

LEVEL 7 ASSESSMENT SPECIFICATION			
Student name:	Albert YS CHIU	Student ID number:	2235236
Programme:	DBA		
Module:	Qualitative Research Methods		
Module code:	HKBM7003	Contribution to Overall Module Assessment (%):	100%
Lecturer:	Dr Tamara Savelyeva	Internal Verifier:	Dr Andrew Chan
Assignment Title:	Research Article	Word count (or equivalent):	7500 words
Submission deadline:	6 November 2023	Return date of provisional marks & written feedback:	26 November 2023
Submission method:	All written assessments, where practical and possible, must be submitted via Turnitin unless otherwise instructed by the Lecturer. (Please DO NOT put this Assessment Specification into Turnitin or it will match many similarities with other students' submissions) Alternative submission method (if applicable): Late submission of the assessment will result in a late penalty mark. Penalties for late submission: Up to one week late, maximum mark of 50%. Over one week late, 0%. Only the Extenuating Circumstances Panel may approve a change to submission dates.		
Academic honesty / referencing:	Academic honesty is required. In the main body of your submission you must give credit to authors on whose research and ideas your work is based. Append to your submission a reference list that indicates the books, articles, etc. that you have used, cited or quoted in order to complete this assessment.		

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1. Overall Abstract

Title: How the Adoption of Insurance Technology Influences the Insurance Mortality Protection Gap

Life insurance is meant to provide financial support to dependents or beneficiaries in the event of a policyholder's premature death. The Insurance Mortality Protection Gap (MPG) is a measure of the difference between the amount of life insurance coverage that individuals and households need to protect against premature death and the actual coverage they have. The measurement of insurance MPG is commonly conducted on a national or regional scale, which serves as a means of evaluating the prevalence of under-insurance among a population. Several prominent organizations, including the World Bank Group, the Insurance Authority, the Geneva Association and the Swiss Re Institute, have issued reports that the MPG has been widening recently. In particular, the Insurance Authority is the insurance regulator in Hong Kong, it published its first report titled "Mortality Protection Gap Study 2021", which unveiled that Hong Kong's total MPG amounted to HKD 6.9 trillion in 2019. The report further highlighted that each working adult possessed an individual MPG of HKD 1.9 million, which is approximately 5.7 times the average annual income. The report encourages policyholders to regularly review their insurance coverage in light of the changing MPG arising from different life stages and financial resources.

The term "InsurTech" refers to the use of technological innovations and advancement specifically in the insurance industry. Some prior studies show InsurTech is reshaping the insurance sector by enhancing the distribution of insurance products and improving customer experience. Insurers who operate using InsurTech and distribute their insurance products solely through digital channels are called "Virtual Insurers" in Hong Kong, they were introduced by the insurance regulator in 2019 under a special regulatory license.

Previous research focuses on explaining the cause of Insurance MPG and possible solutions to address the gap. Other quantitative studies measure the size and trend of the Insurance MPG and review MPG in specific locations such as Korea, Japan, the

US, Finland and Turkey. Other research on InsurTech placed their attention on the latest development of the InsurTech in last two decades and how it has changed the insurance industry.

Minimal research attention has linked the Insurance MPG with InsurTech and studied their relationship. Often studies and reports from the World Bank and insurance industry associations agreed that InsurTech an effective solution that can narrow the Insurance MPG, with a case study available in China on micro-insurance sold through InsurTech.

However, no research has been done to understand the influence of InsurTech through the establishment of “virtual insurers” on insurance MPG for Hong Kong consumers. This study aims to address 4 research questions: (1) What is the understanding of Insurance MPG among Hong Kong consumers? (2) As the use of InsurTech becomes more popular, what is the experience of Hong Kong consumers purchasing insurance online through InsurTech? What are the challenges in the sales process using InsurTech? Do they prefer to use an online self-served process or be guided by insurance intermediaries? (3) What are the perceptions of Hong Kong consumers regarding the use of InsurTech to address their insurance MPG? (4) What is their impression of using InsurTech and their views on virtual insurers in Hong Kong? This qualitative research aims to examine how the use of insurance technology through the establishment of virtual insurers influences the insurance mortality protection gap in Hong Kong, and provides details on the perception of InsurTech from Hong Kong consumers, and analyzes how this may change their Insurance MPG.

This study utilizes qualitative research with a case study approach to collect data through 30 face-to-face semi-structured interviews with selected participants from the insurance industry through personal networks. The participants will represent different stakeholders involved in this research topic, such as insurance regulators, staff working for the InsurTech company, insurance agents/brokers and customers who has and has no experience using InsurTech. The interviews will comprise open-ended questions to explore participants’ viewpoints to gain an in-depth understanding of what the key InsurTech initiatives are established by virtual insurers and their influence on their MPG. This study will employ thematic analysis of interview recordings and review

interview transcripts to ensure accuracy and enhance validity. Data triangulation will be used to validate findings and enhance research trustworthiness.

The results of this study show that the adoption of InsurTech has a positive impact on narrowing the insurance MPG, as it improves the accessibility and affordability of insurance products. This study also identifies several factors that influence the adoption of InsurTech, including customer trust, regulatory support, and technological infrastructure. The findings of this research will provide valuable insights for insurance companies, InsurTech startups, policymakers, and researchers aiming to address the challenges associated with inadequate insurance coverage and enhance the effectiveness of life insurance coverage. The study concludes by discussing the practical implications of the findings and suggesting future research directions.

Keywords: Insurance, InsurTech, Mortality Protection Gap, virtual insurer, digital, Hong Kong

2.1 Introduction

Kerényi, Á., & Müller, J. (2019). Brave new digital world? Financial technology and the power of information, *Financial and Economic Review*, 18(1), 5-32.

The digital transformation of financial services, driven by FinTech, is a significant challenge for the banking sector, regulators, and supervisors (Igor et al., 2023). The banking sector is known for driving digital innovation, not only because of its financial resources and the need to reduce costs, but also because of the increasing demand for digital economy products such as cybersecurity platforms, advanced customer identification methods, and predictive analytics for personalized services (Igor et al., 2023). While there have been significant changes in how financial products are delivered in many countries, the knowledge and experience gained have often been limited to individual banks and specific countries, rather than having a common technology being implemented across the entire banking sector.

The driving forces of FinTech are very similar to the recent development of InsurTech, which is relevant to my research topic. Thus, an understanding of (a) the development of FinTech in the new digital world, (b) the relationship between FinTech start-ups, consumers, traditional banks and regulators, and (c) the potential risks and the need for changes in regulation and supervision, would be very relevant to my research area.

The authors, Ádám Kerényi and János Müller, are experts in the field of Economics with a particular focus on FinTech. Mr. Kerényi is a Researcher at the Institute of World Economic at the Hungarian Academy of Sciences Centre of Excellence. He holds a PhD in economics and has published over 30 papers in Google Scholars. He is also an analyst under the Ministry of Finance, Hungary. Mr. Müller is a member of the Board of Directors of the Bank of China Hungary Ltd and has expertise in the Chinese financial industry. He has served the Hungarian Banking Association as Chief Adviser for over five decades. He has published over 15 papers in Google Scholars, with a focus

on FinTech. Both of them are experts in the FinTech space and offer valuable insights in this article.

