

September 2018

Life underinsurance in the US: bridging the USD 25 trillion mortality protection gap



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Executive summary

The mortality protection gap in the US reached an estimated USD 25 trillion in 2016.

We estimate that the aggregate mortality gap in the US, a measure of life underinsurance, was close to USD 25 trillion in 2016. On a per-household basis, the gap averaged USD 495 000 or, in other words, 45% of households' income replacement needs. The protection gap has narrowed since 2010 but remains larger than before the financial crisis of 2008–09. We forecast that the gap will widen in the coming years if current economic and insurance market trends continue.

The gap widened significantly after the financial crisis of 2008–09.

There was a significant widening of the mortality protection gap between 2007 and 2010, from almost USD 23 trillion to more than USD 27 trillion. The financial crisis of the intervening years resulted in a large increase in joblessness in the US, alongside a significant decrease in household asset values and an increase in household debt. These factors, combined with a contraction in overall life insurance premiums, drove the sizeable increase in the mortality protection gap by 2010.

It has narrowed since 2010, but by 2016 the gap was still larger than before the financial crisis.

Since then the gap has narrowed a little, based on lackluster growth of the life sector overall and a very slow increase in social security benefits relative to income replacement needs. Between 2010 and 2016, life insurance coverage (measured in terms of premiums per capita) on average grew by 0.5% annually in real terms, while social security benefits increased by 0.2% annually. The combined contribution to the narrowing of the aggregate mortality protection gap was 1.5% annually, leaving it still some 9% larger in 2016 than it was in 2007.

Macroeconomic projections point to a 0.8% widening of the protection gap annually by 2022.

We expect household income replacement needs to increase over the coming years given: (1) continued growth in incomes in the current cyclical economic upswing; (2) ongoing low growth of social security benefits; (3) a moderate increase in the value of households' financial assets; and (4) gradual recovery of the life insurance market to pre-crisis premium growth levels. We model an increase in the mortality protection gap of 0.8% annually in the years to 2022. Further simulations reveal that life insurance coverage would have to grow by 1.5 percentage points more than our baseline forecast in order to stabilize the protection gap at 2016 levels.

Behavioral economics analysis, accelerated underwriting...

Life insurers are exploring different avenues to increase sales growth. To this end, they are using insights gained from behavioral economics to better understand customer decision-making in order to encourage buying behavior. Studies have demonstrated the effectiveness of behavioral economics in improving sales and underwriting processes in accordance with consumer preference. Insurers are also using technology to streamline the buying process by investing in more efficient tools which simplify and accelerate the underwriting process. Accelerated underwriting solutions reduce the average length of time from application to policy issuance by combining recent advances in predictive analytics and Big Data to avoid medical testing for some categories of clients. Technology and data analytics can also be used to make life insurance more accessible to consumers.

... and improving customer experience are key priorities for life insurers to increase sales growth.

Customer experience is emerging as another key priority area for insurers seeking to differentiate and grow their life business. The cost of buying life insurance includes more than money: it also requires information and time. Insurers offering customers better experiences that include a return on their information plus increased ease of doing business are more likely to achieve revenue growth. However, challenges remain. Insurers need to re-allocate resources to implement automated underwriting solutions and adapt their legacy systems. Another challenge is to expand outreach to more of the middle-income household population, which holds high growth potential. Here use of digital technology in distribution will play an important role.

What is the US mortality protection gap?

The mortality protection gap is the difference between resources needed and resources available to replace income in the event of death of a major breadwinner.

We estimate that the aggregate mortality protection gap in the US was USD 25 trillion in 2016.

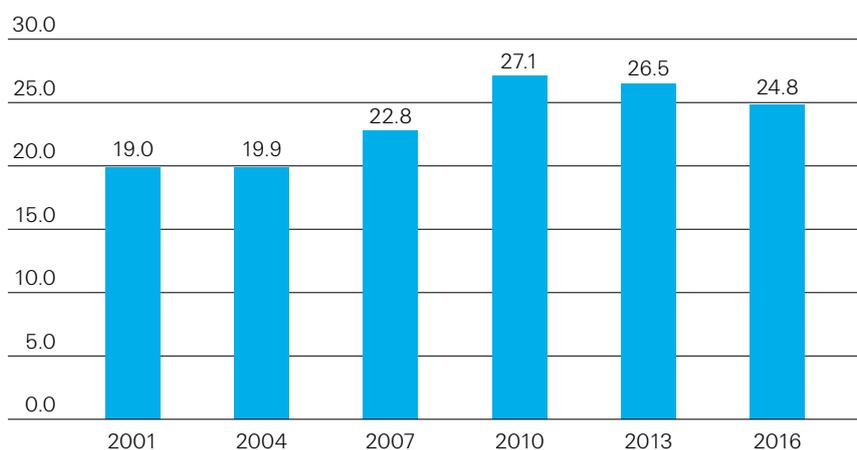
Defining and sizing the gap

The mortality protection gap is the difference between the amount needed to substitute a household's future income in the event of death of the/a major breadwinner, and the existing resources available to repay outstanding debts and maintain the living standards of remaining household members in such a scenario.¹ Resources available include existing financial assets, proceeds from life insurance policies and social security payments. The portion of the deceased's income flows that cannot be replaced by these existing resources is the mortality protection gap. The gap increases with rising income, as normally happens over the lifespan of a breadwinner, or collectively over time with the growing development of an economy. The size of the gap is inversely correlated with the build-up of insurance coverage, financial assets and social security benefits.

For the purposes of quantifying the US mortality protection gap, in this report we consider households in which the major breadwinner is younger than 55. We estimate that the aggregate mortality protection gap in 2016 for this population was close to USD 25 trillion (see Appendix for our computation method). In real terms (ie, adjusting for inflation), this equates to a 6% decrease over the three years to 2016.

Figure 1

US mortality protection gap in USD trillion for all households where the primary breadwinner is younger than 55 (2016 prices)



Source: Swiss Re Institute

On average, there is a 45% shortfall in household income replacement needs.

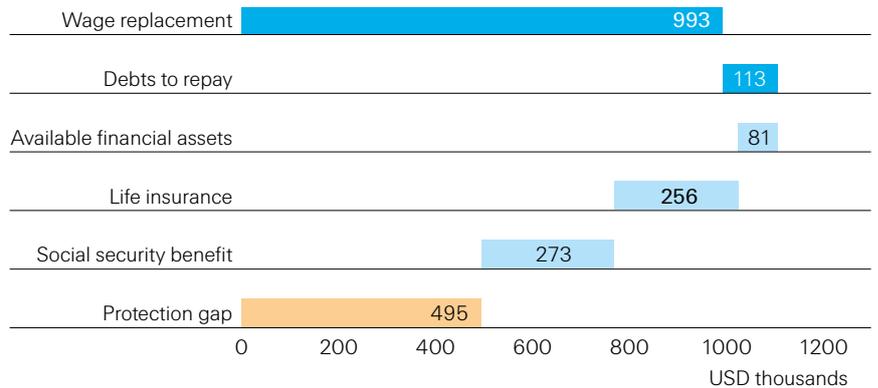
Deconstructing the protection gap per household

The protection gap per household (ie, income replacement need²) is approximately USD 495 000 (see Figure 2). In other words, in the event of death of the main breadwinner, the shortfall needed to repay debts and also maintain survivor living standards after all sources of the average household's replacement income are counted is 45% of the household's income.

¹ The first time we addressed this concept was *sigma* 4/2004: Mortality protection: the core of life, Swiss Re.

