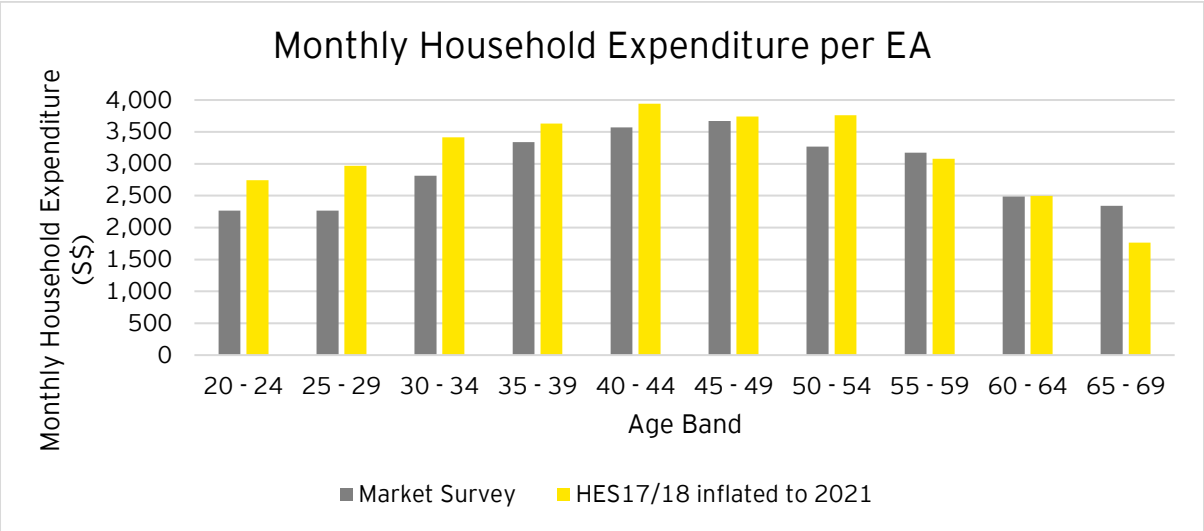
In the supplementary market survey, we have asked the respondents on what they wish to see more from the insurance industry and any improvements they would like to see for the industry.

More than 50% of respondents indicated the insurance industry can improve by simplifying the products, including providing more straightforward products that are easier to understand, providing simplified illustrations or tools to help consumers understand how insurance plays a role in their life, and using plain language to describe benefits and coverage.

This highlights that that there may be a potential gap in the consumer's understanding of the benefits of the insurance products. The results show that consumers may have faced difficulties in understanding the insurance products being offered. This may have become a deterrence to purchasing the product, or consumers may not be able to understand the terms and conditions under the product, resulting in the Protection Gap.

For the insurance industry, this also means that simplifying products and clear communication of policy benefits adds great value in gaining the trust of consumers.

16.2.7 Monthly Household Expenditure

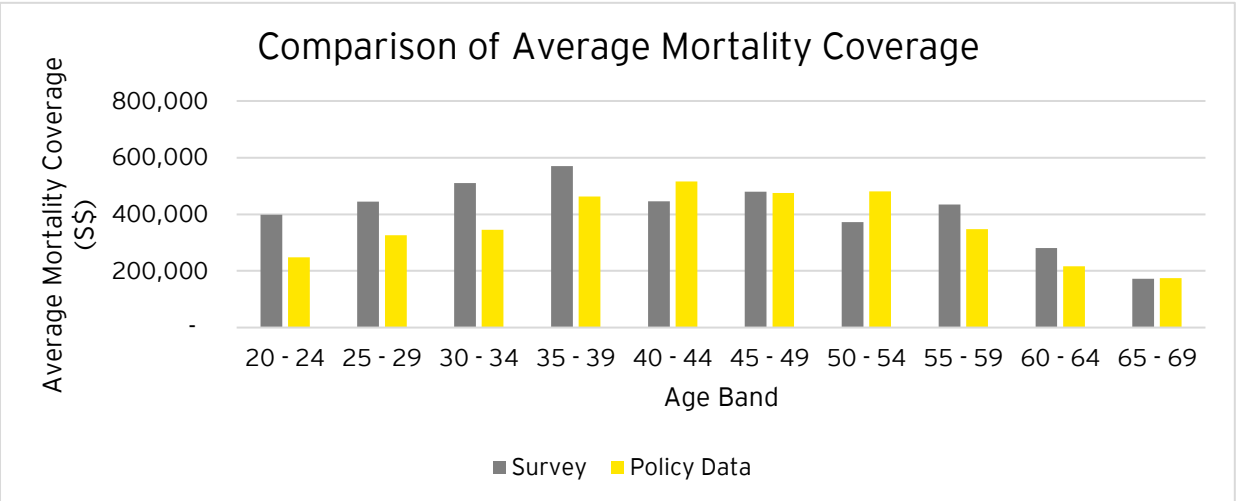


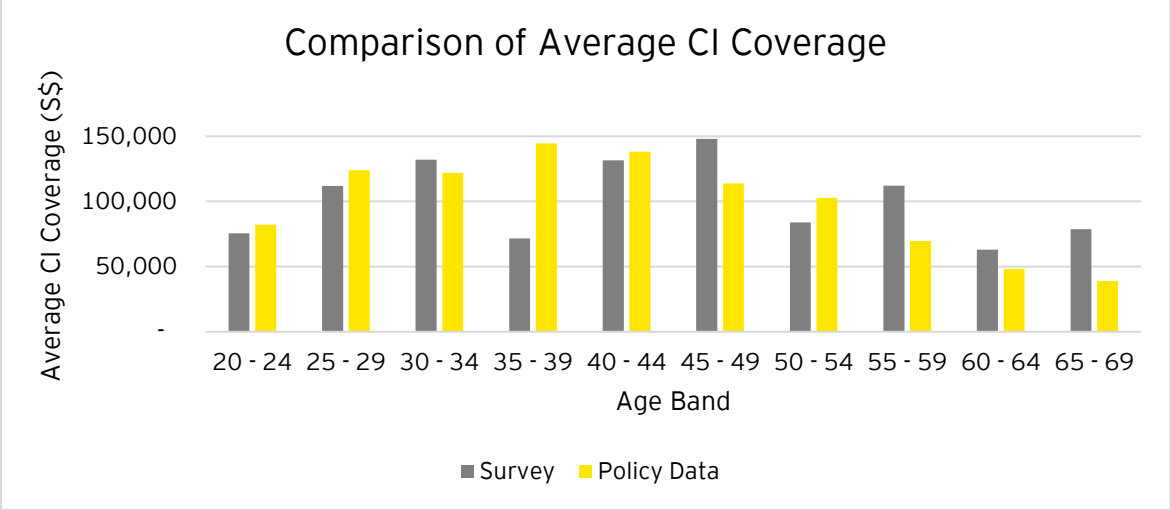
In the supplementary market survey, we have asked respondents to provide their monthly household expenditures across different expense types.

Comparing the survey results to the Household Expenditure Survey (HES 17/18) inflated to 2021, we observe similar distribution of monthly household expenditure per EA across the age groups, where the monthly household expenditure is lower at the younger ages, increases to the peak around age 45 and decreases after age 45.

We also note that the average monthly household expenditure is similar between results from supplementary market survey (S$2,919) and HES 17/18 inflated to 2021 (S$3,154).

