Application of Akim's Model - Voluntary Insurance for Rapid Growth-trend of E-banking Transactions in Canadian-Economy: Seeking Officials Attentions

Akim M Rahman[1,2,3*], Sapan Miah[4]

[1]Faculty of Business Studies, Sheikh Hasina University of Science and Technology, Bangladesh
[2]Social and Economic Research Institute (SERI), Reg No. S - 12707 Govt of Bangladesh
[3]Ohio State University, USA
[4]Department of Business Administration, Royal University of Dhaka, Bangladesh

Abstract

The Bank of Canada (BoC) has been speeding up its efforts for positively influencing e-banking growth-trends in economy and finance for few years now where the innovations of banks & fintech are contributing significantly. However, effective protection and lack of competition that comes with it, have resulted banks to be behind innovation comparing it to that of many developed countries. Here probable customers are still concerned about psychological and emotional risk-factors that are becoming barriers to the growth-trends of e-banking services in Canadian economy. To marginalize the dilemma, attaching Voluntary Insurance (VI), known as Akim's Model in literature, as a product in e-banking services can ensure secured digital-transaction services. As methodology used in this study, it is academically shown that adding the VI as a product and its increasing value will keep banking-businesses be growing. Here Welfare Analyses are used as guidance for policy design ensuring efficiency cost of competitive pricing of insurance so that the VI becomes appealing to party(s) involved. In case of bank service-provider, adverse selection in insurance market, welfare cost of inefficient pricing is quantitatively small and advantageous selection results the opposite. It can ensure risk-free e-banking in Canadian economy soon. Historical growth trends of Canadian e-banking services ratify that addition of a new legal product will contribute improving society beyond just gratification of consumers. Thus, once the VI policy is in place, which is well suitable under BoC policies and the 2024 Canadian federal budget introduced mandates, it will spread from bankers to customers. It will marginalize the strength of psychological & emotional factors of probable customers. It will serve as the positive results of innovations and of main motivating factors in the adoption process. So, its growth trend (S-curve) will capture the growth of revenue against time. This growth will be slow at the beginning but at some point, e-banking users will begin to demand it. Thus, it will ensure a higher number of transactions than that are today in e-banking service-market of Canada. Here the motivation & efforts of the BoC are the pre-requirements for ensuring Canadians to be cashless society soon.

***Corresponding Author**: Akim M Rahman, Associate Professor, Faculty of Business Studies, Sheikh Hasina University of Science and Technology, Bhairab, Bangladesh and Social and Economic Research Institute (SERI), Reg No. S - 12707 Govt of BD and Ohio State University, USA; E-mail: rahman.19@osu.edu*

1. Introduction

No matter where we live, in today's business-driven world, people conduct services in rational, competitive, and multifaceted manner. In digital world, factors such as heists or interruptions in any digital transaction are often unpredictable. It is well recognized that digital banking is an important product in the financial sector country-wise such as Canada. But bank-led digital-banking faces serious pitfalls i.e., its riskiness including psychological risk [1] where Canadian-economy is no exception [2,3]. Studies further shows that psychological factor, emotional factor and user experience positively influence the resistance to use e-banking services [4,5]. But there is no empirical evidence in literature supporting that the influence of functional barriers affects the resistance to the use of digital-banking services where e-banking in Canadian-economy is no exception.

In most cases, digital-banking customers compete for time-saving options. Banks compete to marginalize its operating costs. In most cases, before signing up for bank accounts, customers do not read terms & conditions of services. Moreover, in general, customers do not save contract copies. They do not exactly remember the number of their banking transactions or transaction-amounts in their accounts. These are the most common phenomenon of today's human-society where Canadian-society is no exception. These fragilities cause abuses where abusers make benefits out of it. As a result, a customer faces perceived-risk-factors such as hidden charges, extra fees, account hacked [6]. This is because customers' bank accounts are insured in an economy where regular bank-service providers carefully verify the connecting info and other identification intensively. But a digital banking transaction is not insured with the current setup country-wise such as Canada. Here digital abuses and heck can take place anywhere no matter what economy we talk about [7].