² The income replacement need is defined as net present value of future wages (wage replacement) plus debt. To add future income flows (wages) to stock (debt), we need to convert future income flows to net present values. Mortality gap = income replacement – (available financial assets + life insurance + net present value of survivor social security benefits).

Figure 2
Components of 2016 household protection coverage, net present value in USD 000s



Source: Swiss Re Institute

The mortality protection gap has been narrowing since 2010...

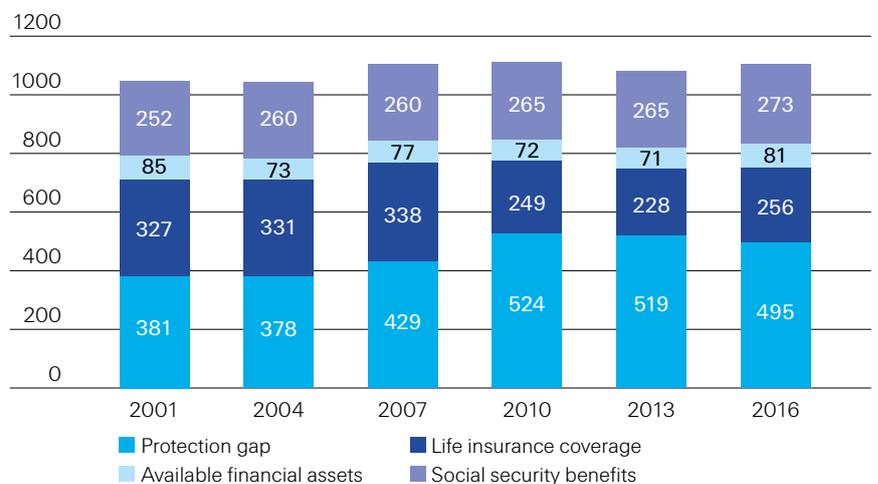
...but it is still larger than it was before the financial crisis.

Historical trends and drivers of the protection gap

As Figure 1 indicates, our estimates show a narrowing of the aggregate mortality protection gap since 2010. After the 2008–09 financial crisis, asset values and insurance coverage levels declined, while unemployment and debt levels soared, leading to a significant widening of the gap. Mass unemployment caused a drop in average household income, which would distort our replacement need calculations if we treat the data the same way as permanent changes in income. We control for the temporary effect of the financial crisis by keeping the wage replacement needs constant in real terms from 2007 to 2013. This allows us to capture the effects of changes in debt, social security payments, financial assets and life insurance coverage on mortality gap in our analysis.

The protection gap has narrowed since 2010 alongside slow economic recovery, but it remains larger than in pre-financial crisis times. This is mainly on account of slow growth in life insurance coverage and social security benefits. On average, life insurance coverage per household grew by 0.5% annually, and social security benefits by 0.2% annually. Average life insurance coverage, an estimated USD 249 000 per household in 2010, decreased to USD 228 000 in 2013. By 2016, coverage had recovered to USD 256 000, but it was still below the USD 338 000 estimated for 2007 (see Figure 3). Available financial assets per household, a relatively small proportion of income replacement, grew by 2.2% per year from 2010 to 2016, while average debt fell by 1.8% annually. As a result, the mortality protection gap per household narrowed on average by 2.1% per year between 2010–2016 in real terms.

Figure 3
Components of per household income replacement in the US, in USD 000s (2016 prices)



Source: Swiss Re Institute

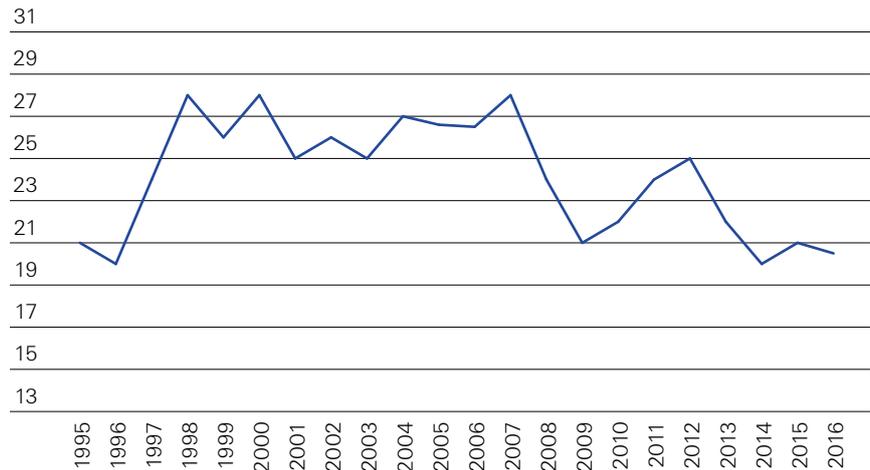
Defining and sizing the US mortality protection gap

Sales of ordinary life insurance products have yet to return to pre-crisis levels.

Lackluster growth in the life insurance market

One of the main reasons why the US mortality protection gap in 2016 was still larger than before the financial crisis is weak growth of the life insurance market. In real terms, annualized premiums from ordinary life insurance fell by over 23% between 2007 and 2009, and have still to make up that lost ground. From 2014 to 2016, new business premiums from ordinary life hovered at around USD 20 billion, their lowest level since 1996 (see Figure 4).

Figure 4
Ordinary life new business premiums, annualized, in USD bn, (2016 prices)



Source: AM Best, Swiss Re Institute

Three in ten US households hold no life cover.

Life insurance coverage for households where the main breadwinner was younger than 55 fell by 24% in real terms between 2001 and 2010. The considerable drop resulted from a combination of a fall in the share of households owning insurance after the financial crisis, and a decrease in average cover amounts. According to LIMRA, in 2004 nearly 80% of US households had some type of life insurance cover (individual or group). By 2010, ownership had declined to 70%, with three in 10 households holding no life cover at all, where it remained through 2016.³

Near stagnation of social security survivor benefits has contributed to the widening of the protection gap in recent years.

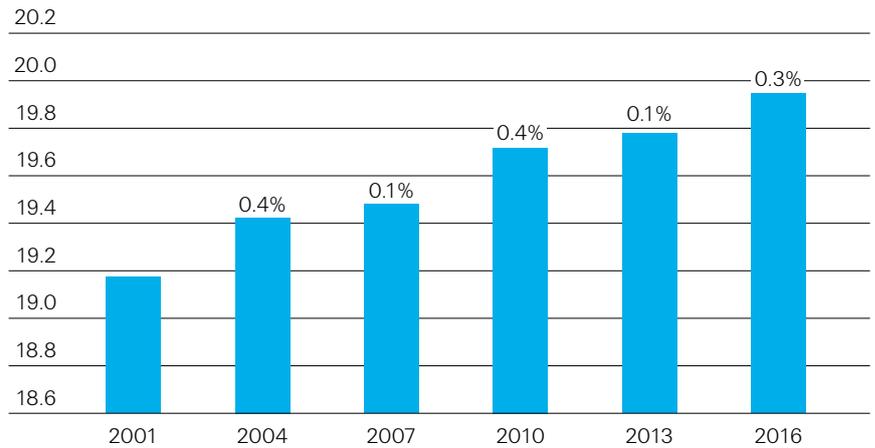
Social security survivor benefits grew very slowly

The second main reason for the still-large mortality protection gap in 2016 was that social security survivor benefits have been growing very slowly. In real terms, benefits grew by between 0.1% and 0.4% annually between 2001 and 2016 (see Figure 5). In this period, on average social security benefits made up 25% of income replacement needs, and their slow growth relative to household income contributed to a widening of the protection gap. The slow growth in government transfers is not expected to revert anytime soon given the projected pressures on public spending from the aging US population and expected increase in numbers of dependants.