2.2 Overview of Key Points and Arguments Presented in the Research Article

This article provides a comprehensive overview of the development of FinTech and its impact on the financial industry. It also covers the evaluation and management in three different jurisdictions, including the European Union, China, and Hungary, in addressing questions related to regulation, risk assessment, and the role of various stakeholders.

This article begins by defining FinTech as the application of technology to financial services, which has led to the emergence of new business models and the disruption of traditional banking practices. The authors argue that FinTech can improve financial inclusion, increase efficiency, and reduce costs, but it also poses risks such as cybersecurity threats, data privacy concerns, and regulatory challenges.

The Authors argue that the FinTech phenomenon has emerged as the fourth industrial revolution and it is in the initial phase of a "revolutionary" process, with a broad and unclear definition. This article then evaluates the FinTech development in the European Union, China, and Hungary, highlighting differences in regulatory frameworks, market structures, and consumer behavior. The authors argue that while the EU has a more mature FinTech ecosystem, China has emerged as a global leader in FinTech innovation, driven by its large population, mobile-first culture, and supportive government policies. Hungary, on the other hand, is still in the early stages of FinTech development, but has the potential to become a regional hub for FinTech start-ups.

This article also examines the impact of FinTech on traditional banks, arguing that while FinTech start-ups have disrupted the banking industry by offering innovative products and services, traditional banks still have a competitive advantage in terms of customer trust, regulatory compliance, and access to capital. The authors suggest that traditional banks can leverage FinTech to improve their own operations and customer

experience by partnering with FinTech start-ups or developing their own digital capabilities.

This article discusses the regulatory challenges posed by FinTech, arguing that regulators and supervisors need to strike a balance between promoting innovation and ensuring consumer protection and financial stability. While the authors emphasize the need for regulators and supervisors to ensure a level playing field and risk assessment for both traditional banks and FinTech companies, this article also proposes that regulators should adopt a proportionate and risk-based approach to FinTech regulation, taking into account the specific characteristics of each FinTech business model and the potential risks it poses.

This article highlights the importance of accurately defining FinTech (i.e. financial technology) to facilitate a better understanding of the phenomenon and its implications for traditional banks and FinTech start-ups. The future of traditional financial intermediation and the relationship between incumbent banks and FinTech start-ups is being challenged by the digital transformation of financial services. The authors also linked the five future banking scenarios proposed by Hatami (2015) to illustrate the potential changes.

Furthermore, digital transformation has introduced challenges to the international taxation system as corporate tax regulations traditionally rely on the concept of taxing profits in the jurisdictions where value is generated. However, with the rise of digital platforms, companies can generate substantial value through user participation without having a physical presence in a particular country. This has led to a mismatch between the existing corporate tax rules and the evolving business models in the FinTech industry. Policymakers are currently faced with the challenge of devising remedies to establish a fair and effective tax system capable of accommodating the rapid digitalization of the economy. The existing corporate taxation framework is obsolete and inadequately equipped to tackle this evolving landscape.

This article also highlights the importance of international cooperation between bank supervisors and other relevant authorities, as well as the adaptation of supervisory skill sets to keep up with the rapid advances in FinTech development and ensure a level

playing field and risk assessment for both traditional banks and FinTech start-ups. The authors pointed out the Basel Committee adopted the ten significant implications related to the suggested supervisory approach on the relationship between FinTech service providers and traditional banks.

The suggested supervisory approach adopted by the Basel Committee regarding the relationship between traditional banks and FinTech service providers has been highlighted by the authors, who have identified ten significant potential implications.

Finally, the authors argue that by working together, regulators and industry stakeholders can harness the potential of FinTech to improve financial services and promote economic growth while mitigating the risks associated with its development.

2.3 Evaluation of the Research Article

1) Use of literatures review approach

This article utilizes a literature review approach, analyzing existing research, empirical evidence, and case studies on the development, evaluation, and management of FinTech in three jurisdictions, including the European Union, China, and Hungary. As this article is purely based on literatures review, there is very limited data to support its observations. In addition, there is no data comparison (e.g. number of FinTech Companies, usage of different FinTech technologies, percentage of FinTech in banks, taxable income from FinTech start-ups, etc.) between the three jurisdictions, so the reader does not have a clear understanding of the level of FinTech adoption in these three jurisdictions.

2) Review of the development of FinTech

This article analyzes the existing literature and research on the development of FinTech, including definitions, regulatory approaches, and the relationship between FinTech start-ups and traditional banks. The authors also review the experiences and approaches of various stakeholders, such as regulators, central banks, and financial supervision authorities, to gain insights into the regulatory and supervisory measures related to FinTech. However, the authors did not provide any proposed solution or

recommendations to further improve FinTech development. When reviewing the regulatory approaches between the three jurisdictions and the relationship between FinTech start-ups and traditional banks, the authors only comment on the merits of the regulatory approaches from each jurisdiction, but do not provide any comparison of the advantages and disadvantages between these three jurisdictions.

3) Level playing field

The authors explain that FinTech service providers/start-ups have certain advantages over traditional banks, and they are not on a level playing field because of several factors. Firstly, FinTech start-ups require much less capital to establish due to their small size, and the acquisition of clients is cheap, which gives them a competitive advantage over traditional banks. Secondly, FinTech start-ups have a lean culture and structure that enable them to roll out new FinTech technology on customer-centred services much quicker than traditional banks at a lower cost. Thirdly, the regulation and supervision of FinTech services are mild or non-existent, which allows them to operate with fewer restrictions than traditional banks. These factors create an uneven playing field, which makes it challenging for traditional banks to catch up with quick development in the FinTech industry.

However, this article also quoted measures taken by the European Union to support the growth of FinTech start-ups. For example, the European Commission has put forward a Council Directive that establishes the regulations about the taxation of a notable digital presence within corporations, as a crucial step in constructing the framework of the EU Single Digital Market. Additionally, the European Union has published an EU FinTech Action Plan, and the European Banking Authority has published its FinTech Roadmap to design a regulatory supervision roadmap for FinTech. The EU is also working on enhancing the support from the European Monetary Union and the European Capital Markets Union on the availability of FinTech services. Separately, the Chinese government is generally supportive of the FinTech sector and encourages the development of internet finance. The People's Bank of China and the Chinese Banking Regulation Committee issued guidelines for the regulation of online lending platforms, while the Hungary's Central Bank established a regulatory sandbox to support the testing of new FinTech products and services. These measures are not creating a level playing field between traditional banks and FinTech service providers, but more focus is on creating a supportive environment for the growth of FinTech in

all 3 jurisdictions while ensuring that regulatory requirements are met to protect consumers and maintain financial stability.

4) Insights or Enlightenments on Hungary

This article is published in the Financial and Economic Review, which is a peer-reviewed academic journal that publishes research articles, reviews, and commentaries on various topics related to finance and economics. The Financial and Economic Review is issued by the Institute of Economics of the Hungarian Academy of Sciences and is indexed in several academic databases, including Scopus and EconLit.