Tackling this dilemma in digital-banking services, Voluntary Insurance (VI) as a new product under Akim's Model in digital-banking-service literature can be instrumental [1]. It can serve as a guidance to policymakers of Canadian-economy for designing effective policies for ensuring absolute risk-free digital-banking services, which can ensure cashless Canadian-society soon. Furthermore, it can facilitate a new product in today's banking services economy country-wise where Canadian economy can be an example to other economy.

2. Why is Canadian Economy?

It is well recognized that the Bank of Canada (BoC) has been promoting the economic and financial welfare of Canada by fostering a stable and efficient financial system since its beginning [8].

These services include banking services in multi-faucets including bank-led digital-banking and credit union services, financial markets' clearing & settlement services etc. With these multi-faucets responsibilities, the banking sector was an early adopter of digital technology compared to many other industries in Canadian economy (iproov.com, 2023).

Accordingly, the Figure 1 clearly shows that a sizable portion of Canadians use digital-banking services where 68% of Canadians used digital-banking in year 2023. It was higher by 5% comparing to that in year 2020, which was higher by 5% comparing to that in year 2018.

Surely, over 2018 – 2023 period, it reflected a continuous upward growth trend. Figure 2 shows that digital-banking penetration in Canadian society was 74.1% in year 2024 under moderate category. In the same year, it was 77.2% as severe scenarios in Canadian economy. This data statistics clearly suggests that in severe scenario such as COVID 19 pandemic crisis, people became psychologically concerned, thus in aim to avoid consequences, they enhanced using e-banking services instead of traditional banking [9].
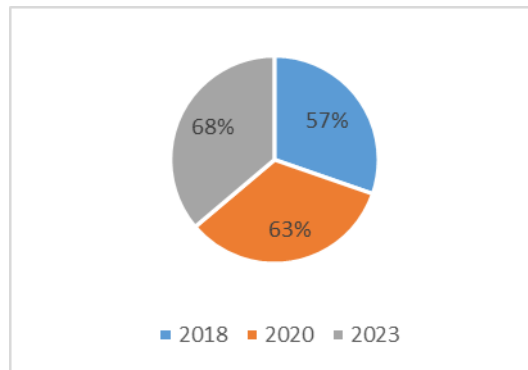
Figure 1: *Percentage of Canadians using Online Banking (2018-2023).*
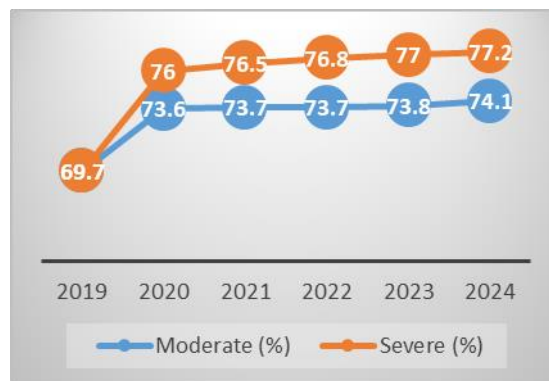
Figure 2: *Digital-banking penetration in Canada (2019-2024) under moderate & severe scenarios.*

Data Source: https://go.iproov.com/canada-online-banking.html
Figures Sources: *Author's creation*

But e-banking service-related issues, complaints, inquiries, and number of opened cases trends are in upward in Canadian economy [2]. It reached to a new record level high in 2022. Besides this, during the COVID–19 pandemic crises, the fraud related complaints dramatically rose. As it was reported by the Ombudsman for Banking Services and Investments (OBSI), in year 2022, the OBSI's responses to complaints reached over 10,000. This number was 40% higher than that in the year 2021. It was driven by banking inquiries that rose to 56% compared to that of 2021 where investment inquiries increased by 8% year over year [2].

In summary, the OBSI's annual report 2023 [2] clearly shows that banking complaints related to fraud were more than quadrupled to 950 cases in 2023, which was up from 215 cases in 2022. It represents 40% of the OBSI's total banking cases, which was up from 31% in the year 2022. Furthermore, there were 427 banking cases, which were centered around service issues, which represents 18% of all banking cases. It marked an increase from 130 cases in 2022 [Table 1].