³ Life Insurance in Focus – US Household Trends, LIMRA, 2016.

Figure 5

Estimated growth in % of social security survivor benefits per household (USD 000s, 2016 prices)



Note: Percentages are compound annual growth rates (CAGR) over the prior three-year period. Source: Social Security Administration, Swiss Re Institute

The financial crisis created significant volatility in average family income.

Average household income levels for 2010-2013 were held constant to normalize for the effects of high joblessness.

Household income was exposed to extreme volatility from the great recession

As the basis of income replacement needs, average household income is the key driver of the mortality protection gap. According to tri-annual data from the Survey of Consumer Finances published by the Federal Reserve (Fed), average family incomes increased by 0.8% annually in real terms between 2001 and 2016, contributing to the long-term trend of a growing protection gap. However, in the last decade, high unemployment caused severe volatility in average household income. For example, between 2007 and 2010, average incomes fell by 3.9% on average each year, but from 2013 to 2016, they increased by 4.5% annually. This drop/rebound was primarily related to losses/gains in employment rather than average sustainable income gains which we use as the basis to calculate income replacement needs.

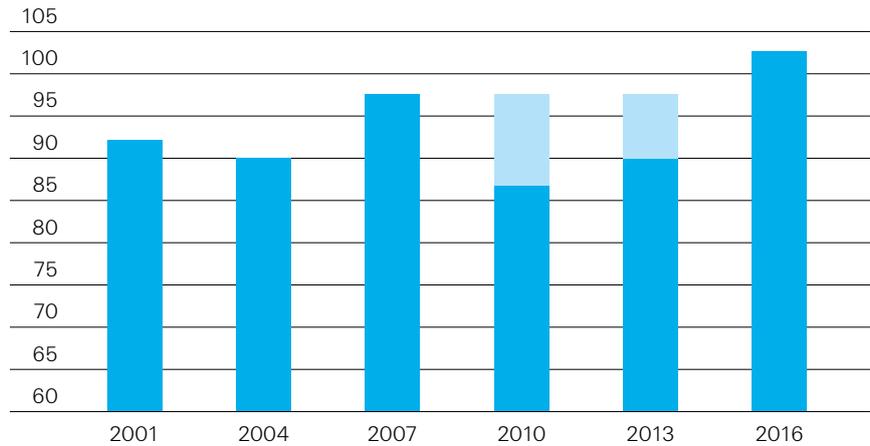
The income replacement concept is based on the money needed to maintain living standards. Income replacement needs are modelled off average household income, which generally increases over time. This relationship was distorted by the financial crisis of 2008-09, with average household income falling due to soaring unemployment in the ensuing recession years. The protection need, however, does not lessen in line with temporary loss of employment. To normalize for the effect of high unemployment during the recession years, we substituted the wage replacement calculation for 2010 and 2013 with average 2007 wages, adjusted for inflation (see shaded part of bars in Figure 6).⁴ The labor market had recovered close to full employment by 2016, and we used actual wage values to calculate the protection gap for that year.

⁴ This is a change in methodology from our 2012 edition of *Mortality protection gap in the US*, Swiss Re. Today's analysis is based on better hindsight understanding of labor market developments.

Defining and sizing the US mortality protection gap

Figure 6

Average pre-tax family income in USD 000s (2016 prices)



Source: *Survey of Consumer Finances*, Federal Reserve, 2016

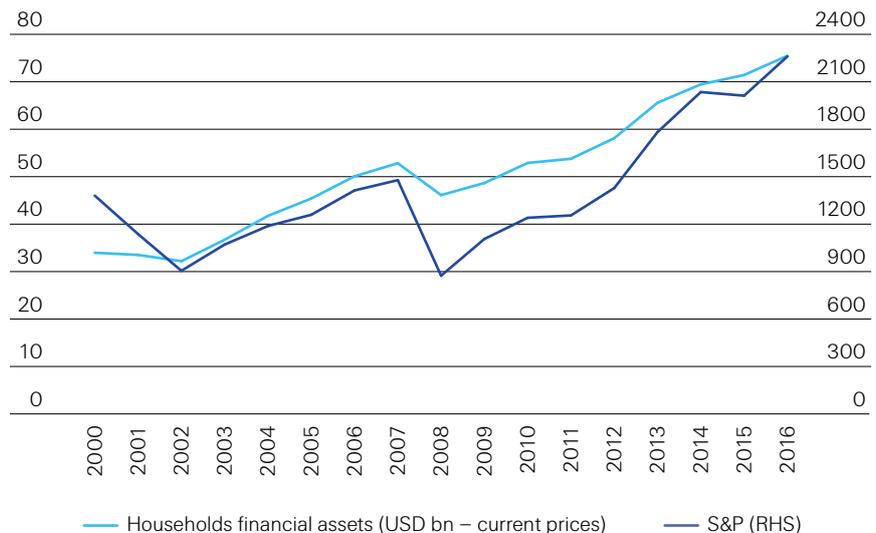
The value of households' financial assets holdings has increased, but these make just a small dent in the aggregate mortality protection gap

Financial asset holdings benefited from the strong performance of stock markets

The value of US households' holdings of financial assets increased steadily from 2010 to 2016, but this had just small impact on the narrowing of the mortality protection gap in those years. Fed data show that US household holdings of financial assets comprise approximately 40% of equities (10-year average of equity holdings relative to cash and fixed income assets). The value of household portfolios of financial assets is thus highly sensitive to movements in the stock market, and the recent increase in US stock indices has been very positive for those portfolios. After falling by more than 40% in 2008, the S&P 500 increased by 13% annually between 2009 and 2016. In parallel, households' financial assets grew by 6% over that same period after initially falling by 13% in 2008. All told, however, financial assets represent a relatively small portion of total resources needed for average household income replacement (7% in 2016, see Figure 2). Hence, the increase in value of households' financial assets portfolios likely made only a small impact on the narrowing of the mortality protection gap between 2010 and 2016.

Figure 7

Households' holdings of financial assets (USD bn) and S&P 500

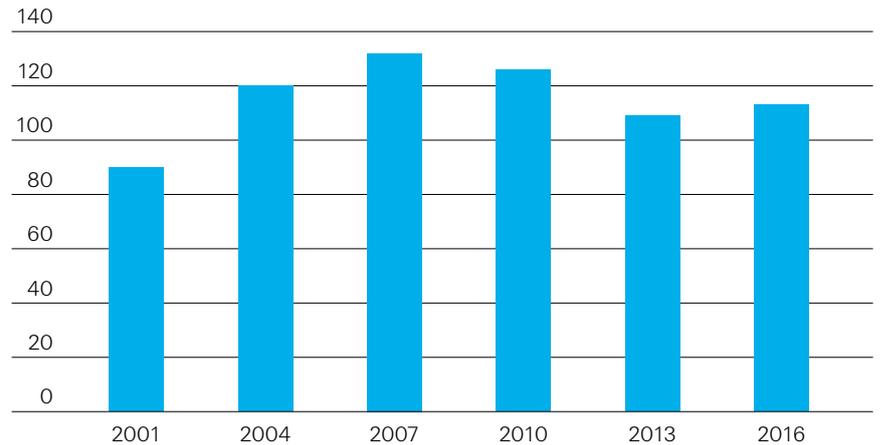


Source: *Balance sheet of households and non-profit organizations*, Federal Reserve, 2016

A reduction of household debt levels has helped reduce income replacement needs.