16.2.8 Insurance Coverage



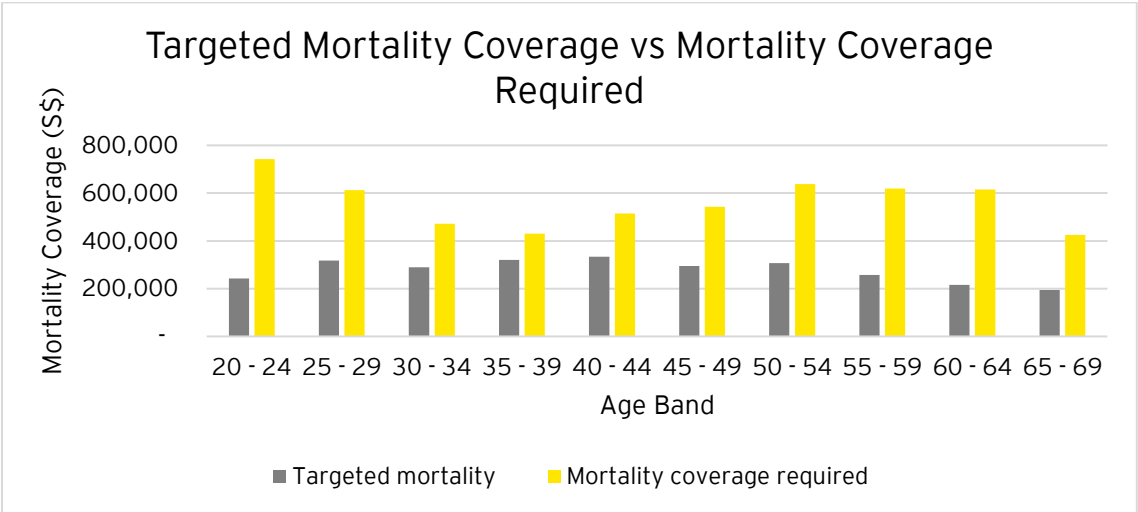


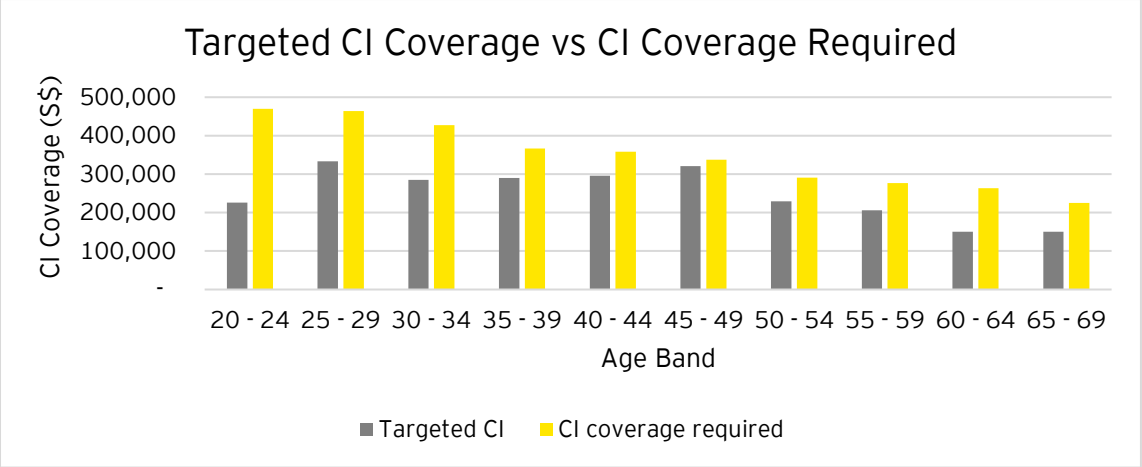
In the supplementary market survey, we have asked respondents to provide the amount of mortality coverage and CI coverage that they currently have.

From the survey results, the average mortality coverage per EA is S$433K, inclusive of individual and group insurance. This is slightly higher than the average mortality coverage obtained from policy data and used in Protection Gap calculation (S$ 381K).

The survey results also indicate that the average CI coverage per EA is S$106K, inclusive of individual and group insurance. This is largely similar to the average CI coverage obtained from policy data and used in Protection Gap calculation (S$ 106K).

16.2.9 Targeted Coverage vs Estimated Coverage Required





In the supplementary market survey, we have asked respondents to provide their targeted mortality and CI coverage. This targeted mortality and CI coverage is then compared to the estimated coverage required per EA.

For both mortality and CI, we observed that the targeted coverage is lower than our calculated coverage required per EA across all age groups. The coverage required (i.e total insurance coverage required to close the protection gap) is derived from our calculation results from 2022 PGS as the sum of the protection gap, individual insurance and group insurance owned.

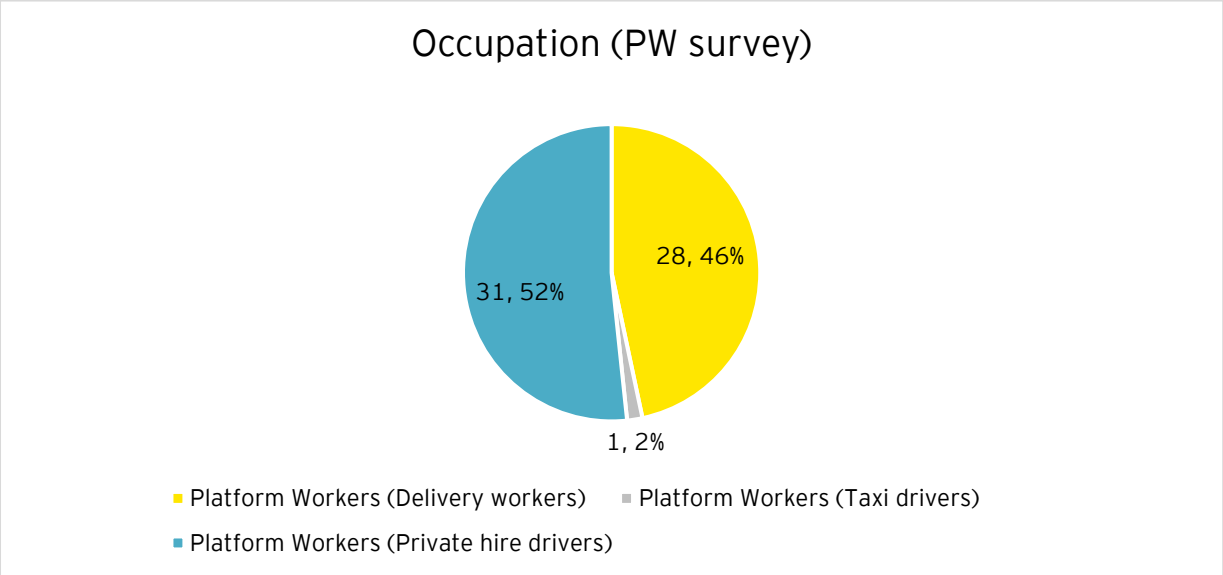
We have observed a larger gap (S$ 262,650) between the mortality target per EA (S$ 288,742) compared to the mortality coverage required per EA (S$ 551,392). Smaller gap is observed (S$ 89,529) between CI target per EA (S$ 264,613) vs estimated coverage required per EA (S$ 354,142).

Furthermore, our analysis also shows that:

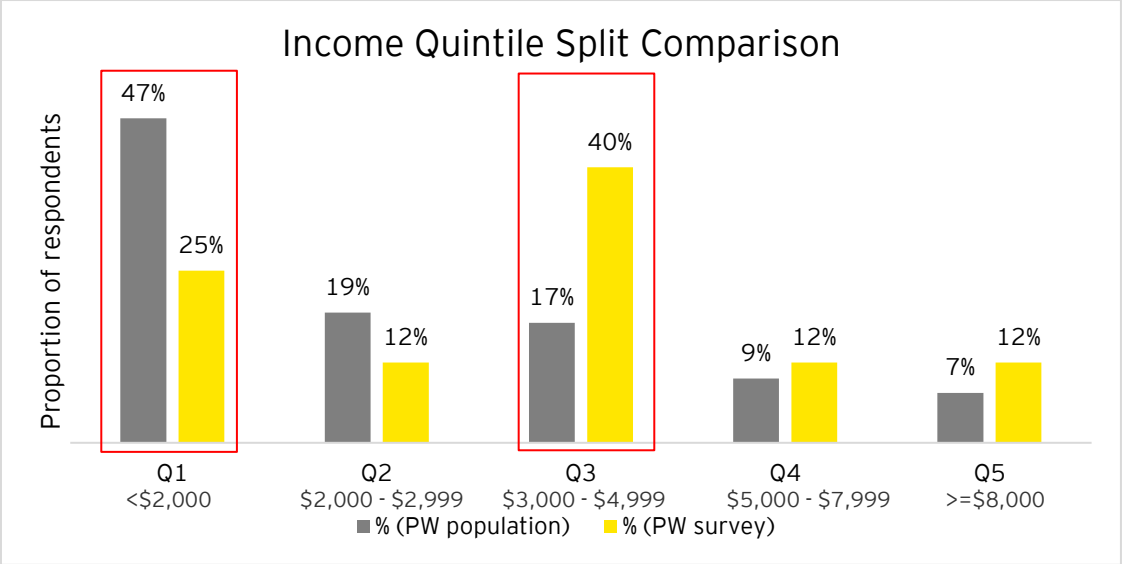
- 86% of EA respondents have indicated a target mortality coverage that is below the average mortality coverage required to address the mortality protection gap. Similarly, 76% of EA respondents indicated a lower target CI coverage than the average CI coverage required to address the CI protection gap; and
- 26% of EA respondents are aware that their mortality insurance coverage is inadequate, setting a higher target for mortality coverage than the coverage they own, while 63% of EA respondents are aware that their CI insurance coverage is inadequate, setting a higher target CI coverage than the CI coverage they own.

Responses from this question suggest that the general population may tend to underestimate the coverage they require, and this supports the Protection Gap we observed.

16.3 PW Demographic Statistics (Supplementary Market Survey)



Out of the 60 PW survey respondents, 52% are private hire drivers, 46% are delivery workers and 2% are taxi drivers.