Based on the findings of the OBSI Annual Report 2023, the digital-banking dilemma in Canadian economy are highlighted as follows:

Table 1: *Banks' policy-efforts marginalizing dilemmas of e-banking services in Canadian economy.*

Number of Inquires & Compensation	Values
Total number of publics inquire	17374
Increase the number of publics inquires	63%
The number of open cases	3050
Compensation to consumers	$2,685,777
Average banking compensation	$2,573
Average investment compensation	$10,199
Source: OBSI Annual Report 2023; https://www.obsi.ca/en/news-and-publications/resources/AnnualReports-English/OBSI_2023-Annual-Report_EN_AODA.pdf	

It is well recognized that the resistance to use the tech-products or services by consumers can be influenced by several factors [4]. It may range from functional aspects inherent in the product or services that contain some degree of innovation to emotional and psychological characteristics of the consumer [1,4]. There is no doubt that banking sector country-wise have been trying its best in multi-facets reducing the number of complaints filed by e-banking users time to time where e-banking system in many countries such as Bangladesh, Canada etc. are bright examples [5,2].

In aim to marginalize the dilemma of today's e-banking particularly bank-led e-banking services in Canadian-economy, banks recently enhanced its digital capabilities supported by online banking platforms and mobile apps [8]. These efforts have been offering customers more flexibility, but the existence of probable customers' psychological risks is still significant [2]. Besides this, the existence of customers complaint trend is upward [2]. Accordingly, many banks have been partnering with Fintech for delivering personalized experiences for ensuring security [2]. However, the digital technology that banks had embraced did little to modernize their back-office processes. In other words, it was not transformative [8].

It is well recognized that in today's Canadian economy, there are widespread usages of smartphones [2]. Accordingly, the mobile banking apps are becoming increasingly popular in Canadian economy [8]. Now Canadians can perform many banking-tasks using their mobile devices through digital banking platforms. With this progression, the number of complaints filing by customers to the BoC has also been increasing as time passes [2,8]. Also, the psychological risk-factors of probable users are undermining the growth trends of e-banking transactions in Canadian economy [8].

In aim to address this dilemma, the 2024 Canadian federal budget introduced mandates that aim to enhance consumer protection and promote inclusivity in a priority [10]. Here the expectation of the efforts is reshaping the business strategies of both traditional & digital-only banks and then affecting revenue models, technology infrastructure and customer engagement practices [10].

However, at this stage, there is no measure of protection in place no matter what country's e-banking services we talk about [7,8]. Accordingly, the predominant influence of emotional barriers, in comparison to functional barriers, in e-banking services are undeniable [10] where Canadian e-banking services are no exception [8].

In most countries bank-deposits are not insured [1,4,10]. But in practice government intervenes to ensure that depositors do not suffer a loss. Despite rapid growth of digital-banking globally, no country has insurance in place to cover digital-transaction. But digital-banking face serious pitfalls being it riskiness. Customers do not read terms & conditions of services. These weaknesses cause abuses. Customer faces perceived-risk-factors. Dealing with determinant "perceived risk", the current author proposed in literature Voluntary-Insurance [1,11,12] for world-economy country-wise. Adoption of the model "voluntary insurance" in digital-banking of Canadian-economy deserves policymakers' attention. Also, the application of the model is suitable underpinning the theme of the 2024 Canadian federal budget introduced mandates that aim enhancing consumer protection and promote inclusivity.

Thus, the application of Akim's Model in policy-design can be attractive to bank-officials in Canadian economy. Accordingly, this study advances with elaboration on Akim's Model and then utilize it theoretically including welfare analysis as a methodology in this study for policy recommendations addressing the growth-trend dilemma of e-banking transactions in Canada.

3. Objectives of the Study

This study continues with three specific objectives. They are

- To apply Akim's model – Voluntary Insurance for ensuring growth of total risk-free digital-banking services in Canadian-economy.
- To examine the profitability of adopting voluntary insurance policy in digital banking using welfare analysis.
- To examine how it can be instrumental to Canadian economy, in general.