The Financial and Economic Review is a reputable academic journal that provides a valuable resource for researchers and practitioners in the field of finance and economics. The journal has a rigorous peer-review process, and all submissions are evaluated by at least two independent reviewers before being accepted for publication. It covers a wide range of topics, including macroeconomics, monetary policy, financial markets, banking, international trade, and economic development. The journal aims to provide a platform for scholars, policymakers, and practitioners to share their research and insights on these topics and to contribute to the advancement of knowledge in the field of finance and economics.

This article references the views and opinions of economists and experts in the field of FinTech to support its arguments and incorporates empirical evidence and case studies from different countries to support its conclusions. This article lacks of insight or enlightenment for Hungarian's economists or regulators on what they can learn from the European Union and China case studies and how Hungary can improve its FinTech development.

5) Comment on Qualitative Research Methodology

This article employs a literature review methodology, drawing on existing research, empirical evidence, and case studies to explore the development, evaluation, and management of FinTech in different regions and types of relationships between FinTech start-ups and traditional banks. This article relies purely on literatures review, and have not carried out any personal interviews or focus group reviews to understand the viewpoints, underlying concerns and preferences of stakeholders, such as regulators, bank senior management of traditional banks, owners of the FinTech start-ups or end customers.

6) Virtual currencies

While this article put its focuses on getting a better understanding of the general FinTech phenomenon, it only touches on virtual currencies as one type of FinTech without any further elaboration. Bitcoin, as the first virtual currency, was introduced in a whitepaper in 2008, which outlined the concept of a decentralized digital currency and the underlying blockchain technology. It has caught media and investment attention in the last decade.

As FinTech covers a much wider scope, the development of virtual currency start-ups and regulatory approaches to virtual currencies would probably present a very different picture compared with the conclusion in this article. For example, the trading of virtual currencies is illegal in China, and the China Central Bank issued its own digital Renminbi, which aims to provide a centralized control, efficient, and traceable means of conducting transactions in a digital format in China. It is noted that the authors published another article titled “*The Rise of Central Bank Digital Currencies*” in 2021 to cover this specific topic.

2.4 Conclusion

This article provides a valuable resource for anyone interested in understanding the development of FinTech and its impact on the financial industry. This article explains the phenomenon of FinTech and the different types of relationships between FinTech start-ups and traditional banks. This study addresses consumer issues, potential regulatory barriers, and the applicability of regulatory framework for FinTech in 3 different jurisdictions. This article offers a balanced and insightful analysis of the opportunities and challenges.

The authors emphasize that FinTech is just in the early phase of a "revolutionary" process, and the definition of FinTech is changing. There is an urgent need for regulatory adaptation, international cooperation, and a clear definition of FinTech to effectively manage the digital transformation of financial services and ensure fair competition between FinTech start-ups and traditional banks. Regulators must ensure a level playing field and risk assessment for both traditional banks and FinTech

companies. All stakeholders, including regulators, incumbent banks, central banks, FinTech companies and consumers, have a responsibility in this process. All these points could be available for further research.

2.5 Future Works Suggested for this Research Article:

The authors do not provide any further research areas or limitations in this article. Here are some observations after reading This article regarding further research that can be conducted in the following areas:

- 1) The definition of FinTech varies in the academic economic literature, which creates difficulties in comparing their development, the scope of services, establishing a legislative framework, and maintaining a level playing field between FinTech companies and traditional banks. Other researchers may propose a new FinTech definition that supplements the current Financial Stability Board's definition of FinTech, and justify why, in their view, the new FinTech definition is more appropriate for monitoring and regulatory perspectives.
- 2) This article acknowledges the issue of not having a level playing field between FinTech service providers and traditional banks, and further confirms that finding a balanced solution is not easy. Other researchers may consider further research on possible solutions or recommendations in this area.
- 3) This article only provides some high-level examples of the usage of FinTech, such as digital ledger technology, robo-advice, financial inclusion, RegTech and virtual currencies, but the authors did not elaborate on the usage of FinTech in providing personalized financial advice, smart contracts on tailor-made financial products with dynamic pricing, quicker processing time, etc. With artificial intelligence (in particular ChatGPT) and cloud services are gaining more popularity in recent years, other researchers may consider providing a comprehensive analysis of the specific risks associated with FinTech (e.g. cyber security concerns, privacy issues, internal fraud, incorrect system setting, ethical issues, etc.) or detailed strategies for handling them.

- 4) While this article highlights corporate tax challenges to the international taxation system, it does not extensively discuss the implications of taxation in the context of FinTech. Other researchers may consider researching on potential corporate tax reform to establish an equitable and efficient tax system, which will support the further development of FinTech.
- 5) This article calls for a review of the future of traditional financial intermediation, and the relationship between FinTech start-up companies and incumbent banks. Other researchers may consider reviewing the potential risks and recommend further changes required in regulation and supervision.
- 6) The authors emphasize the importance of understanding the FinTech phenomenon and the potential relationship between FinTech start-ups and traditional banks. This article indicates that banks are enhancing their innovation, increasing their implementation of technology and embracing digital transformation and upgrading banking services for efficiency purposes. Other researchers may conduct further qualitative case study research to showcase some successful collaborations between FinTech start-ups and traditional banks in a win-win situation. What factors drive cooperation between traditional banks and FinTech start-ups instead of direct competition?
- 7) This article reveals FinTech development in the European Union, China, and Hungary and their regulatory approaches on FinTech activities. Other researchers may conduct qualitative phenomenology or ethnography research on these three jurisdictions, and understand how the experience of local citizens on adopting FinTech (e.g. their accessibility of bank service in local branches, the penetration of internet and smart-phones, type of bank service used, cost of transaction, etc.) and their cultural background may sharpen the development of FinTech and regulatory approach in respective jurisdictions.
- 8) This article focuses on the FinTech effect for banks, bank supervisors and their consumers, potentially limiting the scope of analysis. The adoption would be wider in the financial world, including insurance, investment, pension, etc. This is also

linked to my proposal research topic on the adoption of the FinTech insurance field (i.e. InsurTech), and how to understand how this may change the Insurance Industry.

3. Qualitative Research Proposal

Research Topic: How the Adoption of Insurance Technology through the Establishment of Virtual Insurers Influences the Insurance Mortality Protection Gap – A Hong Kong Case Study

3.1 Introduction

The insurance industry plays a crucial role in ensuring financial security and protection for individuals and their families. InsurTech is a term derived from combining "insurance" and "technology", it refers to the application of technology and innovation to revolutionize the insurance industry (Chang, 2023). It encompasses various technological advancements such as artificial intelligence (AI), Internet of Things (IoT), machine learning, blockchain, big data analytics, and online/mobile applications. The primary objective of InsurTech is to enhance different aspects of the insurance value chain and improve customer experience (Chang, 2023; Stoeckli et al., 2018). This is achieved through streamlined processes, reduced operational costs, improved customer experience, development of new insurance products and creation of new business models, and/or exploration of untapped markets and insurance needs.