Figure 8
Average household debt in USD 000s (2016 prices)

Debt levels stabilized following the post-crisis deleveraging process
US household debt levels, which are considered part of income replacement needs, declined between 2010 and 2016, which helped reduce the mortality protection gap. Between 2001 and 2007, average household debt increased by 47% to USD 132 000, strongly related to the housing bubble (see Figure 8). Since then there has been a deleveraging of household balance sheets accompanied by recovery in the housing market. Since its peak in 2007, average debt fell by 20% to USD 109 000 in 2013 before ticking up slightly to USD 113 000 in 2016.

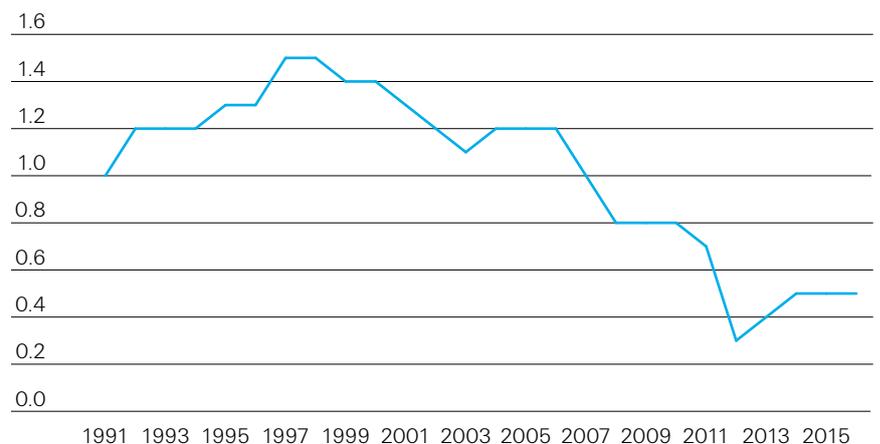


Source: *Survey of Consumer Finances*, Federal Reserve, 2016

Contraction of the working age population has helped mitigate the increase in the mortality protection gap.

Figure 9
Growth (in %) of the 15–64 years age group in the US

Working age population growth has decelerated, reflecting aging demographics
The US population of age 15–64 grew by 1.3% annually between 1991 and 2005. Since then, working age population growth has decelerated significantly and was just 0.5% in 2015 (see Figure 9). This trend, though unfavorable for potential GDP growth, has mitigated the expansion of the mortality protection gap. According to the US Census Bureau, the number of households where the major breadwinner is younger than 55 has been decreasing since 2007, reflecting overall population aging, and a drop in household formation and real estate ownership after the financial crisis.



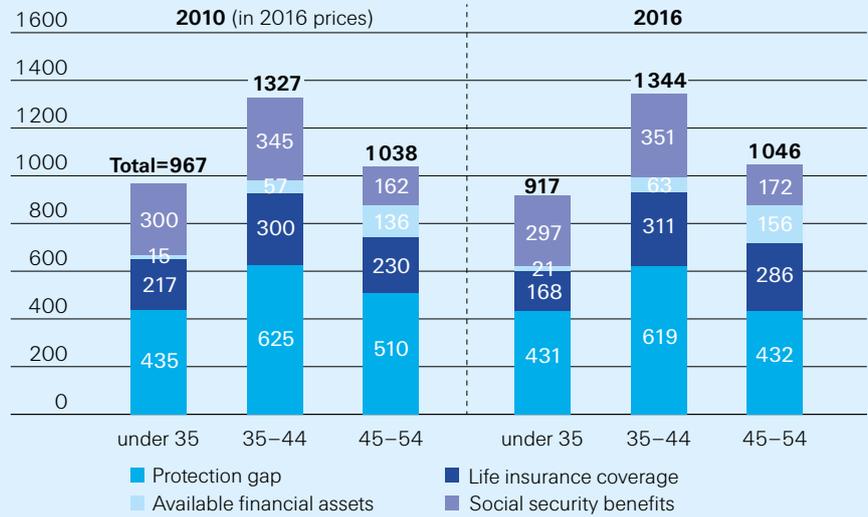
Source: Datastream

The US mortality protection gap by age group

By age, the average household mortality protection gap (in absolute terms) is largest for middle-aged populations (ages 35–44), at USD 619 000 in 2016. This age group has the highest income replacement needs (total height of the bars in Figure 10).

Figure 10

Deconstructing income replacement needs by age group, in 2010 and 2016, USD 000s

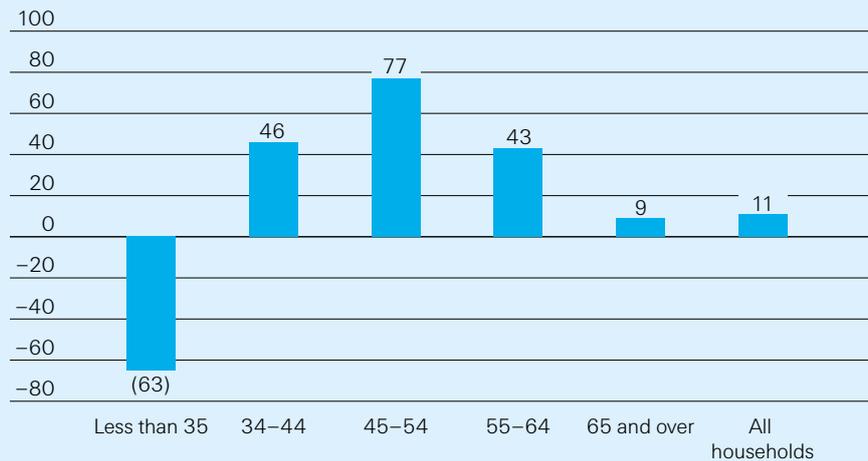


Source: *Survey of Consumer Finances*, Federal Reserve, 2016, and Swiss Re Institute

In terms of trends, not only did the under 35-age group experience a slight decline in income compared to other age groups between 2010 and 2016, it was also the only segment where life insurance coverage decreased strongly (a 4% average annual decline). Analysis of underlying micro data from LIMRA surveys on insurance ownership reveals that for this age group, both the absolute and mean coverage amounts decreased between 2010 and 2016, thus resulting in a significant decrease in the weighted coverage amounts during this period (see Figure 11).

Figure 11

Change in weighted average life insurance coverage by age of household head between 2010 and 2016, USD 000s



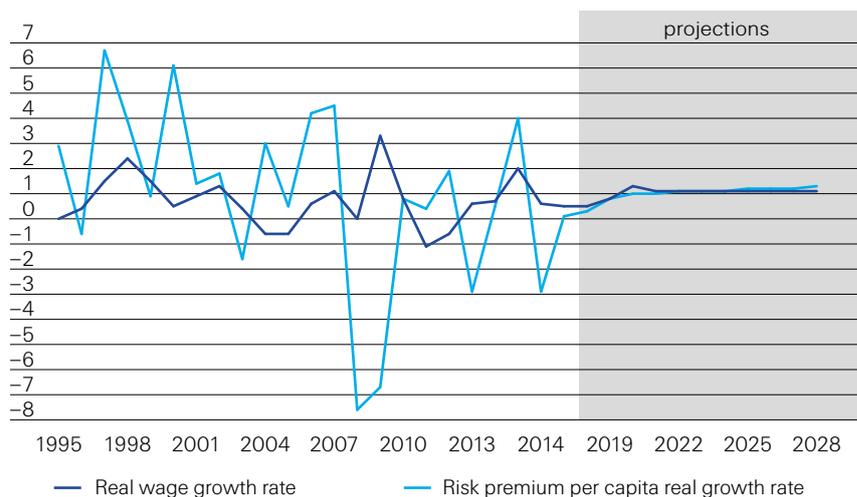
Source: *Household Trends in US Life Insurance Ownership*, LIMRA, 2016

Outlook: underinsurance set to grow

Wage growth is forecast to return to pre-crisis trends. This will lead to higher income replacement needs.