4. Methodology

In aim to establish the basis of the model – Voluntary Insurance (VI) in Canadian-economy, this study uses the Theory of Consumer Choice & Behaviors [12]. For guidance in policy design–adoption of VI policies including assessing amount of cost or prices for insurance, this study carries out welfare analysis of the application of VI model in Canadian e-banking services.

5. Akim's Model – The VI Product in Bank-Led E-banking Service-Market

What is it?

Addressing the factors that undermine bank-led digital-banking progression in Canadian economy, the Akim' Model – the VI product in digital-banking service-market can be helpful [7,11]. In digital-banking service-market, the financial sector can introduce it as a product in operation where the bank or any third-party can collect premium of insurance by ensuring secured services [11]. Obviously, in this case, buying insurance will be voluntary. It is like buying home insurance, which is not legally required. However, it is a clever idea to be on safe side.

How should it work in bank-led e-banking services in Canadian economy?

It is recognized now that the 2024 Canadian federal budget introduced mandates that aim to enhance consumer protection and promote inclusivity [10].

Underpinning these initiative efforts in multi-faucets thru leaderships, it is expected that these directives will reshape the business strategies of both traditional and digital-only banks, affecting revenue models, technology infrastructure and customer engagement practices. With this inspirational effort for effective policy-design in place, surely, having the VI product in digital banking service market can ensure Canadians to become a cashless society soon. Besides facilitations to customers, it will open-up opportunities to service-providers for new businesses, which will facilitate generating additional tax-revenues. With this win-win prospect, it will establish Canada to be the first nation as cashless country in today's 21st Century digital world.

The way it would work in a bank-led e-banking service-market in Canadian economy is that the customer's participation will be voluntary. It can be like home insurance, which is not legally required country-wise such as Canada. However, in general it is promising idea of having coverage in place to protect against the risk of monetary loss.

In case of digital banking services, under the proposal, the insurance will be attached to a customer's bank account, if and only if the customer wants it for having secured digital services. Since the proposed VI program will be designed in a way of transferring the risk away from its premium-payers, it will ensure premium-payers with a sense of certainty. Based on terms & conditions, here the premium receivers will take extra measures for ensuring risk-free bank-led digital-banking services in Canadian economy. As for example, using ATM Cards or Credit Cards can be protected by setting two identifications such as password and a finger-scan. Suppose a customer in a banking service-market wants to use an ATM card. Now in case of accessing customer's account, the customer will have to use two identifications namely own setup password and previously chosen finger-scan say the customer's thump or forefinger scan. Here finger scans in addition to password can be connected to the ATM system, which will make the digital banking enhanced secured. Overcoming the risk of heist or hacker's access to bank accounts or risk-factor caused by other disrupted acts, which cause a customer's frustration, under the proposal, similar own set up identifications can be used. In global banking scenarios such as remittances, the program can ensure risk-free digital banking services. Since a customer's psychological risk-factor undermines the progression of digital-banking in Canada, the proposed VI product can overcome this dilemma. Furthermore, being a new product in the market, it can contribute to the economy and can facilitate to be cashless society soon.

6. Theoretical Justification of VI Product in Bank-Led E-Banking of Canadian Economy

It is well recognized that perceived-risk factor plays an influential role in setting the stage for the proposal, the VI Option in digital-banking services [1,5]. It is palatable assuming that digital-banking-customers are risk-averse.

In other words, digital-banking customers prefer certainty to uncertainty when it comes to banking. Fig. 3 illustrates the risk preferences of a risk-averse banking-customer in Canadian economy. In an uncertain world, a customer's actual utility is what the customer receives from digital banking-services will never fall on the TU (X) line but rather on the chord (the bold line). The X-g stands for a service outcome and the customer here may use a certain level of

service X while X-f stands for a negative outcome in which the customer may use less of service X. If there is a level of uncertainty, a customer may not use X-g units of service X where X stands for bank-led digital banking services [1,12,13].