In the supplementary market survey, we have asked respondents for an estimate of the monthly income they are receiving.

Comparing the monthly income per PW from supplementary market survey results and PW population,

- A lower proportion of survey respondents (25%) are in Q1 compared to PW population (47%).
- A significantly higher proportion of respondents (40%) are in Q3 compared to PW population (17%).

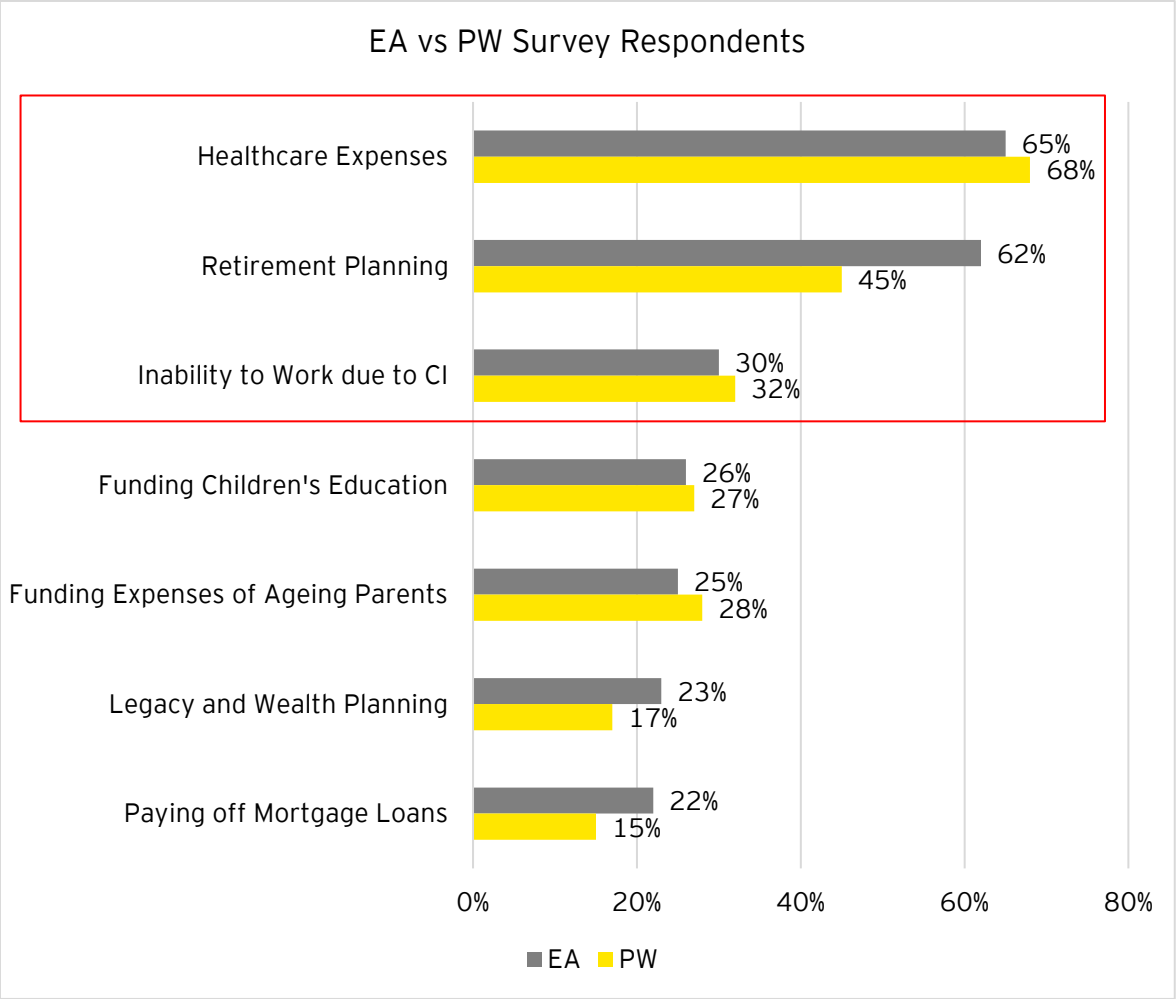
Possible reasons for these differences could be due a high proportion of survey respondents being private hire drivers and delivery workers, where these occupations have a relatively higher income compared to taxi drivers.

The table below summarizes the median monthly income for the 3 PW occupations in-scope:

Median monthly income (S$)	Report by the Advisory Committee on Platform Workers[16]	PW Supplementary Market Survey Results
Taxi drivers	1,200	1,250
Delivery workers	1,800	2,750
Private hire drivers	2,000	3,500 (after deducting vehicle rental expenses) for private hire drivers)

16.4 Supplementary Market Survey Questions (PW Respondents)

16.4.1 Sources of Financial Concerns



In the supplementary market survey, we have asked respondents to indicate their sources of financial concerns.

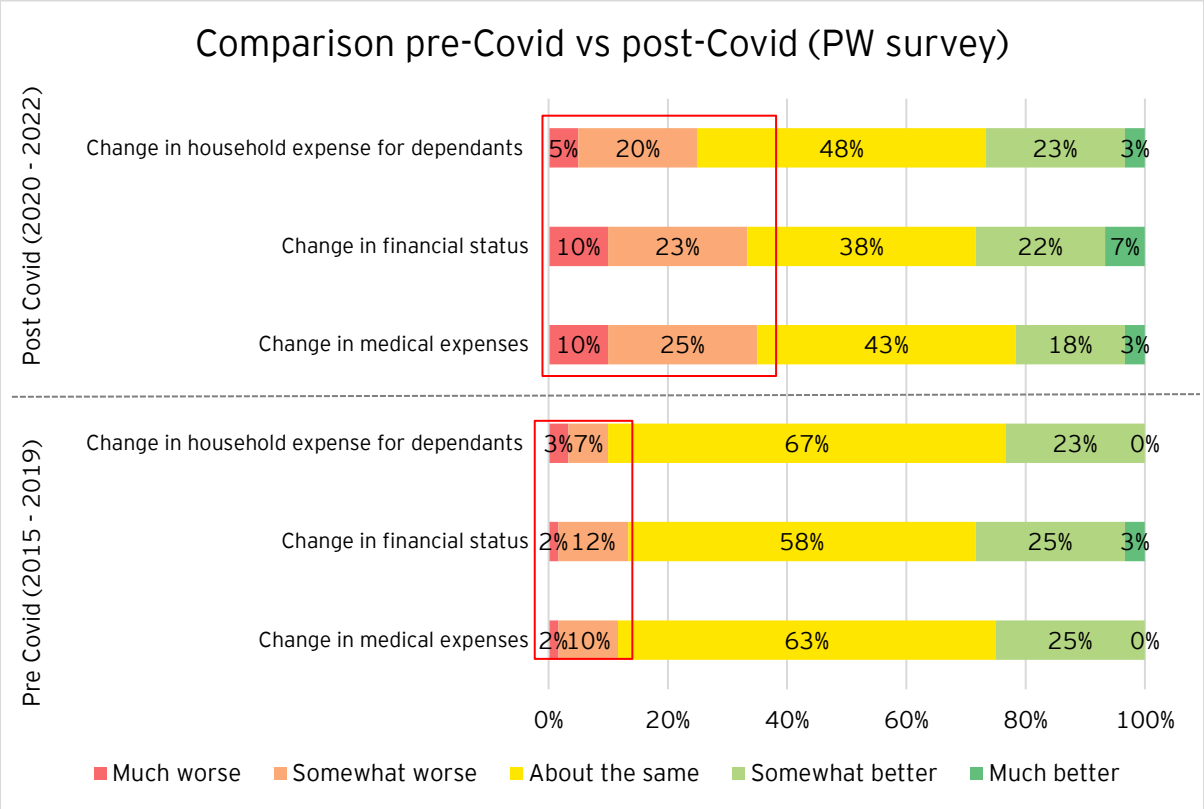
Top Financial Concerns

- The top 3 sources of financial concerns are the same for EA and PW, being healthcare expenses (65%, 68%), retirement planning (62%, 45%) and inability to work due to CI (30%, 32%).
- The results show that people have the awareness that the healthcare expenses and inability to work due to CI are sources of financial concern. However, despite this awareness, many people still have inadequate coverage as evident from the protection gap observed.

Other Concerns

- A relatively high proportion of respondents also indicated that funding expenses of children (26%, 27%) and ageing parents (25%, 28%) as sources of financial concern, and this is consistent for both EA and PW. This shows financial security for dependents also remains a key concern for Singapore population.
- Notably, legacy and wealth planning (23%, 17%) is the second least of the concern of both PW and EA population, suggesting that wealth / legacy planning is not a top financial priority / goal.
- Although retirement planning is one of the top concern, there is a significantly lower proportion of PW (45%) compared to EA (62%) indicating it as a concern. This indicates that any form of long term legacy/retirement/wealth planning is less of a concern for PW as compared to EA.
- Paying off mortgages and loans is the least chosen source of financial concern for both EA and PW, potentially due to the ability to use CPF.