Expansion of aggregate life insurance coverage, however, will likely remain slow.

Figure 12
Real growth rate of wages and life insurance risk premiums per capita, and projections, in %



Source: Datastream, AM Best, Swiss Re Institute

Our baseline macroeconomic projections yield a 0.8% annual increase in the mortality protection gap in the years to 2022.

In our baseline scenario, we assume 0.2% real annual growth in social security payments in line with the weak growth rates observed over the past decade. For household financial assets, we assume 6.25% long-term return on equity investments, and that 10-year government bond yields will remain at around 3% for the next few years. When weighted by the average household's portfolio composition, that yields a long-run average nominal investment return of 4.4%. With this, we also assume a constant savings rate. Accounting for all these factors, we project further widening of the mortality protection gap per household on average by nearly 0.8% in real terms annually to 2022 (see Table 1).

Baseline scenario: US mortality protection gap set to widen

The labor market has taken a long time to recover after the financial crisis, with notable pick-up only coming in the last two years. As a result, wage growth has been muted since 2009, averaging 2.1% annually between 2010 and 2016 compared to over 3% before the crisis. In 2016–2017, growth was faster at 2.6–2.7%, signalling that labor supply conditions may finally be leading to more favorable earnings trends. Our baseline scenario projects a return to average yearly wage growth of 3%. This implies that income replacement needs too will grow more notably than hitherto, requiring a boost in the resources needed to cover for them.

In parallel, the life industry has suffered from both cyclical headwinds and structural factors that have limited premium growth. Among these are the changing regulatory landscape and persistently low interest rate environment which, despite the recent beginning of monetary policy tightening, will continue to penalize investment portfolios. This has led to industry consolidation with several major insurers focussing on core activities and exiting other business segments. In this context, we anticipate continued slow growth in life insurance premiums. We forecast premiums per capita (our proxy for life insurance coverage) to grow at an average annual real rate of 0.8% between 2016 and 2022.

Outlook: underinsurance set to grow

Table 1

Baseline projections of the mortality protection gap, and alternative scenarios

	Historical data	Baseline scenario	Scenario 1	Scenario 2
	CAGR	CAGR	CAGR	CAGR
	2010–2016	2016–2022	2016–2022	2016–2022
Real wage growth	0.5%	0.7%	0.7%	0.7%
CPI growth	1.6%	2.3%	2.3%	2.3%
Life insurance coverage real growth ¹	0.5%	0.8%	2.3%	0.8%
Social security benefits real growth	0.2%	0.2%	0.2%	1.7%
Investment return (nominal ²)	6.3%	4.2%	4.2%	4.2%
Stock market returns	13.7%	6.3%	6.3%	6.3%
10-year government rates ³	2.2%	2.9%	2.9%	2.9%
Population growth (age 15–64)	0.5%	0.3%	0.3%	0.5%
	2016	2022	2022	2022
Protection gap per household (USD 000s, 2016 prices)	495	520	495	495
CAGR ⁴	–0.9%	0.8%	0.0%	0.0%
Aggregate protection gap (USD billion, 2016 prices)	248	2.66	25.3	25.3
CAGR ⁴	–1.5%	1.2%	0.3%	0.3%

¹ Life risk premium real growth per capita.

² Assuming constant households' portfolio composition equal to the average of the then year weights between 2007 and 2016.

³ Three-year average of the 10-year rate.

⁴ The aggregate protection gap has grown more slowly between 2010 and 2016 than the protection gap per household because the number of households less than 55 (which is the representative age group that we use) has decreased by 16% on average annually during that period. In our projection, however, we do not forecast population growth by age group; we include only an overall deceleration in working age population (15–64).

Source: Swiss Re Institute

What would it take to stabilize the protection gap?

Life insurance premiums per capita would need to grow by 2.3% annually to stabilize the mortality protection gap at 2016 levels.

As discussed, one of the main reasons for the widening of the mortality protection gap is the low growth in life insurance coverage. Here we simulate a scenario to quantify the growth rate of life insurance coverage that would be needed to stabilize the per household protection gap through to 2022 (see scenario 1 in Table 1). All other factors remaining constant, life insurance cover would need to grow by 2.3% annually in real terms to achieve this outcome. This is significantly higher than the average 0.5% growth in premiums per capita between 2010 and 2016, but is comparable to pre-crisis real growth trends (2.5% annually between 1997–2006).

Alternatively (and unrealistically), social security benefits would need to increase substantially to stabilize the gap.

The other main reason for the widening of the protection gap is the low growth of social security benefits. In an alternative scenario, we look at stabilizing the protection gap with a step-up in social security benefits. In this second scenario of Table 1, life insurance coverage would grow at our baseline rate of 0.8% in real terms each year to 2022. To achieve this outcome, social security benefits would need to grow by 1.7% annually to stabilize the gap at 2016 levels. This is a substantial and, in times of public spending restraint, unlikely increase from the annual average growth of social security benefits of just 0.2% in 1997 to 2006.

Insurance solutions to bridge the gap

The US mortality protection gap increased by 25% between 2001 and 2016.

A large portion of the US population is interested in buying more insurance.

Consumer perceptions of life insurance play an important role in the buying process...

...and investing to improve perceptions will boost coverage.

Behavioral economics explores how cognitive biases affect decision making.

Insurers are making use of behavioral economics to improve customer experience.

Insurance can help

The US mortality protection gap widened by 25% between 2001 and 2016 to around USD 25 trillion. Given projections for wage growth, social security and low percentage of financial assets in the household wealth, we expect the gap will continue to widen, unless insurance coverage increases significantly. Life insurance coverage has also declined and remains below levels seen before the financial crisis of 2008–09. What is holding back the development of broader-reaching life cover, and what are the opportunities for insurers to help close the mortality protection gap?

The first question to address is whether people are interested in buying life insurance. A recent LIMRA survey found that among those who do not own life insurance, 39% recognize that they need it and 17% are not sure.⁵ This suggests that more than half of the people without insurance want or would be willing to buy more cover if they can be convinced of the need for protection. And among those who do own life insurance, 19% say they do not have enough coverage and another 5% are unsure if their cover is adequate.

The next question is why people do not buy life insurance, even if they realize that they do not have enough cover for their needs. For 63% of respondents to the same LIMRA survey, insurance is deemed too expensive, 61% said they have other financial priorities and 52% that they have sufficient cover. When asked how much the cost of insurance would be, most consumers estimated the cost at three times actual. Hence, a misperception of inflated costs appears to be another key reason for non purchase.

Given the large impact of consumer perceptions on the buying process, life insurers are exploring three avenues to reduce the protection gap: (1) using behavioral economics to gain a better understanding of the true drivers of customers' buying decisions; (2) accelerating the underwriting process to reduce the "frictional" costs of buying insurance; and (3) improving customer experience to enhance the perceived value of insurance for consumers, such that it is no longer deemed too expensive.

Behavioral economics enables better understanding of buyer decision-making

Behavioral economics explores how cognitive biases and emotions affect consumer choices. The insights can help insurers improve their understanding of why customers do not buy life cover, even when they know that they need it. For example, a different study found that respondents did not spend much time thinking about their life insurance purchases and defaulted to the same cover amounts despite their changing needs.⁶ Respondents also used mental short cuts like the cost of paying off their mortgage to calculate their life insurance needs, but did not consider their income replacement needs. Similarly, they picked coverage amount based on how much would be deducted from their pay check rather than their actual insurance needs.