3.1.1 Background on InsurTech

The emergence of InsurTech can be traced back to the early 2000s when online insurance platforms gained popularity and were widely reported by the media. These platforms allow customers to conveniently compare insurance quotes, purchase policies online, and access insurance-related information.

InsurTech has the potential to revolutionize the insurance industry by focusing on customer needs, improving efficiency, and reducing costs. Traditional insurers recognized the advantages of integrating technology into their operations and customer offerings. InsurTech is reshaping the insurance sector (Agarwal et al., 2022) by enhancing the distribution of insurance products and improving customer experience. It uses digital channels, data analytics, IoT devices, and AI to gather real-time data for

risk assessment and pricing information, simplifying the insurance application process, and providing personalized insurance options to customers. As the insurance industry and the changing of customer expectations, InsurTech has no doubt delivered better value to consumers.

Furthermore, insurance regulators have shifted from reactive manual checks to proactive big data monitoring. To accommodate technological advancements in the insurance industry, regulators often establish regulatory sandboxes and initiatives to foster innovation and facilitate experimentation in InsurTech across different jurisdictions.

"Virtual Insurers" were introduced by the Hong Kong insurance regulator in 2019. They are under a special regulatory license where virtual insurers must operate using InsurTech and distribute their insurance products solely through digital channels (i.e. without insurance intermediaries).

3.1.2 Insurance Mortality Protection Gap

The Mortality Protection Gap ("MPG") in life insurance refers to the disparity between the ideal amount of life insurance coverage that individuals or households should have and their current level of coverage (Swiss Re, 2020; Klein, 2020). It represents the extent of "under-insurance" or inadequate protection against the financial risks associated with premature death (Insurance Authority, 2021).

The concept of MPG arises from the recognition that life insurance is intended to provide financial support to dependents or beneficiaries in the event of a policyholder's untimely death (Premkumar, 2022). The coverage should be large enough to replace the life insured's income, settle outstanding debts, and meet the financial needs of the family or dependents left behind (Swiss Re, 2020).

The financial consequences of an unexpected death of life insureds can be substantial, particularly if they are the primary earner for the family. This can lead to financial difficulties, inability to maintain the same level of living standard, or even the loss of

fixed assets such as the property due to outstanding mortgage balance (Insurance Authority, 2021).



Figure 1: Relationship between Mortality Protection Gap, Income, Savings and Life Insurance (Swiss Re, 2015)

Here are some key publications issued by prominent organizations (e.g. The Geneva Association, the World Bank Group, the Swiss Re Institute and the insurance regulator of Hong Kong) on the measurement of MPG that have made significant contributions to my proposed research area. For more information, please refer to Appendix A.

3.1.3 Problem Statement

Numerous prior studies and the aforementioned papers and reports published by scholars and institutions have significantly contributed to the study of MPG, shedding light on its causes, repercussions, and potential remedies. These studies offer valuable insights for policymakers, insurance professionals, and academics engaged in addressing the challenges associated with inadequate insurance coverage.

The World Bank reported a case study available in China on micro-insurance sold through InsurTech with great success in reducing MPG (Holliday, 2019). Another study indicated that InsurTech utilizes data and analytics to support underwriting and claims (Rozar, 2017), and InsurTech is considered to add value to front-end functions, such as sales and distribution, marketing and pricing (Bruce et al., 2018). InsurTech can also increase customer centricity and operational efficiency (Pillay, 2018). Other

quantitative studies measure size and trend of the Insurance MPG, review specific location in Asia (Swiss Re, 2020), Finland (Ropponen et al., 2023), Hong Kong (Insurance Authority, 2021), India (Premkumar, 2022), Korea & Japan (Jung et al., 2020), Pakistan (Khan et al., 2022) and the United States (Rutledge, 2018; Romero, 2016).

Many scholars have proposed different solutions to narrow MPG, by providing more value-added services to attract more consumers to buy insurance policies (Klein, 2020); enhancing financial literacy among individuals (Mahdzan & Victorian, 2013; Dalkilic & Kirkbesoglu, 2015; Klein, 2020); offering new product features tailored to different demographic groups that are more affordable and flexible (The Geneva Association, 2018; Holliday, 2019); nudging individuals to pay attention to their MPG through behavioral economics principles (Thaler & Sunstein, 2008; Addis, 2014; The Geneva Association, 2018); offering insurance products with lower cost (Holliday, 2019); promoting/incentivizing adequate insurance coverage through tax incentives or penalties for being underinsured (The Geneva Association, 2018); enhancing consumer trust and confidence on insurance (The Geneva Association, 2018; Holliday, 2019; Klein, 2020), etc.

However, there is limited attention has been given to the relationship between the insurance MPG and InsurTech, particularly in the context of the Hong Kong insurance market. Given the recent establishment of virtual insurers in Hong Kong, there is no research available to examine how the adoption of InsurTech through the establishment of virtual insurers influences MPG in the Hong Kong insurance market.

3.2 Theoretical Background

To understand the influence of InsurTech on MPG, it is essential to examine relevant theories, concepts, and previous studies. Previous research suggests that adopting innovative technologies can enhance efficiency, reduce costs, improve risk assessment accuracy, and offer better products tailored to individual needs (Bacinello et al., 2019). This research proposal will build upon key insurance, economic and behavioral theories

and attempt to explain how the establishment of virtual insurers may be able to narrow the insurance MPG in Hong Kong.

There are four key concepts and theories that are relevant to this study: the concept of “Risk Pooling”, Human Life Value Theory, Planned Behaviour Theory, Expected Utility Theory and Trust Theory. Please refer to Appendix B for more details on these theories. These theories and concepts offer diverse insights into comprehending and addressing MPG and how consumer purchasing behavior through virtual insurers transforms in the realm of InsurTech.

3.3 Methodology

This research utilizes a qualitative approach with a case study design focusing on a specific virtual insurer operating in Hong Kong.

3.3.1 Research Purpose Statement

The purpose of this qualitative case study is to explore and understand the influence of InsurTech on the MPG of Hong Kong consumers. By employing interviews and thematic analysis, this research seeks to gain an in-depth understanding of specific InsurTech initiatives that may reduce MPG.

The findings of this study will provide valuable insights for insurance companies, InsurTech startups, policymakers, and researchers to leverage technology effectively in improving life insurance coverage and addressing the existing MPG.

3.3.2 Research Question

Despite the advancements in InsurTech, a significant disparity remains between the coverage provided by insurance policies and the actual needs of policyholders in Hong Kong.

To help fill current research gaps, this qualitative research proposal aims to bridge this gap by examining the perceptions of Hong Kong consumers on their MPG; reviewing their experience of buying insurance from virtual insurers online (i.e. without the help of an insurance intermediary) and key differences from buying it from insurance intermediaries; and understanding their impression of using InsurTech and their view on virtual insurers in Hong Kong.