16.4.2 Covid-19 Impact

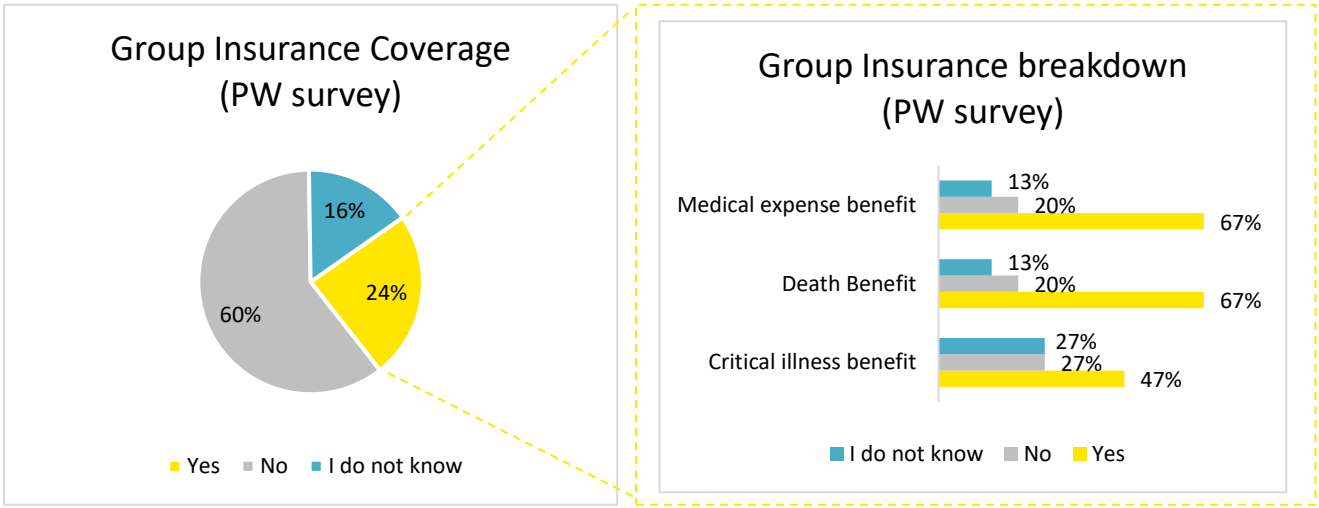


In the supplementary market survey, we have asked the respondents to indicate how their household expenses for dependents, medical expenses and financial status have evolved pre-Covid (2015-2019) vs. post-Covid (2020-2022).

Comparing the results of pre- vs post-Covid, the proportion of responses stating improvements in household expenses for dependents, financial status and medical expenses has not changed much.

There has been an increase in responses stating a worsening of household expenses for dependents, financial status and medical expenses from pre-Covid to post-Covid, with a corresponding difference in responses stating no change. For example, for financial status, 14% of the respondents indicated that their financial status worsened pre-Covid, compared to 33% of respondents indicating their financial status worsened post-covid.

16.4.3 PW Group Insurance Coverage



In the supplementary market survey, we have asked respondents to indicate whether they are covered under group insurance and the types of benefit included under the group insurance.

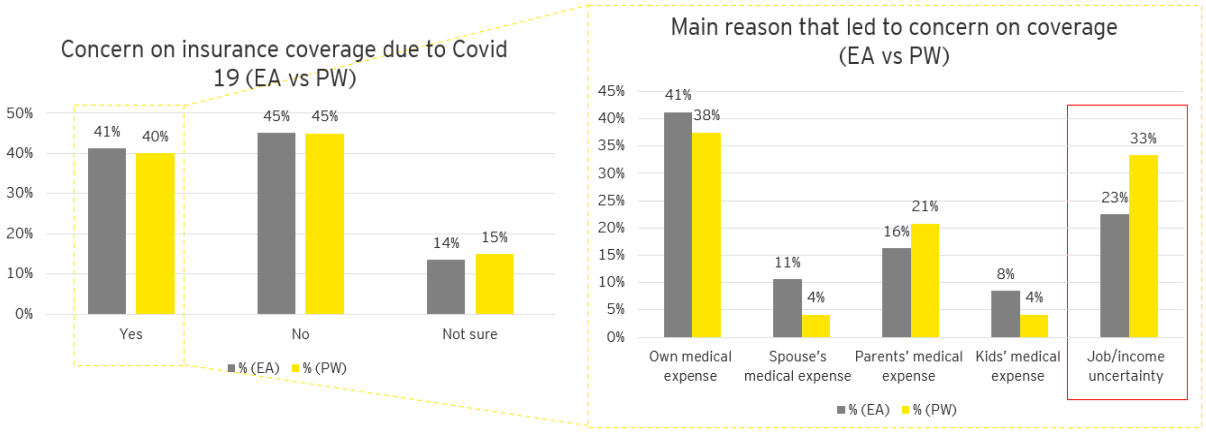
According to the survey results, more than half of the respondents (60%) indicated that they are not covered under group insurance, and 16% of the respondents are unaware of any group insurance coverage. This is contrary to desktop research which shows that most platform companies (including Grab, Deliveroo and Lalamove) offer free personal accident insurance for the duration of the job/ride which covers accidental death.

Among the 24% who indicated they have group insurance, more than 10% are unaware of the benefits offered under the group insurance.

From the report by the Advisory Committee on Platform Workers [17], current insurance coverage for PW is insufficient, with less than half of the respondents satisfied with the insurance benefits provided by platform companies, and more than a third are unaware of the benefits.

By 2024, platform companies are required to provide the same scope and level of work injury compensation as employees' entitlement under the Work Injury Compensation Act (WICA). The scope includes medical expenses, compensation for income loss and lump sum compensation for permanent disability or death.

16.4.4 Insurance Coverage Concerns (Post Covid-19)



In the supplementary market survey, we have asked respondents on whether Covid-19 has impacted their concerns on insurance coverage, and also the main reason leading to the concern.

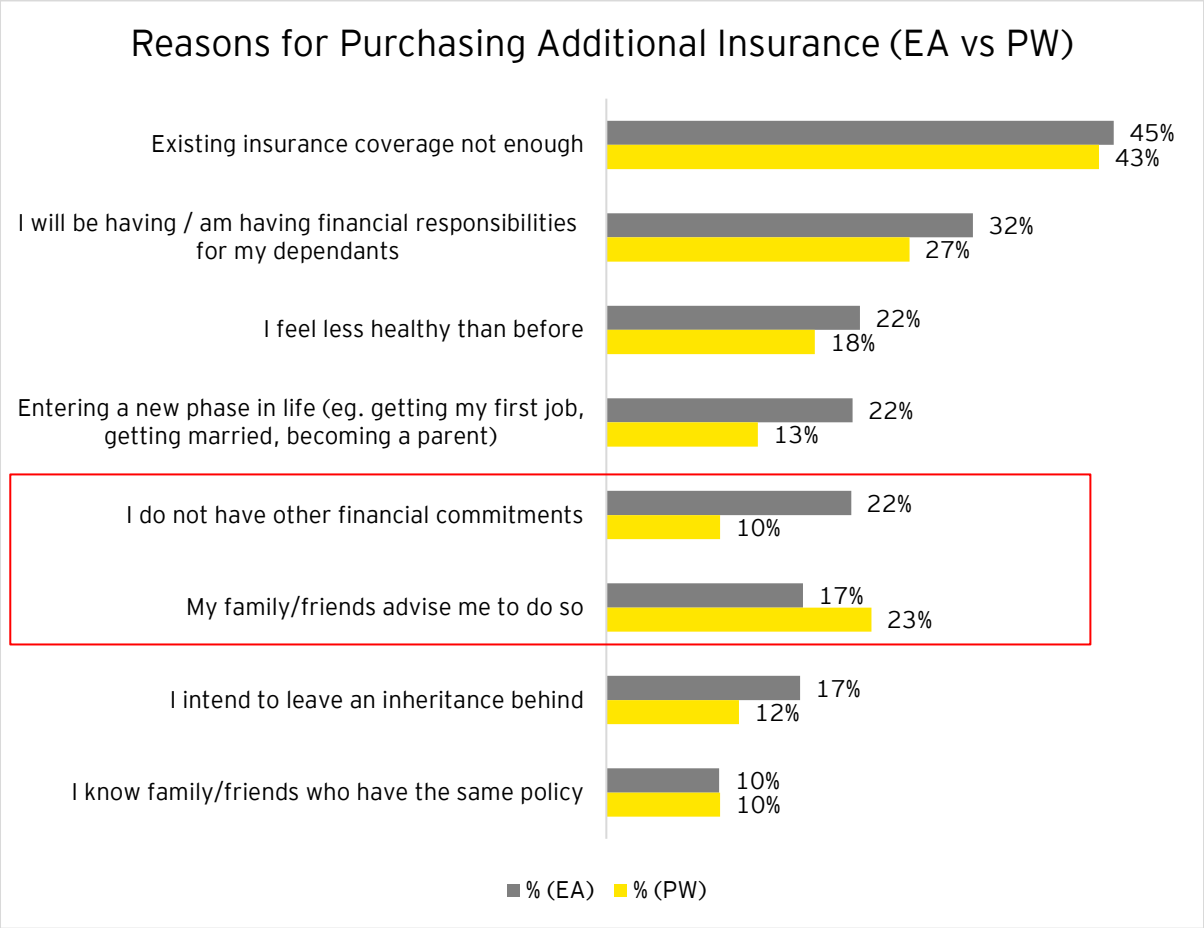
From our supplementary market survey, we see that PW and EA have a similar split of concerns on insurance coverage due to Covid 19. About 40% of EA and PW respondents indicated that Covid-19 has resulted in additional concerns on their insurance coverage.