The popularity of behavioral economics has grown significantly in the last few years in both the public and private sectors.⁷ According to a study by Accenture in 2017, based on survey of insurers in 30 major countries across the globe, 35% were planning to use insights derived from human behavior to develop new customer experiences.⁸ For example, behavioral economics postulates that customers are influenced by the way options are shown to them. Following this line of reasoning, insurers are moving away from complex application forms to more transparent ones, with simple language and fewer options proposed to win new customers. Over time, as better knowledge of a new customer accumulates, the insurer can seek to cross-sell other savings or investment components according to the client's preferences.⁹

⁵ 2018 Insurance Barometer Study, LIMRA and Life Happens, 2018

⁶ Belbase A., Coe N. B. and Wu A.Y., *Overcoming Barriers to Life Insurance Coverage: A Behavioral Approach*, Center for Retirement Research at Boston College, 2015.

⁷ Cialdini R., "Why the world is Turning to Behavioral Science" in *Behavioral Economics Guide*, Behavioral Science Solutions Ltd, 2018.

⁸ Hoying T., Spit M., *Life Insurers' Secret Weapon: Behavioral Economics*, Accenture, 2017.

⁹ See *sigma* 6/2013: Life insurance. focusing on the consumer, Swiss Re.

Behavioral economics can boost sales and enhance underwriting processes...

Behavioral economics in insurance in sales and underwriting

Swiss Re's behavioral research unit has pioneered more than 150 live client trials within the insurance industry. The studies have demonstrated the impact of behavioral economics techniques on boosting sales and enhancing underwriting processes. Success stories in the sales space include: a 16% increase in engagement rates on an online networking platform achieved through a client promotional article; a 200% increase of in-app sales after introduction of app notification messaging and timing; and a 60% increase in up-sells after improving a telemarketing script.

...and can improve risk assessment by obtaining higher quality information from consumers.

In underwriting, where issues are more complex due to difficulty in achieving honest and accurate health status disclosures, or the relatively high drop-off rates for online and tele-underwriting, the Behavioral Research Unit was able to help engineer important outcomes in terms of improved risk assessment. For instance, in terms of health information disclosure, a change in the application form used by one insurer brought a 27% improvement in smoker status disclosure, a 31% improvement in drug use disclosure, and 3% improvement in alcohol consumption disclosure. In the case of another insurer, an 18% increase in smoker disclosure was achieved. Successes in these and areas along the customer journey are achievable through the adoption of a test-and-learn approach, revealing how the decision-making context makes a difference to customer behaviors.

Better marketing and more transparent information will lessen misperceptions of the inflated costs of life insurance.

Accelerated underwriting reduces the frictional cost of buying life insurance

The process of buying life insurance gives rise to two costs for customers: the actual cost of premiums and the frictional costs resulting from time and effort spent in the process of becoming a customer. With respect to the former, consumers typically overestimate the actual cost of life insurance. Better marketing and more transparent (online) information along with quote calculators can help to overcome this problem. Also, organizations such as Life Happens, LIMRA and the American Council of Life Insurers are educating consumers about life insurance in engaging ways (eg, with videos, scholarship opportunities).

Insurers are experimenting ways to reduce lengthy underwriting procedures.

At the same time, insurers are working to reduce the frictional costs experienced by consumers with buying life cover. Underwriting determines the insurability of a customer and establishes a price for a coverage based on the consumer's risk profile. This often includes medical investigations, including blood tests. A fully underwritten policy can take weeks or months to be issued, and this can discourage prospective clients. Insurers are looking at ways to accelerate the underwriting process, for instance by bypassing lengthy medical screening for less risky clients. Typically this implies a well-designed application triage that can sort applicants according to their potential risk. The benefit for the consumer is a more streamlined buying experience.

Accelerated underwriting leverages technology and data analytics to evaluate applicant risk.

Accelerated underwriting makes use of data, analytics and rules algorithms, with the goal of reducing the time from application to policy issue. In the US, the most prevalent sources of data currently used include information from the Medical Information Bureau, motor vehicle records, telephone interviews, prescription drug histories and vendor risk scores (based on credit or personal history records). We interviewed 31 US life insurers about their efforts to accelerate underwriting. The most desired data sources are electronic health and billing records. A challenge, however, is that quality and availability of medical data electronically remains limited. Nevertheless, our discussions reveal that many insurers, using technology to glean information from personal health records, health information exchanges and directly through continuity of care documents, software vendors or record transfer companies, have been able to accelerate the process of assessing the risk presented in an application for insurance.

Traditional methods of identifying smokers generally requires lengthy and costly medical screening.

Swiss Re's Non-Smoker Propensity Model is an example of accelerated underwriting...

...and has delivered encouraging results in terms of accuracy.

Consumers appear willing to buy insurance online, and are more likely to do so if underwriting processes are made less laborious.

Customer-centric approaches can help insurers differentiate and drive business growth.

Insurers are adapting to more demanding consumer expectations.

Case study of accelerated underwriting for non-smokers

A main consideration in life insurance underwriting is identification of smokers. After age and gender, tobacco use is the next most important factor used in assessing premiums on life insurance policies. According to the Center for Disease Control (CDC), overall mortality among male and female smokers in the US is about three times higher than among those who have never smoked. And indeed, sometimes actuarial pricing for smokers is up to 200% more than for non-smokers.

In traditional underwriting, the only reliable way of detecting smokers is through laboratory testing, which incurs costs and considerably lengthens the application process. In this context, Swiss Re has developed a Non-Smoker Propensity Model. This is a web-service that predicts whether a life insurance applicant's representation of being a non-smoker holds true. This is done using data-driven triage techniques to identify those self-declared non-smokers, who are indeed non-smokers. The model functions by taking as input applicant responses, and data from external open sources and third-party vendors. With this information, the model attributes a score to each applicant based on their risk rating and predicted smoker status. According to score, the predicted non-smoker and less-risky group are moved through a fast-track underwriting process, improving the insurance-buying experience for a significant portion of the applicant pool. Confirmed smokers and high-risk applicants follow a traditional, and lengthier underwriting process.

In terms of accuracy, the model has been shown to reduce the incidence of misrepresentation of non-smokers by about 50% or more compared to other non-medical underwriting procedures. In terms of net protective value for the insurer, the model also includes a cost-benefit calculator to analyse the trade-off between the costs of traditional underwriting testing for applicants, against the mortality savings from the reduction in the number of misrepresented non-smokers.

Parallel to efforts to implement accelerated solutions that might support online buying of insurance, surveys show that consumers are willing to go online to either research, or both research and buy insurance. This year's LIMRA survey indicates that more than 85% of consumers go online to find out more about life insurance, while 29% would buy directly online.¹⁰ In terms of consumers' predictions of future sales of life insurance, more than 60% indicate that they think online sales will increase five years from now, with half anticipating a big jump. As for use of simplified underwriting, more than 50% of respondents indicate that they would be more likely to buy life insurance if they do not have to go through a physical exam.

Customer experience enhances the perceived value of life insurance purchases

It is often said that cost is only an issue in the absence of value. In other words, customers will not perceive life insurance to be expensive if they better appreciate the utility of cover.¹¹ The reality is that the cost of life insurance is more than money. Purchasing insurance also takes time and effort to collect information and go through the application process. Research has revealed that customers are often willing to give up time and provide information, but they want a return on that investment.¹² That return is a better customer experience, which can include explanation of why their information is needed, help in sourcing the required information for application forms, explanation of how their specifics translate into insurance rates and what they can do to reduce their life premiums.