The research aims to answer the following questions:

- What is the understanding of Insurance MPG among Hong Kong consumers?
- As the use of InsurTech becomes more popular, what is the experience of Hong Kong consumers purchasing insurance online through InsurTech? What are the challenges in the sales process using InsurTech? Do they prefer to use an online self-served process or be guided by insurance intermediaries?
- What are the perceptions of Hong Kong consumers regarding the use of InsurTech to address their insurance MPG? What is their impression of using InsurTech and their views on virtual insurers in Hong Kong?

By addressing these research questions, this research seeks to enhance the understanding of the relationship between InsurTech and the insurance MPG in Hong Kong through the establishment of virtual insurers, and provide insights into consumer perspectives and experiences.

3.3.3 Research Design

Adopt a qualitative research case study approach to gain an in-depth understanding of the influence of InsurTech on the insurance MPG of Hong Kong consumers. This study will use semi-structured interviews as the primary data collection method with thematic analysis of the data collected.

3.3.4 Research Approach

Qualitative research is particularly suitable for this case study as it aims to understand the influence of InsurTech on insurance MPG from the perspectives and experiences of key stakeholders, such as insurance industry professionals, InsurTech entrepreneurs,

regulators, and experts. By employing qualitative methods, the research can capture the nuances, complexities, and contextual factors that shape the relationship between InsurTech and MPG.

The primary data collection method in this research is semi-structured interviews, which provide a flexible framework for gathering in-depth information from participants, allowing interviewees to share their perspectives, experiences, and insights related to InsurTech and its influence on the insurance MPG in the case of Hong Kong. Open-ended questions in the interview guide encourage participants to express their thoughts and elaborate on their experiences, enabling the researchers to explore the topic comprehensively.

This research employs thematic analysis as a data analysis technique, which involves identifying patterns, themes, and meanings within the qualitative data collected through interviews. This allows researchers to organize and analyze the data systematically, uncovering the underlying themes and concepts that emerge from the participants' narratives. The analysis will focus on understanding the influence of InsurTech on the insurance MPG of Hong Kong consumers, identifying specific initiatives, and exploring the challenges and opportunities associated with implementing InsurTech and narrowing the MPG of Hong Kong consumers.

3.3.5 Data Sample Methods

This research employs purposive sampling to ensure that a diverse range of participants are interviewed. It aims to achieve representativeness and generalizability through non-probability sampling. This research focuses on selecting participants who can provide rich and in-depth insights on InsurTech, the insurance industry, MPG or regulatory perspectives. The samples will include insurance Hong Kong industry professionals, InsurTech entrepreneurs, virtual insurer staff, insurance agents/brokers, regulators, local consumers who have experience with InsurTech, and local consumers who have no experience with InsurTech to understand their perceptions on InsurTech and MPG.

The goal is to gather information from individuals who can provide comprehensive insights into the topic and contribute to a deeper understanding of the relationship between InsurTech and MPG.

3.3.6 Data Collection Methods and Procedures

This research will conduct semi-structured interviews with selected participants through personal networks. An interview guide will be developed comprising open-ended questions to explore participants' perspectives, experiences, and insights regarding InsurTech and its influence on the MPG for Hong Kong consumers, please refer to Appendix C for high-level principles to be covered in the Interview Guide. The interviews will be audio-recorded after obtaining formal consent from the participants.

The sampling size in qualitative research is determined by the principles of data saturation and theoretical saturation. The expected sampling size is 30 face-to-face participants located in Hong Kong or until it reaches the saturation point. It is important to focus on the depth of understanding of the participants rather than the number of participants. I should prioritize the quality and richness of the data collected rather than aiming for a specific sample size.

It is important to note that the semi-structured nature of the interviews allows for flexibility and encourages participants to share their unique perspectives and experiences. This approach ensures that the research captures a comprehensive understanding of the influence of InsurTech on the insurance MPG from the viewpoints of various stakeholders.

3.3.7 Data Analysis Methods and Procedures

The research utilizes thematic analysis to identify recurring themes and interpret patterns within the interview data. The thematic method analyzes large pieces of text data (i.e. transcripts from interviews) and groups them into themes or categories that come up frequently within the interview data. We need to transcribe and organize interview data, and then use qualitative data analysis software to facilitate data

management, coding, and theme development. We may need to review the result and engage in iterative discussions to refine and validate emerging themes.

Thematic analysis is considered an appropriate choice for this research as it allows for a comprehensive exploration of the topic, identification of key themes, integration of multiple perspectives, theory development and practical implications.

3.3.8 Data Quality and Trustworthiness Procedures

It is crucial to ensure data quality and trustworthiness in this research to enhance the credibility, dependability and transferability of the findings. Here are the procedures to be implemented during the research:

- 1) Spend sufficient time engaging with the data, including transcriptions, field notes and interview recordings, which help me to identify patterns, themes, and nuances.
- 2) Review of the interview transcripts to ensure that participants' viewpoints are accurately represented and enhance the validity of the findings.
- 3) Discuss with the supervisor on the research process, methods, and emerging findings to identify potential biases, explore alternative interpretations, and ensure rigor in data analysis and interpretation.
- 4) Engage in reflexivity, recognizing and critically reflecting on my own biases, assumptions and preconceptions throughout the research process, which minimizes potential biases.
- 5) Employ data triangulation (i.e. use of multiple sources of data) to validate findings and enhance the trustworthiness of the research. In this study, triangulation can be achieved by comparing and contrasting data from different participants.
- 6) Strive to achieve saturation to ensure that the data collected is comprehensive and representative of this research topic, which adds credibility and trustworthiness to the findings by demonstrating that a sufficient depth of understanding has been reached.
- 7) Maintain clear and detailed documentation throughout the research process, including data collection procedures and analysis techniques, which enable others to assess the rigor of the study.

By implementing the above data quality and trustworthiness procedures, the research study can enhance the credibility and dependability of the findings. These procedures support the research is rigorous, transparent, and aligns with the principles of qualitative research.

3.3.9 Ethical Procedures

Ethical considerations are paramount in researching to protect the rights, well-being, and confidentiality of participants. In the study on the influence of InsurTech on the insurance MPG for Hong Kong consumers, the following ethical procedures should be implemented:

- 1) Adhere to ethical guidelines and protocols established by the university.
- 2) Obtain ethical approval from the university by submitting a detailed research proposal that outlines the study's purpose, procedures, participant protection measures, and informed consent process, etc.
- 3) Informed consent should be obtained in writing, ensuring that participants understand their voluntary participation, their right to withdraw at any time, and the confidentiality measures in place to protect their identity and data.
- 4) Establish a professional and respectful relationship with participants, by maintaining open and transparent communication, addressing any questions or concerns raised by participants, and ensuring that participants feel comfortable during the research process.
- 5) Data collected should be anonymized and stored securely, with limited access only to authorized research personnel. Any identifying information should be removed or pseudonyms should be used in research outputs to protect participants' privacy.
- 6) Minimize any potential harm or discomfort to participants, which includes avoiding sensitive or intrusive questions, offering support resources if participants express distress, and ensuring that the research environment is safe and respectful.
- 7) Acknowledge and express gratitude for the contributions of participants and consider ways to involve participants in the dissemination of findings if appropriate.