On utility issues, the utility this customer receives will lie somewhere on the chord (the bold line) in Figure 3. The chord here stands for the expected utility (EU) of using service VI, which lies in the concavity of the curve. This is because it is the average probability that the customer will use service VI or not. As a result, an individual will never receive TU (X-a) but rather the individual will receive EU (X-a) [1,12,13].
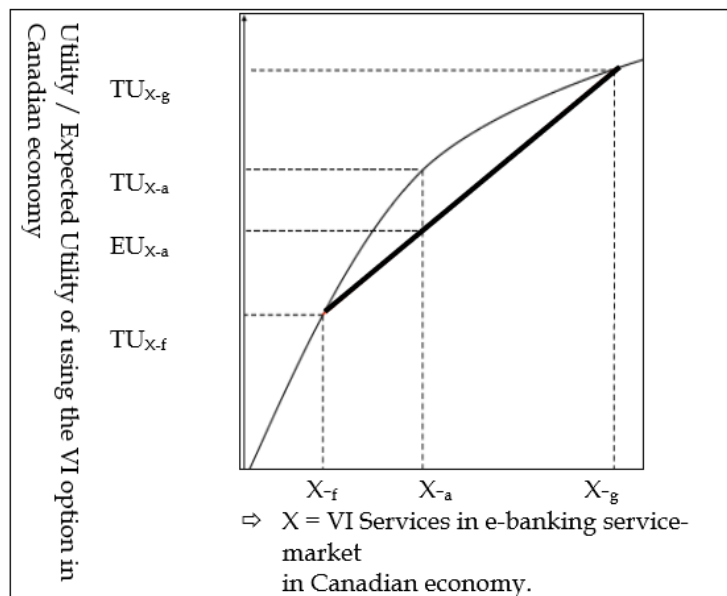
Figure 3: *A Scenario of Risk Aversion Behavior.*

7. Policy Adoption - Application of Akim's Model: Outcome under Welfare Analysis

In aim to examine benefits of bank(s) that adopts the VI in economy of Canada, this section is designed as follows.

It is important for customers as well as for banks to get full information about the economic benefits of adopting the VI in digital banking-services. This is because the insurance premium will go out from customer's pockets.

In returns, it ensures a safe & secured digital transaction where VI destabilizes all risk including perceived risk factors such as psychology & emotional factors or barriers, thus customers can be risk-free. Since money is going out from customer's pocket, risk-adverse may not choose insurance in his or her preference. It is like some people may not choose even traditional banking because of bank-account fees, bank charges etc. in general no matter where we reside in the globe.

Theoretical framework for effective cost or price of insurance: Justification of the model.

7.1. Model

7.1.1. Setup & notation:

First this study considers a situation in which customers of digital banking are faced with choices: signing up for insurance contract or not. Here signing up offers high coverage (say contract H) that ensures absolute risk-free digital banking. And not signing up for insurance offers no coverage (contract L) but the contract facilitates digital-banking services. To further simplify the exposition, we assume that contract L is no insurance, but customers are facilitated for free access to digital banking. And contract H is full insurance, and customers are facilitated digital-banking services. These are merely normalized and straightforward to relax where once VI policy is in place, bank (s) can handle the insurance matter just like it handles its customer account fees. Another important assumption is that we take the characteristics of the contracts as given where premium of insurance to be determined endogenously. It is a reasonable characterization of many insurance markets with variation across individuals only in the pricing of the contracts and not in offered coverage. This analysis is therefore in the spirit of [14] rather than [15] who endogenous the level of coverage.

7.1.2. Demand for insurance:

It is assumed that each customer of digital banking makes a discrete choice of whether to buy insurance or not. Since we take it as given that there are only two available contracts for digital-banking services and their associated coverage, demand is only a function of the relative price p. It is assumed that banks cannot offer different prices to different customers. To the extent that banks can make prices depend on observed characteristics. It is assumed that if customers choose to buy insurance, they buy it at the lowest price at which it is available. So, it is sufficient to characterize demand for insurance as a function of the lowest premium i.e., price p. Mathematically, $D = f(p)$ where D = demand for insurance and p = premium amount or price for insurance services. Since it will be mostly digital services, the price or premium amount will be small no matter where what economy we talk about.