Traditionally, insurers have focused on building loyalty with the agents and financial advisors who manage the customer experience, but that hierarchy is changing. The world's digital disrupters have primed customers with new expectations, and

¹⁰ LIMRA and Life Happens, op. cit.

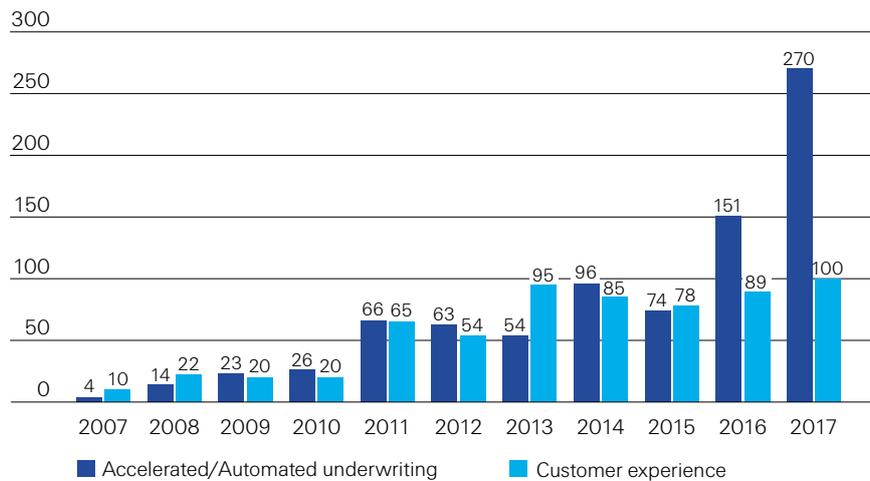
¹¹ Scanlon J., *Un-sticking the Stuck Shopper: Overcoming Barriers to Purchasing Life Insurance*, LIMRA MarketFacts, 2018.

¹² Ferrante-Schepis M., "The Missing Piece for Customer Experience," *insurancethoughtleadership.com*, 1 August 2018, <http://insurancethoughtleadership.com/the-missing-piece-for-customer-experience/>

Insurance solutions to bridge the gap

insurers are recognizing that they too must adopt a customer-centric approach in order to differentiate and drive business growth. A review of marketing materials from 132 US life insurance companies over the last 10 years reveals this trend (see Figure 13). While automation and acceleration of underwriting is the current priority area, customer experience is emerging as a topic of increasing importance. Customer experience initiatives require that life insurers not only develop their automation and data analysis capabilities, but also to build empathetic competencies to better understand buying pain points and deliver positive customer experience. According to a McKinsey report, firms that offer best-in-class customer experience grow faster and more profitably.¹³

Figure 13
Frequency of key words in life insurers' marketing material



Source: Proprietary analysis from Competiscan

95% of insurers are running one or more customer experience initiative.

LIMRA research shows that most life insurers in the US (95% of those surveyed) have one or more customer-experience initiative in place or under consideration.¹⁴ These include Voice of the Customer, journey mapping, Customer Relationship Management, and use of Big Data analytics to better understand buyer expectations and preferences for improved product and service delivery. Customer data collection tools include input from client-facing employees, complaint data, customer interaction monitoring, customer surveys and benchmarking. Market research may also include customer interviews, focus groups, ethnography, design thinking workshops, and analysis of data from website behavior, email, live chat and social media. The most common metrics used to understand customer behavior include overall customer satisfaction, likelihood to recommend, first-call resolution, customer loyalty, and Net Promoter Scores.

LIMRA has developed a "CX" benchmark

Life insurers have sought guidance on what it means to be customer-centric, which prompted LIMRA to develop a "Customer Experience (CX) Benchmarking Program" in 2015.¹⁵ The program uses results from surveys to produce a composite CX score that measures customers' shopping, purchase, in-force and claims experience, all touch points in the life-insurance customer journey. Meanwhile, other CX benchmarking programs look across industries. For example, KPMG Nunwood's 2017 CX benchmark program included 257 brands across 10 sectors, including financial services.¹⁶ Notably, insurer USAA ranked #1 on KPMG's list, ahead of Disney Parks, InterContinental Hotels and Amazon, highlighting the potential for insurers with strong focus on the customer to differentiate themselves within their industry and beyond.

¹³ *The growth engine: Superior customer experience in insurance*, McKinsey, April 2016.
¹⁴ Silverhart T. A., and Brown P., *Customer Experience Company Practices Study*, LIMRA, 2018.
¹⁵ Ibid.
¹⁶ "Engineering a Human Touch into a Digital Future," *US Customer Experience Excellence Analysis*, KPMG Nunwood, 2017.

Preliminary findings from empirical customer experience research

Ongoing research by Swiss Re to better understand the customer experience goals of life insurance companies has identified four common challenges.

Delays in procuring medical records.

- Delays in accessing medical information. To fully underwrite, life insurers typically demand three components of medical data from a customer, all of which are subject to delays in procurement: (1) a paramedical examination; (2) a medical underwriting interview (usually through a call center); and (3) an attending physician statement. Life insurance agents are keenly aware that “time kills all deals,” and they view delays in these areas as the biggest pain point for consumers in the buying journey.

Lack of cohesion in managing the customer journey.

- Lack of cohesion in managing customer journeys. Most life insurance firms manage the customer journey by separate functions, including marketing, sales, underwriting and claims. This may make sense from an organizational perspective, but it means a customer is processed through multiple centers with different goals, metrics and employees. It also means that customer journeys are not looked at in holistic perspective. While one aspect of the customer journey may be improved, another might languish.

Connecting online shoppers with agents.

- Challenges creating connections between online shoppers and agents. The availability of direct-to-consumer life offerings is ever expanding, but this does not spell the end to the agent model for insurance sales. In a recent survey, 69% of consumers (and surprisingly, 73% of millennials who are typically viewed as the most digitally reliant) said they want to meet with an agent or advisor before buying cover.¹⁷ Life insurers recognize that customers want to educate themselves online, but they struggle to link digital shoppers with agents. Insurers are also recognizing the need to offer omni-channel shopping options that cater to consumers’ individual preferences.

Weak agent motivation to sell life insurance products.

- Limits to agent motivation to sell life insurance. Life insurance is a complicated product that not every agent is willing to sell, for three main reasons: (1) they do not want to sell something they do not understand well; (2) they do not want to sell something that could jeopardize their relationship with an existing multi-line customer; and (3) they do not want to sell lower-value policies that do not compensate as much as higher value ones, even though they take just as much time to sell.

Insurers have different levels of experience in dealing with these challenges.

Currently, insurers have a range of experience levels in addressing such challenges. At one end of the spectrum are life insurers just beginning with automation of underwriting systems, but with no specific attention on the customer journey. At the other end are insurers able to provide consumers with a full digital experience. In today’s digital world, the challenge for all insurers is to translate customer insights into actionable initiatives that generate measurable improvements to the business.

More sophisticated customer experience initiatives can boost return on investment.

The most common action insurers take to address their customer experience challenges is to prioritize employee training programs with the goal of increasing the quality of customer engagement.¹⁸ Engaged employees themselves are a prerequisite to the building of an empathetic organization that prioritizes customer experience. More mature initiatives define customer experience success in terms of return on investment. The financial value of a customer-experience focus is demonstrated in the previously mentioned KPMG Nunwood study, in which the top 25 in terms of customer experience focus achieved seven times the revenue growth of the bottom 25 brands.¹⁹ To experience this kind of growth, customer-experience initiatives must do more than “be nice to customers”. They must also reduce costs by removing duplication and inefficiencies.