For both EA and PW, the main reasons leading to the concern includes concerns on own medical expense (41%, 38%) and job/income uncertainty (23%, 33%).

Higher proportion of PW compared to EA indicated job/income uncertainty as the main reason, suggesting that Covid-19 may have had a larger impact on the PW population, possibly due to the volatility in their job security.

These results also support the observation where insurers are seeing a higher demand from certain insurance products as people start to be more concerned on their insurance coverage amidst Covid-19 and to rethink their health and financial plans[18].

16.4.5 Reasons for Purchasing Insurance



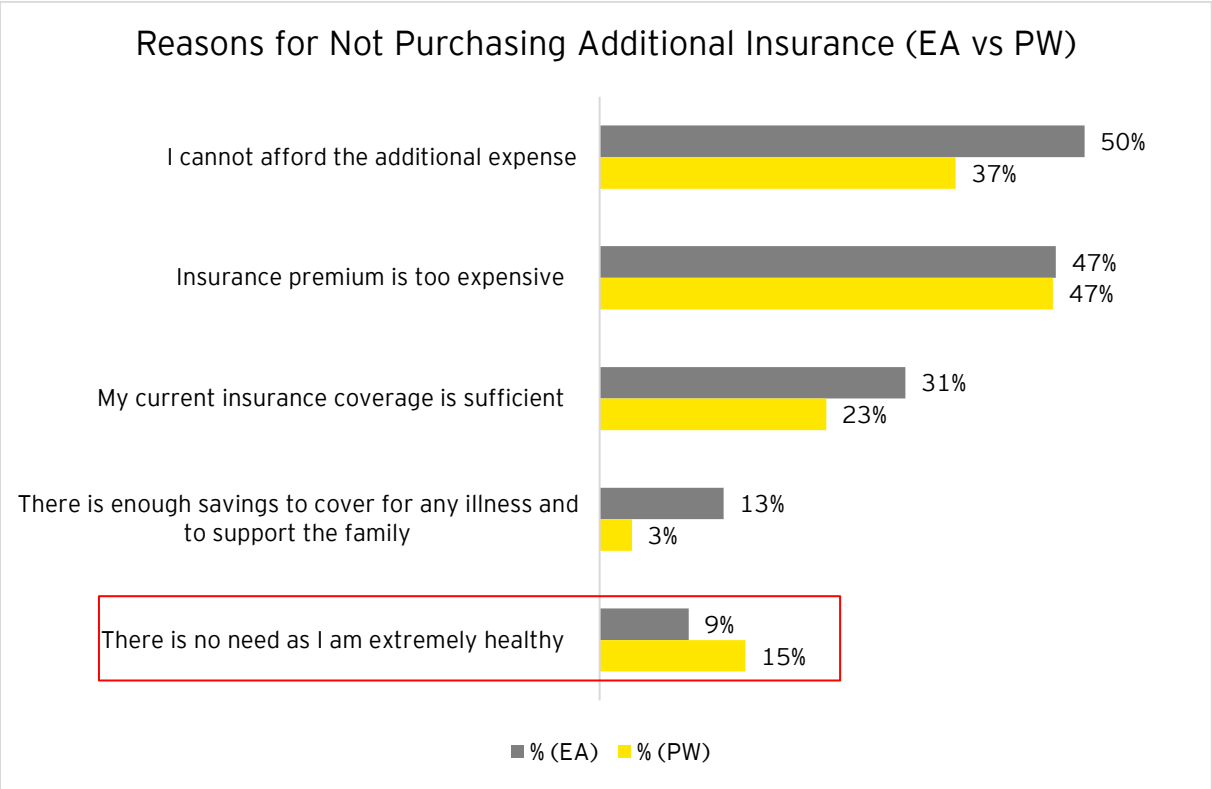
In the supplementary market survey, we have asked the respondents on the reasons for purchasing additional insurance.

Top reasons for taking up additional insurance protection for both EA and PW includes insufficient existing insurance coverage (45%, 43%) and having financial responsibilities for dependents (32%, 27%).

Only 10% of PW purchase additional insurance due to having no other financial commitments, compared to 22% of EA respondents. This also shows the higher amount of financial commitments/less disposable income for an average PW as compared to EA.

Higher proportion of PW (23%) take up additional insurance due to advice from family/friends compared to EA (17%). This may indicate a lower financial / insurance awareness for PW as compared to EA, hence more PW tend to heed advice from others with relation to insurance purchases.

16.4.6 Reasons for Not Purchasing Additional Insurance



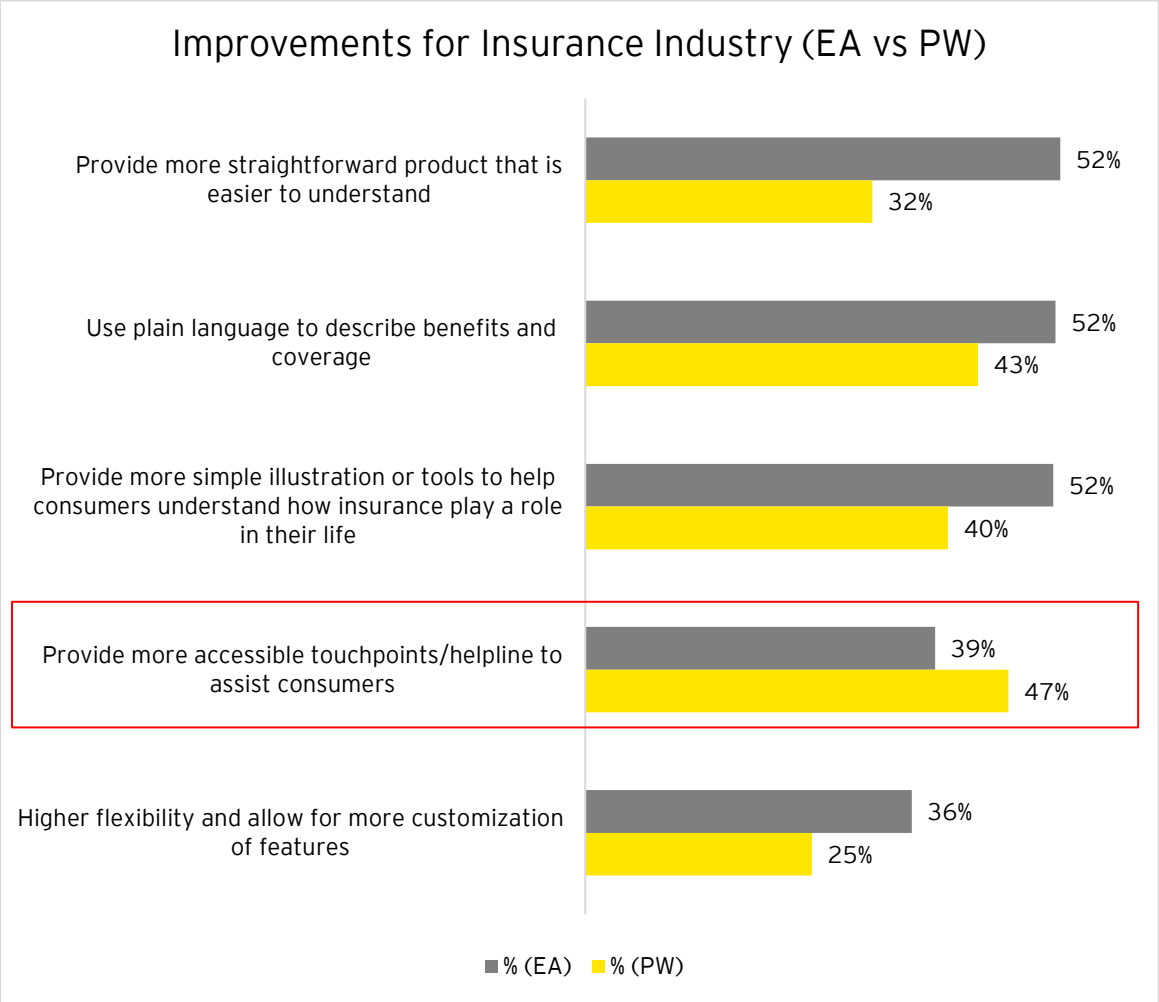
In the supplementary market survey, we have asked the respondents on the reasons for not purchasing additional insurance.