Implementing these ethical procedures can uphold the highest ethical standards, protect participant rights, and maintain the integrity and trustworthiness of the research process and findings.

3.4 Justification

It is important to study how InsurTech influences MPG is important within Hong Kong's context due to several reasons.

Firstly, Hong Kong has experienced rapid technological advancement over recent years which may have implications for its population's access to suitable life insurance coverage aligned with their changing needs (Chiu et al., 2017).

Secondly, the adoption of InsurTech by virtual insurers can simplify traditional manual processes, allows for a more accurate assessment of risks and lower administrative costs.

Thirdly, InsurTech can also provide the Hong Kong's insurance market with more personalized insurance products with different levels of protection and premium levels. Consumers with different ages, health status and income level can obtain the insurance protection that they need. Last but not least, this is tied to the regulator's strategy to promote the InsurTech development in the Hong Kong (Insurance Authority, 2023) and promotes long-term insurance inclusiveness.

Bowtie Life Insurance Co. Ltd ("Bowtie") was established in 2018, it is the Hong Kong's first virtual insurer approved by the Insurance Authority. According to its website, Bowtie claimed it has reimaged the entire insurance experience, so customers can enjoy stress-free and truly customer-centric protection.

Bowtie's business has grown significantly in the past few years, from 80 policies in 2019 to 23,748 policies in 2022, represents 0.4% of market share in terms of sum assured (i.e. insurance coverage amount) (Insurance Authority, 2023). The concept of InsurTech can offer more affordable products and tap into underserved market

segments seems to be valid. However, it is apparent that Bowtie only accounts for an immaterial market share compared to other major insurers in Hong Kong.

Through this research, we will use Bowtie as a case study to explore how a virtual insurer adopting InsurTech can potentially narrow MPG for the better good of Hong Kong citizens.

3.5 Significance

Compared to other financial instruments, life insurance provides an effective and efficient way for consumers to narrow their protection gaps (Insurance Authority, 2020). MPG is a global issue, but there is not enough attention has been paid to this issue, especially in emerging markets (Klein, 2020).

3.5.1 Huge Protection Gap in both Asia and Hong Kong:

As mentioned in Section 3.2, Swiss Re (Swiss Re, 2020) estimated the MPG is USD 83 trillion in 2019 (compared to USD 42 trillion in 2010) across the Asia-Pacific region, and is increasing at a rate of 4% per annum. Hong Kong has a MPG of USD 0.4 trillion with a 41% total protection need is uncovered;

A similar study from the Insurance Authority (Insurance Authority, 2021) revealed the estimated Hong Kong MPG is HKD 6.9 trillion (USD 0.88 trillion), which means the new business opportunity is 13 times more compare to the existing annual premium income for Hong Kong. On average, each working adult has a MPG of HKD1.9 million, with an average size of the gap that is equivalent to 5.7 times of their annual income.

3.5.2 Importance of Narrowing the Gap

The purpose of “life insurance” is to protect consumers against unexpected events by providing their dependents with financial support if the breadwinner passes away prematurely. A high MPG means that more dependent(s) would not be able to maintain

the same living standard in an unexpected event (e.g. critical illness, accident or death of the breadwinner, etc.). This could even lead to a huge social cost to the entire economy.

3.5.3 Combining Insurance MPG and InsurTech for Hong Kong

The insurance regulator in Hong Kong set out their initiatives to promote InsurTech as part of its strategy to strengthen the role of Hong Kong as an international financial center (Insurance Authority, 2023a). The Insurance Authority has been closely monitoring the development and application of InsurTech and proactively assisting market participants to resolve regulatory issues related to InsurTech (Insurance Authority, 2023b).

The Insurance Authority has launched several programs to promote the development of InsurTech in Hong Kong, such as the launch such as InsurTech Sandbox, digital onboarding and fast-track authorization of digital insurers. In particular, the Insurance Authority offers fast-track authorization to support the growth of digital insurers which use only digital distribution channels.

3.5.4 Adoption of InsurTech by Virtual Insurers

As the first virtual insurer in Hong Kong, Bowtie offers commission-free insurance products through digital distribution. Customer can get instant quotes online by inputting their gender, age, smoking status and simple medical history. Bowtie products offer “pure protection” products with no savings element, customers can cancel their policies anytime without penalty fees with high flexibility.

Moreover, Bowtie leverages on InsurTech to modernize and simplify the online process, customers can use their smartphone or computer to complete the online application process in 10 minutes with no medical exam. Customer can get instant result on whether or not they can be insured. Once approved, the policy is effective immediately. Customers can manage their policies online and file a claim through Bowtie’s digital platform as quickly as 5 minutes.

Through the adoption of latest InsurTech, Bowtie reduces its operating costs and offer insurance product the same level of protection at a lower cost.

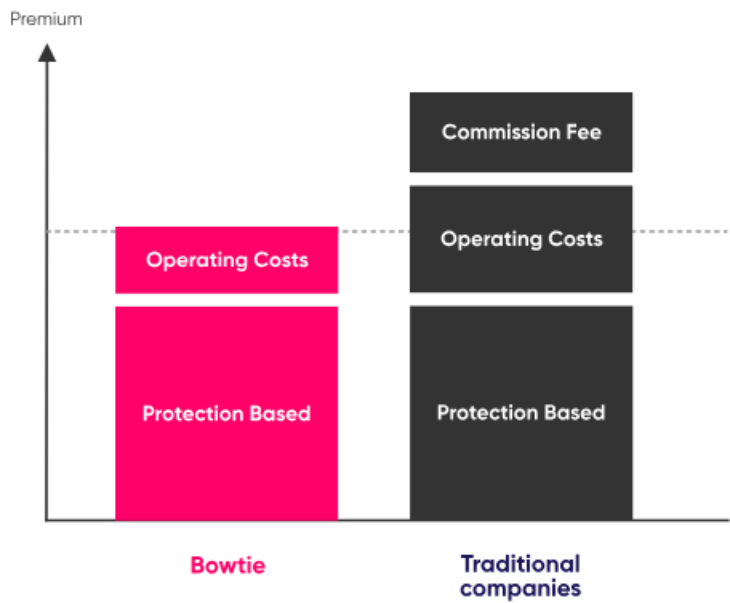


Figure 2: Bowtie Offers Cheaper Premiums to its Customer
Through the Adoption of InsurTech

The findings from this research will have significant implications for various stakeholders, including insurers, policyholders, government agencies, and society as a whole. Insurers can gain insights into successful strategies employed by industry leaders in integrating technology into their operations to narrow the MPG.

Policyholders can benefit from a more accurate risk assessment process that enables them to secure appropriate coverage tailored to their needs at competitive prices. Government agencies can utilize these findings to assess if regulatory adjustments are necessary to facilitate technological adoption in the insurance industry while protecting consumer rights.

Society at large will experience improved financial security and well-being due to policies that effectively close the MPG through advanced InsurTech.