¹⁷ LIMRA and Life Happens, op. cit.

¹⁸ D. Norah, Douglas J., *Great Expectations: Customer Experience Initiatives in the Insurance Industry*, LIMRA, 2014.

¹⁹ KPMG Nunwood, op cit.

Conclusions

The financial vulnerabilities of families in the US in the event of death of the breadwinner have increased substantially over time.

In the coming years, we expect the mortality protection gap to widen rather than narrow.

Life insurance coverage would need to grow by 2.3% to stabilize the protection gap at 2016 levels.

Insurers are using behavioral economics, accelerated underwriting and customer experience techniques to expand their outreach...

...but challenges remain.

What challenges remain?

The financial vulnerabilities of families in the event of death of the primary earner have increased in recent years, with the US mortality protection gap reaching a very large USD 25 trillion in 2016. On account of the financial crisis of 2008–09, the gap had increased 20% by 2010 from 2007 levels due to rising household debt, declining holdings of financial assets, and a steep fall in insurance coverage. Since 2010, the mortality gap protection gap has narrowed slowly alongside weak growth in insurance premiums and in social security benefits. The prolonged period of low interest rates as a response to economic recession has made life insurance products less attractive and contributed to slow growth of the sector overall. So too has the slow growth of the under 35-year-age group incomes, with the result that purchase of life insurance by this cohort declined by 4% each year between 2010 and 2016.

Our baseline scenario is that the US mortality protection gap will widen rather than narrow in the coming years, based on prevailing macroeconomic conditions and expectations of continued slow life insurance sector growth. We forecast that on average, the gap will increase by nearly 0.8% annually over the next six years. This trend is worrisome for households and society. Many people suffer financial hardship in the event of the death of a primary earner. They are often driven into poverty and forced to rely on public funds for support.

While the gap is very large in absolute terms, the resources that a family would need to address the need for mortality protection are within reach. Our alternative scenario concludes that, all other things remaining constant, life insurance coverage needs grow by 2.3% in real terms - or by 1.5 percentage points more than current projections – in order to stabilize the protection gap at 2016 levels. An alternative scenario based on strong expansion of social security benefits is unlikely in the context of the current economic and political backdrop.

Insurers are deploying innovative solutions to increase coverage and reduce the mortality gap. Three major opportunities for insurers include the use of behavioral economics to better understand the drivers of customer behavior, accelerated underwriting to facilitate access and reduce the frictional costs of purchasing life insurance, and improved customer experience to enhance the perceived value of life insurance. New technologies and data analytics are being leveraged to this end, to use as much available data as possible and avoid costly and time-consuming medical testing as part of underwriting procedures.

However, several challenges remain. These include adapting insurers' processes to the use of technology to implement new underwriting solutions. In terms of strategy, some studies show that the middle-income household market holds high growth potential for life insurers.²⁰ This group often struggles to take up insurance services because agents prefer to sell to higher-income consumers, where policies offer higher commissions. Technology and online distribution will be a powerful tool to improve the distribution of insurance to this important demographic group.

²⁰ Hoying T., Spit M. op. cit.

Appendix

Appendix: our computation of the mortality protection gap in the US²¹

Mortality protection gap = (resources needed – available resources) to maintain living standards of dependents after death of the/a main breadwinner.

The gap is estimated separately for three groups of households based on the age of the primary breadwinner: “under the age of 35”, “aged 35 to 44”, and “aged 45 to 54”. The combined mortality gap for all households in which the primary breadwinner is under the age of 55 is also calculated.

Assumptions

1. Wage replacement is partial and depends on the age and last salary drawn of the deceased. Two-thirds of wages are replaced at age 35. For ages 36 to 64, the proportion replaced declines linearly to 50% at age 64.
2. The income stream of the deceased need only be replaced until the time he or she would have reached age 65. Thus, retirement needs are not included.
3. Available financial assets = (0.5 * financial assets). The rest of the financial assets are used for retirement purposes or/and college expenses.
4. The protection gap calculation is based on average information per household: average income, average social security payments to survivors, average life insurance coverage, etc.

Calculation

Step 1: Income streams of wage replacement and social security income are discounted to calculate net present value (NPV).

Step 2: Income multipliers are calculated for social security and replacement wages. The income multiplier is the ratio of lump sum amount invested and the stream of income it generates until the deceased would have reached age 65. For example, if USD 40 000 generates income of USD 4000, the multiplier is 10 (40 000/4000). The multiplier is used to calculate the lump sum amount which would generate the replacement income stream. The reported age-group specific multipliers take into account the average number of children by age of household head as reported by the Census Bureau.

Step 3: Protection Gap = (NPV (future wages) + debt)– (NPV (future social security payments) + life insurance + available financial assets)).

Notes

1. For average household income, data from Survey of Consumer Finances (SCF) 2001, 2004, 2007, 2010, 2013 and 2016 is used.
2. Social security figures based on annual brochure of social security *Understanding the Benefits*. Social security benefits are paid to any unmarried surviving children until they reach the age of 18, and to a surviving spouse under retirement age if he or she is taking care of one or more surviving children under the age of 16. Thus the calculation of survivor benefits in this study takes into account the average family composition of each age group based on population data from the Census Bureau.
3. The calculation of the social security multiplier takes into account the conditions for receiving benefit payments discussed in (2), with the maximum possible benefit duration of 18 years. This differs from the calculation of the income replacement multiplier, which assumes that at least a portion of earnings would be replaced until the deceased would have reached age 65.

²¹ See *sigma* 4/2004 op. cit.

Appendix

4. Data on household financial assets based on Federal Reserve Flow of Funds and SCF.
5. Average family holdings of debt taken from the SCF.
6. Data for average life insurance ownership by age of household head taken from LIMRA, Household Trends in U.S. Life Insurance Ownership annual reports.
7. Population data taken from US Census Bureau, Population Division, Current Population Survey, Annual Social and Economic Supplement.
8. The income replacement concept is related to money needed to maintain the standard of living of surviving family members. Income replacement needs are therefore modelled off average household income. This relationship was distorted by the 2008–09 recession when average household wage income decreased by 11.2% between 2007 and 2010 due to high unemployment. The protection need does not decrease in line with a loss of income due to cyclical unemployment, which is expected to be temporary. Hence, to normalize for the effect of the high unemployment during the recession, we substituted the wage replacement calculation for 2010 to 2016 and keep average 2007 wages, adjusted for inflation. The labor market had recovered by 2016 and we used actual values for the calculation of the protection gap of that year.

Published by

Swiss Re Management Ltd.
Swiss Re Institute
Mythenquai 50/60
P.O. Box
8022 Zurich
Switzerland

Telephone +41 43 285 2551
Email institute@swissre.com

Swiss Re Institute has a global presence with offices in New York, London, Bangalore, Beijing, Hong Kong and Singapore.

Authors

Dr Stephen Abrokwah
JJ Carroll
Dr Shelly Habecker
Dr Thomas Holzheu
Dr Mayank Raturi

Editor

Paul Ronke

Managing editors

Dan Ryan
Head Insurance Risk Research at Swiss Re
Institute

Dr Jerome Jean Haegeli
Swiss Re Group Chief Economist

The editorial deadline for this study was 22 August 2018.

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Swiss Re Management Ltd.
Swiss Re Institute
Mythenquai 50/60
P.O. Box
8022 Zurich
Switzerland

Telephone + 41 43 285 2551
Fax +41 43 282 0075
institute@swissre.com
institute.swissre.com