Top reasons for both EA and PW include not being able to afford the additional expense (50%, 37%) and insurance premium is too expensive (47%, 47%).

This points to a potential concern on how the insurance industry is being perceived by the general population, where many people may feel that insurance premiums are too expensive and therefore, they are unable to afford such expenses. It also supports our understanding on the importance of constant education on the benefits of insurance to the public to allow the population to better appreciate the value of insurance.

A higher proportion of PW (15%) also indicated there is no need to purchase insurance as he/she is extremely healthy, as compared to EA (9%). This further supports the larger Protection Gap observed for PW where there is tendency to underestimate their protection needs or are not aware of the full benefits of insurance, hence do not have adequate coverage.

16.4.7 Improvements Expected from the Insurance Industry



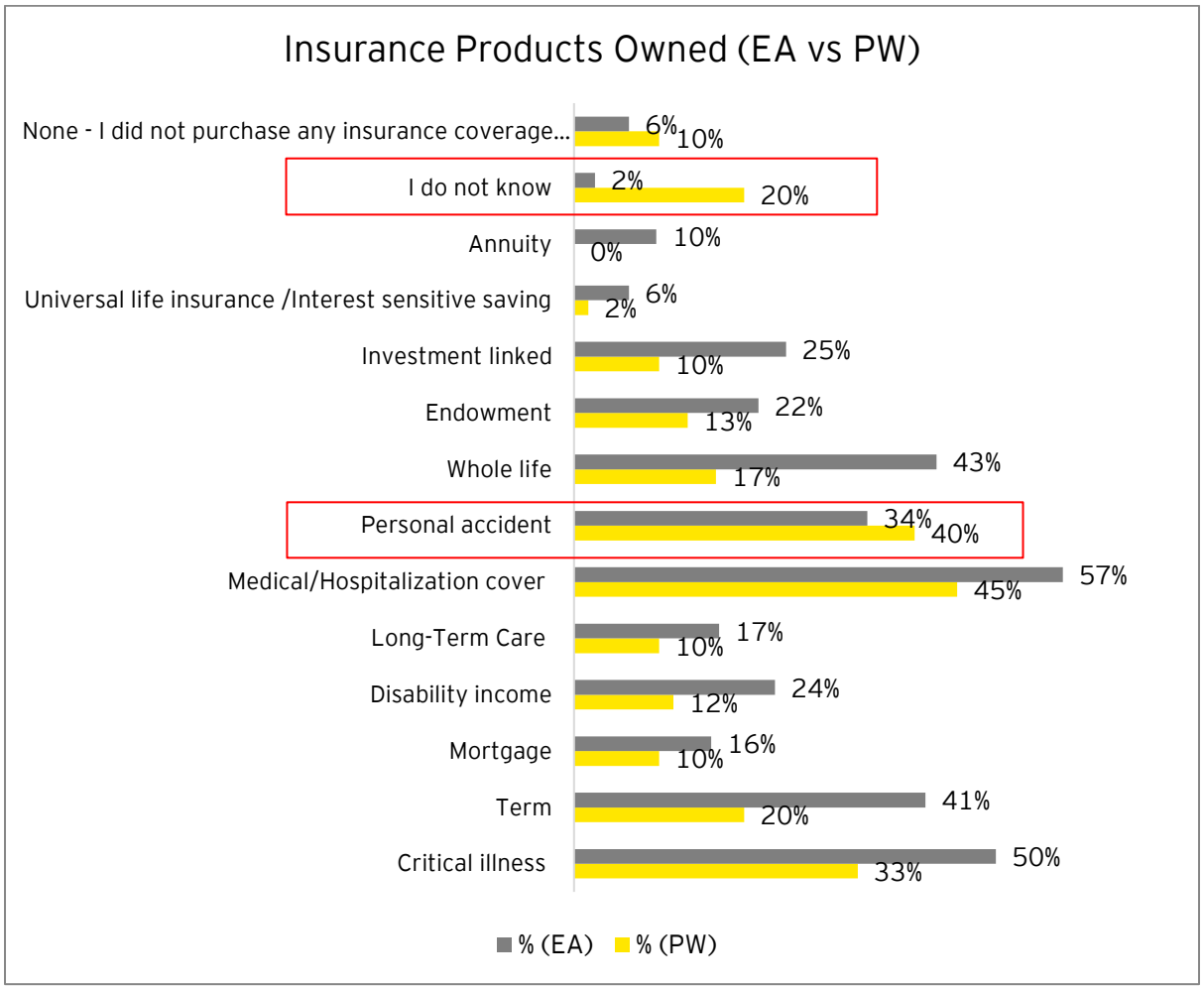
In the supplementary market survey, we have asked the respondents on what they wish to see more from the insurance industry.

Comparing the results of PW and EA respondents, a higher proportion of PW (47%) hopes that the insurance industry can provide more accessible touchpoints to seek advice, suggesting more resources may be needed to assist PWs in their insurance purchase/financial planning.

More than 50% of EA respondents and more than 30% PW respondents indicated the insurance industry can improve by simplifying the products, including providing more straightforward products that are easier to understand, providing simplified illustrations or tools to help consumers understand how insurance plays a role in their life, and using plain language to describe benefits and coverage.

This highlights that that there may be a potential gap in the general public's understanding of the benefits of insurance products. This may have been one of the deterrence to purchasing adequate insurance coverage.

16.4.8 Insurance Products Owned



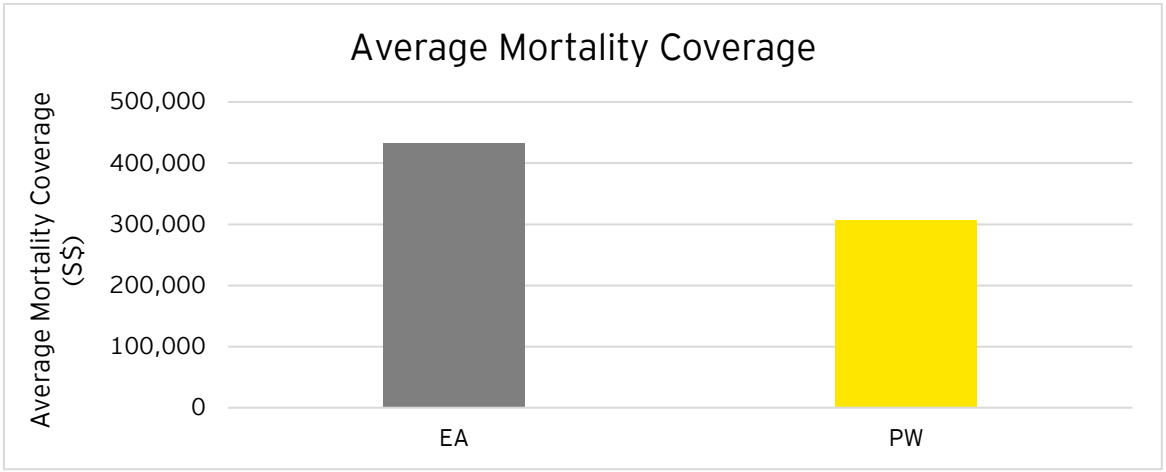
In the supplementary market survey, we have asked the respondents on the different types of insurance products that they own.