3.6 Limitations

The qualitative research design may have limitations in terms of sample size and generalizability, several limitations or challenges may arise during the research process. Limited access to data from virtual insurers might restrict the depth of analysis possible. Additionally, obtaining a representative sample size that encompasses all segments of stakeholders and consumers may prove challenging due to privacy concerns and reluctance among some participants.

Furthermore, since this study focuses specifically on Hong Kong's insurance market, the generalizability of findings beyond this context may be limited; however, insights gained from this case study could inform further research in other regions with similar characteristics.

Moreover, it is important to acknowledge that purposive sampling may introduce some limitations. The findings may not be generalizable to the entire population, as the focus is on selecting participants with specific characteristics or experiences. The findings in this research will provide valuable insights to Hong Kong consumers, but may not apply to all insurance contexts or InsurTech initiatives. However, the goal of qualitative research is often to gain in-depth insights and understand the complexities of a particular phenomenon, rather than achieving generalizability.

This research adopts thematic analysis which can be subjective as it relies on the researcher's judgment. Therefore, to avoid biases, it has 6 steps that include familiarization, coding, generating themes, reviewing themes, defining and naming themes, and writing up. It is also important to note that, because it is a flexible approach, the data can be interpreted in multiple ways and it can be hard to select what data is more important to emphasize.

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Appendix A - Key Studies on Insurance Mortality Protection Gap

The measurement of MPG is commonly conducted on a national or regional scale, which serves as a means of evaluating the prevalence of under-insurance among a population. This assessment provides insights to insurance professionals, policymakers, regulators, and researchers in comprehending the degree of risk exposure and determining the necessity for interventions to bridge the gap. By narrowing this gap and ensuring sufficient protection for individuals and households against premature death, it becomes feasible to alleviate the potential financial repercussions that could arise from such circumstances.

Here are a few key publications issued by prominent organizations that have significant contributions to my proposed research area:

In 2018, the Geneva Association, a leading international insurance think tank for insurance and risk management matters, issued a report titled "*Understanding and Addressing Global Insurance Protection Gaps*" (The Geneva Association, 2018). This publication identifies the underlying causes of MPG and conducts an analysis of MPG in countries of varying income levels, representing diverse stages of economic development. Additionally, the report presents potential solutions and incorporates insights from insurance companies, regulators, governments, and key business vendors / partner.

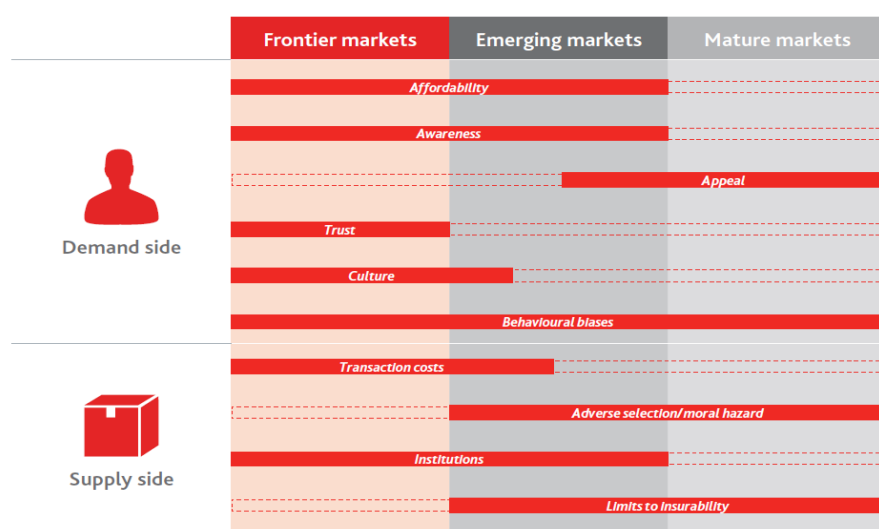


Figure 3: The Underlying Reasons for Insurance Protection Gaps for Different Markets (The Geneva Association, 2018)

In 2019, the International Finance Corporation, World Bank Group, released a publication titled *"How Insurtech Can Address the Underinsurance Challenge in Emerging Markets"* (Holliday, 2019). This paper sheds light on the rapid growth of the InsurTech industry, which has disrupted the traditional insurance market and presented significant opportunities in emerging markets characterized by low insurance penetration and a substantial "protection gap".

In 2020, the Swiss Re Institute, a prominent global reinsurer, released a report titled *"Closing Asia's Mortality Protection Gap"* (Swiss Re, 2020), which indicated Asia demonstrates a lack of resilience to adverse events such as mortality, health crises and natural catastrophes. The report estimates that MPG in the Asia-Pacific region reached USD 83 trillion in 2019 (compared to USD 42 trillion in 2010) and is growing at a rate of 4% annually. Closing this MPG in Asia would present business opportunities, leading to an additional USD 292 billion in life insurance premiums each year. The report is regarded as the most extensive study on consumer attitudes and preferences on MPG in the Asian region. These findings are particularly valuable in addressing the issue of MPG.

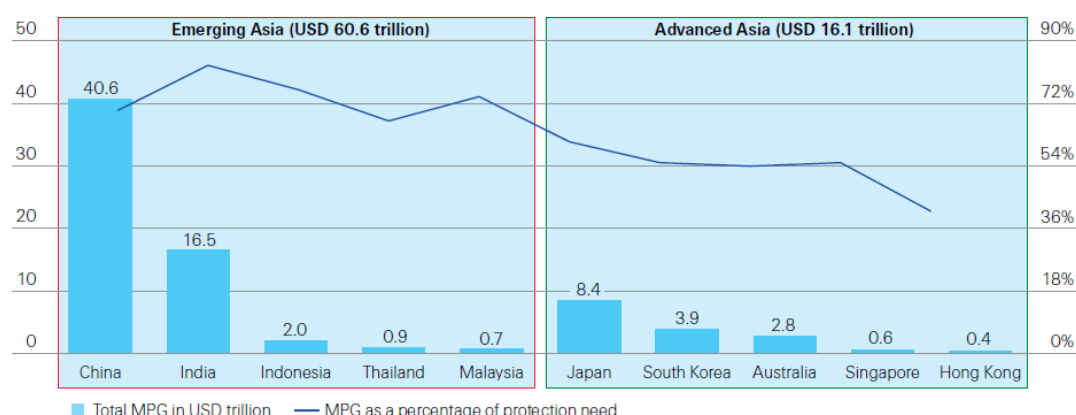


Figure 4: The size of Asian Markets Mortality Protection Gap and Protection Needed (Swiss Re, 2022)

In 2021, the Insurance Authority, the insurance regulator in Hong Kong, published its first report titled "*Mortality Protection Gap Study 2021*" (Insurance Authority, 2021). This study unveiled that Hong Kong's total MPG amounted to HKD 6.9 trillion in 2019. The report further highlighted that each working adult possessed an individual MPG of HKD 1.9 million, which is approximately 5.7 times the average annual income. The study encourages policyholders to regularly review their insurance coverage in light of the changing MPG arising from different life stages and financial resources.

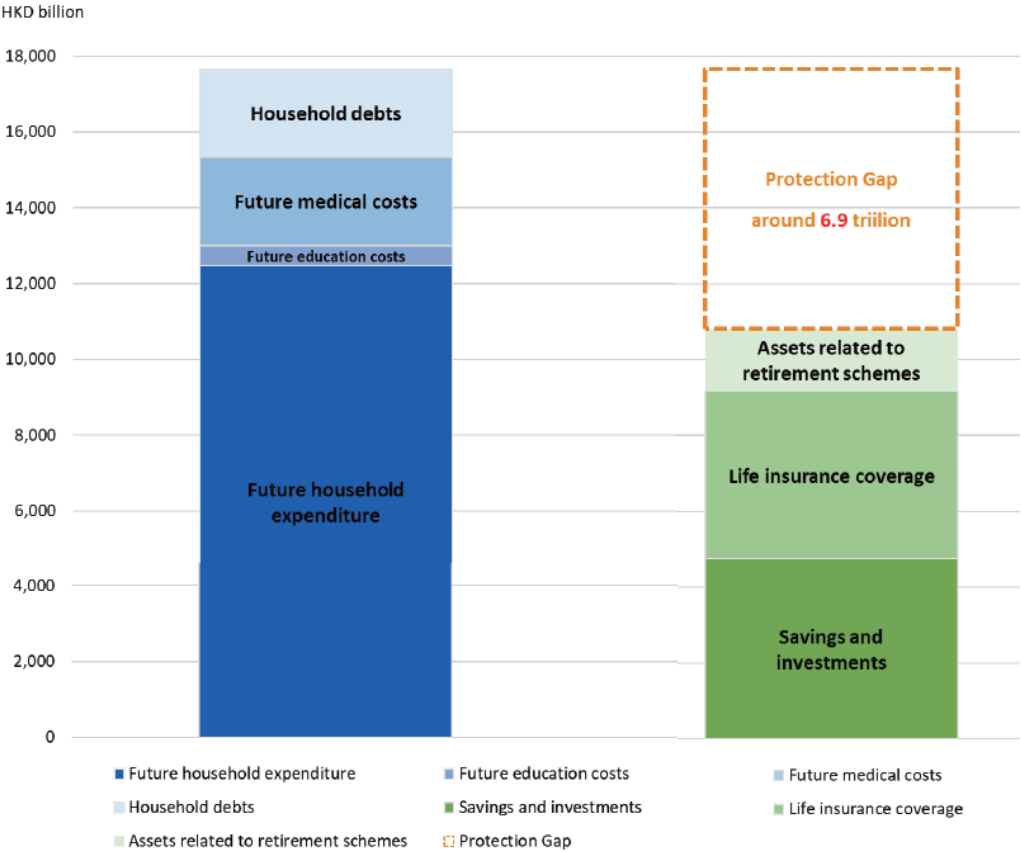


Figure 5: Result of 2019 Mortality Protection Gap Study (Insurance Authority, 2021)

Appendix B – Details of Key Theoretical Background

1) Law of Large Numbers - The Concept of Insurance: “Risk Pooling”

Risk pooling serves as the core principle in the insurance industry. By distributing the risk across a large collective of individuals, the financial burden resulting from unforeseen events, such as death, can be shared among the members. Risk pooling enables insurers to more accurately assess the frequency and severity of potential losses, facilitating the establishment of suitable premiums and the provision of reasonably priced insurance coverage.

The concept of risk pooling derives from the Law of Large Numbers, a fundamental principle in Probability Theory. As the number of independent and identically distributed risks increases, the average loss per participant tends to converge towards its mean, making it easier to predict (Denuit & Robert, 2021).

2) Human Life Value Theory

The theory of Human Life Value is employed in the realm of life insurance to ascertain the suitable level of coverage a person should obtain, considering their economic worth to their dependents or beneficiaries (Huebner, 1959). This theory operates under the assumption that the main objective of life insurance is to compensate for the loss of income and financial support that would occur upon the policyholder's demise (Landefeld & Seskin, 1982). By quantifying the economic value associated with an individual's life, this theory aids in determining the necessary extent of life insurance coverage required to address the gap in mortality protection.

3) Planned Behaviour Theory

The Planned Behaviour Theory is a social psychological theory that aims to elucidate and forecast human behavior by considering an individual's beliefs, attitudes, intentions, and perceived control over their actions (Brahmana et al., 2018). This theory can be employed to comprehend the impact on individuals' behaviors and decision-making alterations when purchasing insurance through online platforms as opposed to traditional insurance intermediary sales channels (Klein, 2020).

4) Expected Utility Theory

Expected Utility Theory is a normative economic theory that aims to elucidate the decision-making process of individuals by considering the expected utility, which refers to the overall value or satisfaction they anticipate deriving from various alternatives. The theory explains for how individuals take insurance coverage into account based on their risk preferences, such as their aversion to potential financial losses, and their assessment of potential outcomes, such as accidents, illnesses, or premature death. Specifically, the theory acknowledges that individuals generally prefer to transfer the risk of potential losses to an insurer in exchange for paying premiums (Nyman, 2001). This theory can explain how the utility can be affected when individuals purchase insurance through digital channels.

5) Trust Theory

Trust theory examines the concept, dynamics, and outcomes of trust in various social, psychological, and organizational settings. Its objective is to comprehend the process of trust formation, its impact on relationships, and its influence on behavior and decision-making. When applied to the domain of e-commerce, trust theory has unveiled that a combination of individual traits and contextual factors contributes to the development of trust, ultimately leading to habitual behaviors and collaborative consumption (Zarifis & Cheng, 2022; Luo et al., 2021). This approach effectively captures the consumer's perspective within specific contexts, underscoring the pivotal role of trust in facilitating online transactions and establishing enduring relationships between consumers and e-commerce platforms.

Appendix C - Principles to be covered in the Interview Guide

An interview guide will be developed to cover the following areas and questions:

- 1) Begin the interview by introducing the purpose of the study and explaining the confidentiality and voluntary nature of participation.
- 2) Establish rapport with the participant and create a comfortable environment for open discussion.
- 3) Start by asking participants about their background and experience in the insurance industry, InsurTech start-ups, insurance regulation or related areas.
- 4) Explore their roles, responsibilities, and expertise to understand their unique perspectives in relation to InsurTech and MPG.
- 5) Probe participants' understanding and awareness of the MPG.
- 6) Ask them to share their experience on InsurTech and narrowing their MPG.
- 7) Explore participants' views on the influence of InsurTech on the MPG.
- 8) Seek their opinions on the effectiveness, challenges, and opportunities associated with the use of InsurTech
- 9) Discuss the challenges and obstacles faced in understanding or reviewing their own MPF.
- 10) Explore participants' perspectives on the opportunities and advantages that InsurTech brings in addressing the protection gap
- 11) Ask participants for their recommendations or strategies to leverage InsurTech effectively in reducing the MPG.
- 12) Inquire about their thoughts on the future outlook of InsurTech's development and also the potential changes on their MPG.
- 13) Allow participants to share any additional insights or thoughts they consider relevant to this research topic.
- 14) Express gratitude for their participation and willingness to contribute to the study.