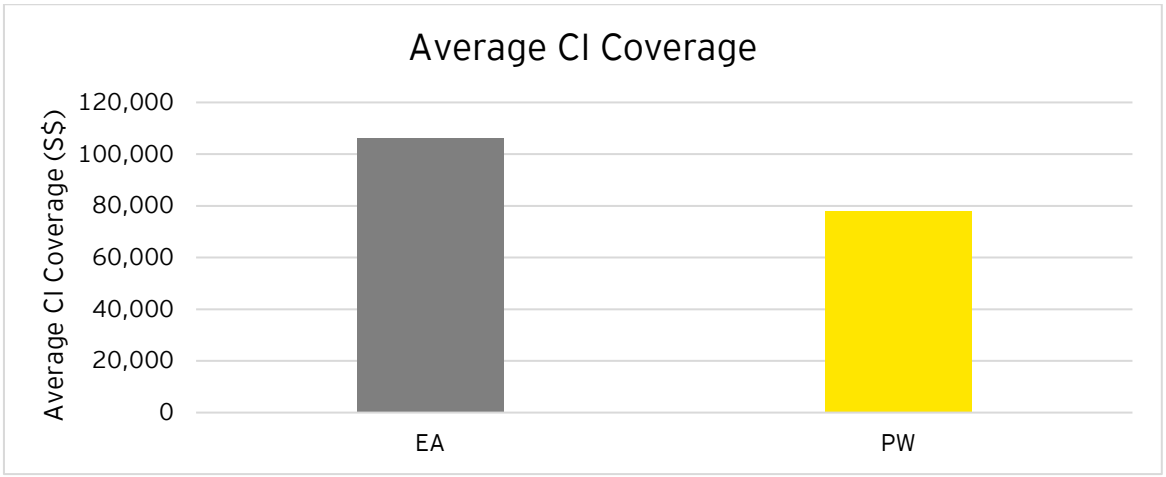
Comparing the results of PW and EA respondents, a significantly higher proportion of PW (20%) compared to EA (2%) responded that they are unaware of the types of insurance products they own. This may indicate a lack of awareness or knowledge on insurance products within the PW segment, and further supports the survey results where a higher proportion of PW wishes to have increased touchpoints for them to seek advice.

There exists a purchase gap between the PW and EA segment, where the survey results indicated a lower percentage of PW owning products across most products types – and a larger gap is shown for Investment-Linked, Whole Life, Term and CI plans.

However, a higher proportion of PW (40%) compared to EA (34%) indicated that they own a personal accident product which may be explained by the more accident-prone nature of PW's jobs as compared to an average EA.

16.4.9 Insurance Coverage





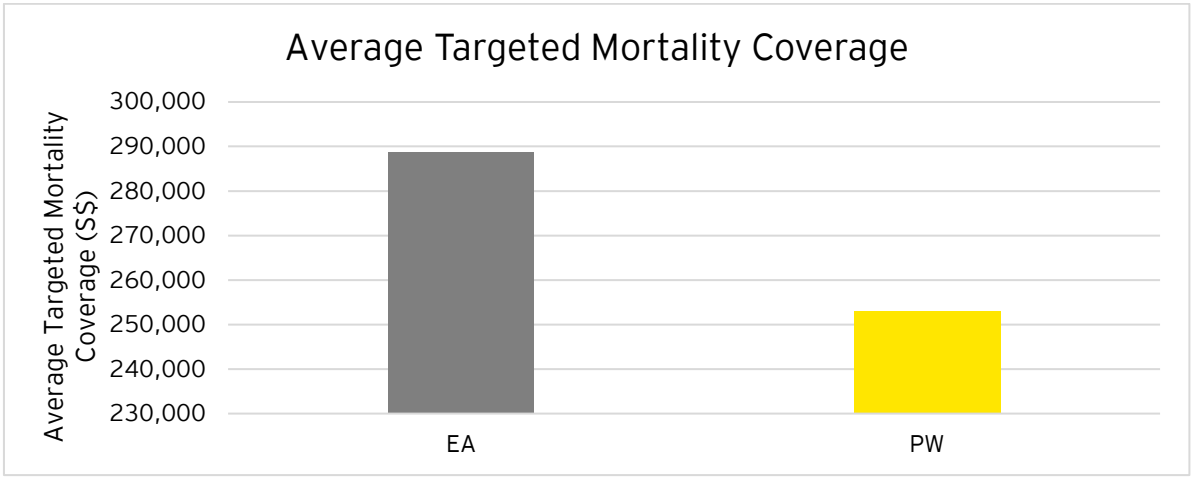
In the supplementary market survey, we have asked respondents to provide the amount of mortality coverage and CI coverage that they currently have.

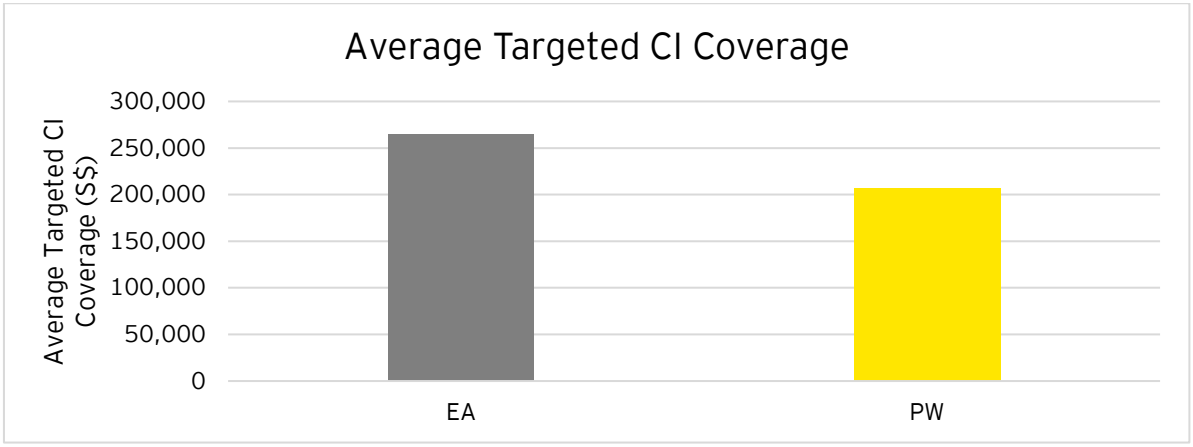
From the survey results, we observe that the average insurance coverage for both mortality and CI is lower for PW as compared to EA.

- From the survey results, the average mortality coverage for PW is S$ 306K, inclusive of individual and group insurance. This is lower than the average mortality coverage for EA (S$ 433K).

- The survey results also indicate that the average CI coverage per PW is S$ 78K, inclusive of individual and group insurance. This is also lower than the average CI coverage for EA (S$ 106K).

16.4.10 Targeted Coverage





In the supplementary market survey, we have asked respondents to provide their targeted mortality and CI coverage.

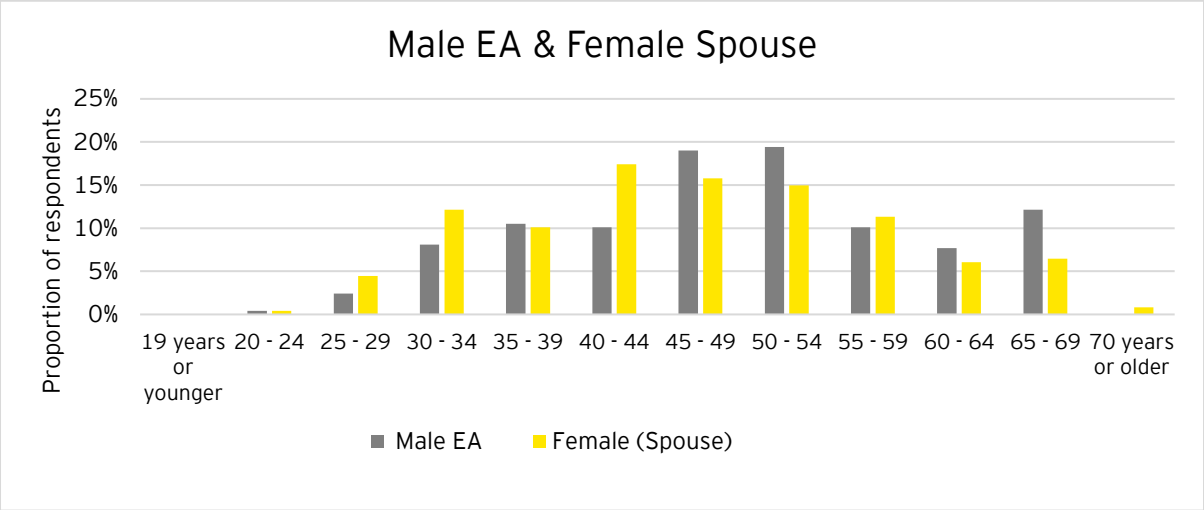
For both mortality and CI, we observed that the average targeted coverage is lower for PW as compared to EA.

- The average mortality target for PW is S$253K, which is lower than that of EA (S$ 289K).
- The average CI target for PW is S$207K, lower as compared to EA (S$265K).

16.5 Validation of Model Assumptions

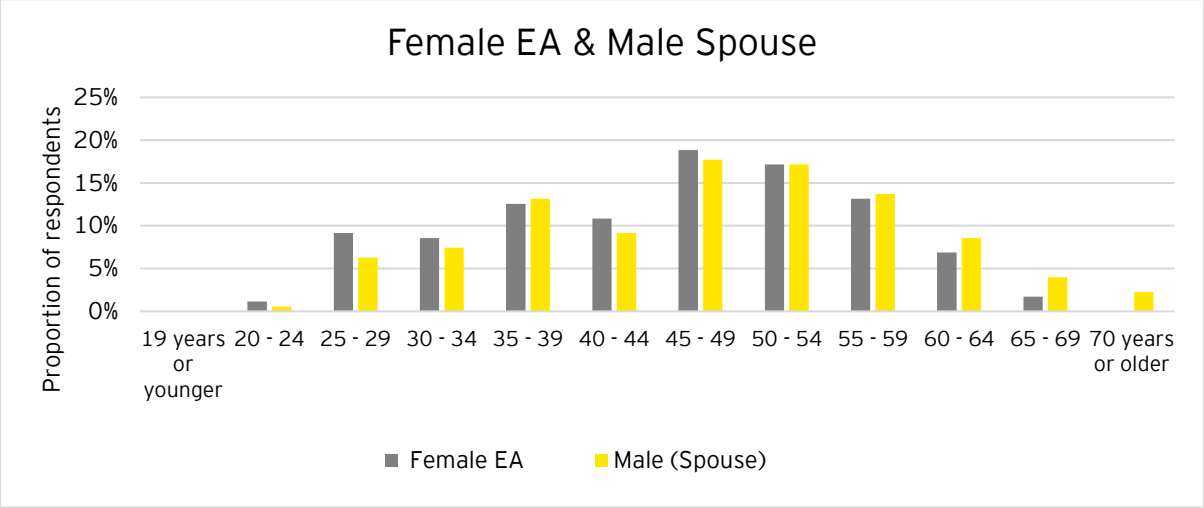
From data collected from the supplementary market survey, we were able to sense-check some assumptions made in our model, to ensure that they remain reflective of the audience of this study.

16.5.1 Spouse Age Setback



In the supplementary market survey, we have asked respondents to indicate their ages and their spouse ages.

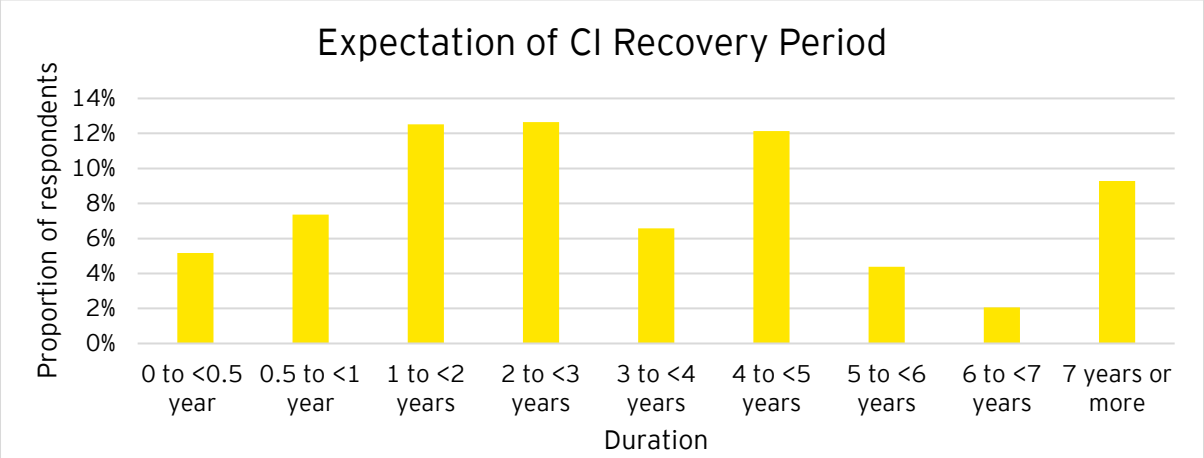
The average age of a male EA adult from our supplementary market survey is 49.2 years old, and the average age of the female spouse is 46.6 years old. The average age setback here is 2.6 years.



The average of a female EA adult from our supplementary market survey is 45.3 years old, and the average age of the male spouse is 47.6 years old. The average age setback here is 2.3 years.

The average age setback from supplementary market survey respondent's demographics for Male EA & Female Spouse and Female EA & Male Spouse are similar to the model assumption of 2 years. As such, we continue to use the spouse age setback assumption of 2 years, consistent with the 2017 PGS.

16.5.2 CI Recovery Period

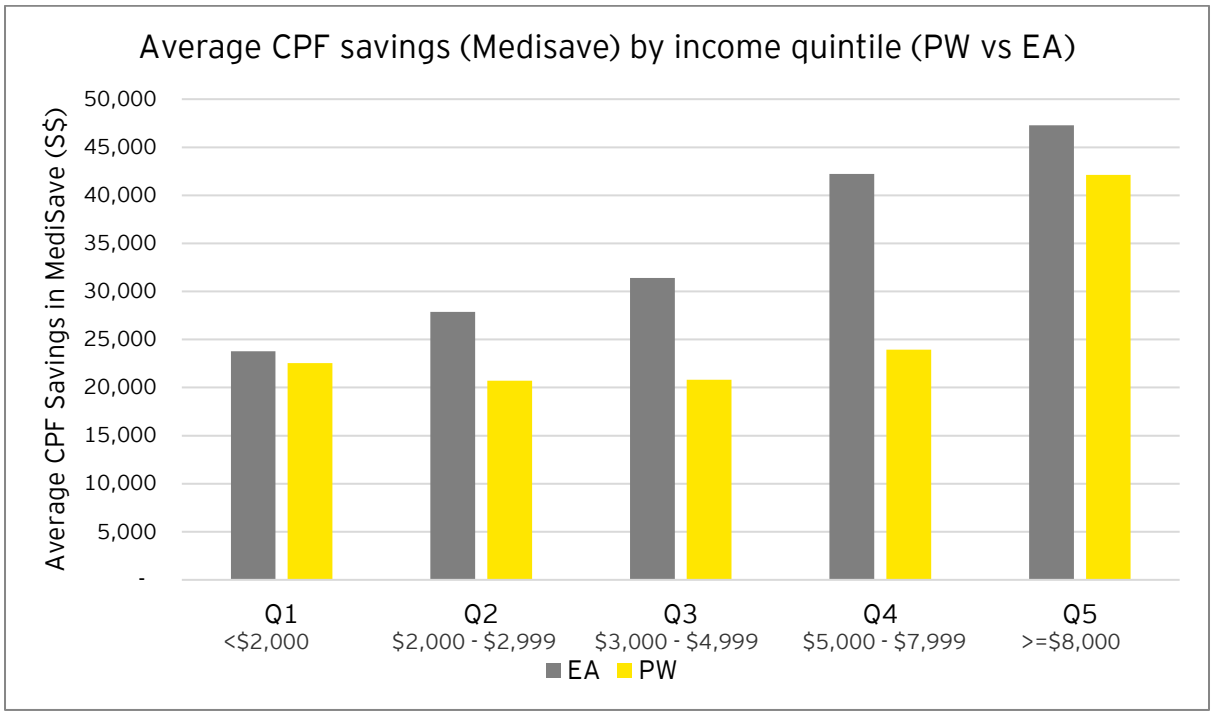


In the supplementary market survey, we have asked respondents to provide their expectations on the period required to undergo necessary treatments and fully recover in the event of a CI.

From the survey results shown above, the average CI recovery period expectation is 3.4 years among the 559 respondents who indicated their expectation of the recovery period. The remaining 216 respondents have no opinion on the recovery period and are thus excluded from the analysis.

From the study documented in Section 15, the assumed average CI recovery period of 5 years remain suitable for 2022 PGS. However, the survey responses suggest that the public tend to expect a recovery period of around 3 years (on average) post-diagnosis of a CI.

16.5.3 MediSave Coverage of CI Medical Expenses



In the supplementary market survey, we have asked respondents to provide the amount of CPF savings that they currently maintain in their MediSave account. The result from this survey question is used to assess the suitability of the assumption that immediate CI medical expenses can be paid entirely by MediSave.

From the survey results, the average MediSave savings for PW is S$24,088, which is lower compared to S$35,367 for EA.

From a survey conducted by Manulife in 2020[19] involving 500 critically ill patients and caregivers in Singapore, the average amount spent in treating CI conditions is around S$32,000. Notwithstanding the claim limits on specific conditions and treatments, MediShield Life provides a maximum claims limit of S$150,000 per policy year.

Therefore, most hospitalization / treatment costs would be covered by MediShield Life. Any medical cost exceeding MediShield Life limits may be sufficiently covered by the MediSave account. This supports the assumption that the immediate medical needs from getting CI can be covered by CPF savings.

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18. 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.

Platform Worker
This refers to own account workers who source for a significant part of their work through online matching platforms. The key occupations classified as 'Platform Workers' within the 2022 PGS are private hire drivers, taxi drivers and delivery workers.

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 dependents 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 dependent.

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 dependent.

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 dependents. 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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