7.1.3. Supply and equilibrium:

It is assumed that there are $N \geq 2$ identical risk neutral insurance service-providers or banks in digital-banking cases that set prices in a Nash Equilibrium. There might have both imperfect and perfect competitions in market. But we choose to focus on the case of perfect competition as it represents a natural benchmark for welfare analysis of the efficiency cost of selection [12,13]. We further assume that when multiple banks set the same price, individuals who decide to purchase insurance at this price choose a bank randomly. It can also be assumed that the only costs of providing contract H to individuals i are insurable total cost (TC). Here the average cost (AC) curve is determined by the costs of the sample of individuals choose contract H. Symbolically, $AC = TC / i$ where AC reduces as i increases. To straightforwardly characterize equilibrium, we make two further assumptions. First, we assume that there exists a price $\bar{p}$ such that D ($\bar{p}$ >0 and MC (p)<p for every p>$\bar{p}$. In other words, we assume that it is profitable (and efficient) to provide insurance to those with the highest willingness to pay for it. Second, we assume that if there exists p such that MC (p)>p then MC (p)>p for all p<p. That is, we assume that MC (p) crosses the demand curve at most once. It is easy to verify that these assumptions guarantee the existence and uniqueness of equilibrium. In particular, the equilibrium is characterized by the lowest break-even price P* = AC (P).

7.2. Measuring welfare for the party(s) involved in presence of VI product in Canadian economy

We measure consumer surplus (CS) by the certainty equivalent. The certainty equivalent of an uncertain outcome is the amount that would make an individual indifferent between obtaining this amount for sure and obtaining the uncertain outcome. An outcome with a higher certainty equivalent thus provides higher utility to the individual. This welfare measure is attractive as it can be measured in monetary units. Total surplus in the market is the sum of certainty equivalents for consumers and profits of the firm or bank that provided insurance. Throughout we ignore any income effects associated with price changes.

7.3. Graphical representation

With the above framework, a graphical representation of adverse and advantageous selection is shown as follows.

This presentation can be helpful understanding the efficiency costs or prices of several types of selection of the insurance for ensuring risk-free digital banking in global economy such as Canadian economy.

7.3.1. Adverse selection: In Figure 4, y-axis represents price or cost of contract H and x-axis represents quantity i.e., share of individuals in the market with contract H where maximum possible quantity is denoted by Q max. The demand curve denotes demand for contract H. Similarly, average cost (AC) curve and marginal cost (MC) curve denote average and marginal incremental costs to the insurer from coverage with contract H relative to contract L. The key feature of adverse selection is that individuals who have the highest willingness to pay for insurance are those who, on average, have the highest expected costs. This is shown in Figure 4 by drawing a downward sloping MC curve, which indicates MC is increasing in price and decreasing in quantity [12]. As price falls, the marginal individuals who select contract H have lower expected cost than infra-marginal individuals, leading to lower average costs. The essence of the confidential information problem is that the bank cannot charge individuals based on its privately known MC, but are instead restricted to charging a uniform price, which in equilibrium implies average cost pricing. Since average costs are always higher than marginal costs, adverse selection creates underinsurance, a familiar result first pointed out by Akerlof [14]. This under-insurance is shown in Figure 4. The equilibrium shares of individuals who buy contract H is Qeqm (AC curve intersects DD curve at point C). And accordingly, efficient number is (Qeff>Qeqm), this is because MC curve intersects DD curve. In Figure 4, shaded area CDE shows the welfare loss due to adverse selection. This represents a loss of consumer surplus from individuals who are not insured in equilibrium because their willingness to pay is less than the average cost of the insured population. But it would be efficient to them to insure because their willingness to pay exceeds their marginal cost. Let us evaluate and compare welfare under a different scenario. Suppose digital-baking customers are mandated to sign up for contract H. It would generate welfare = ΔABE–ΔEGH. This can be compared to welfare at competitive equilibrium ΔABCD. In this scenario, welfare at efficient allocation is ΔABE and welfare from mandating everyone to sign up contract L (normalized to zero) or the policies subsidies or tax the equilibrium price. The relative welfare ranking of these alternatives is an open empirical question, which can be studied to assess welfare under alternative policy interventions (including no intervention option).
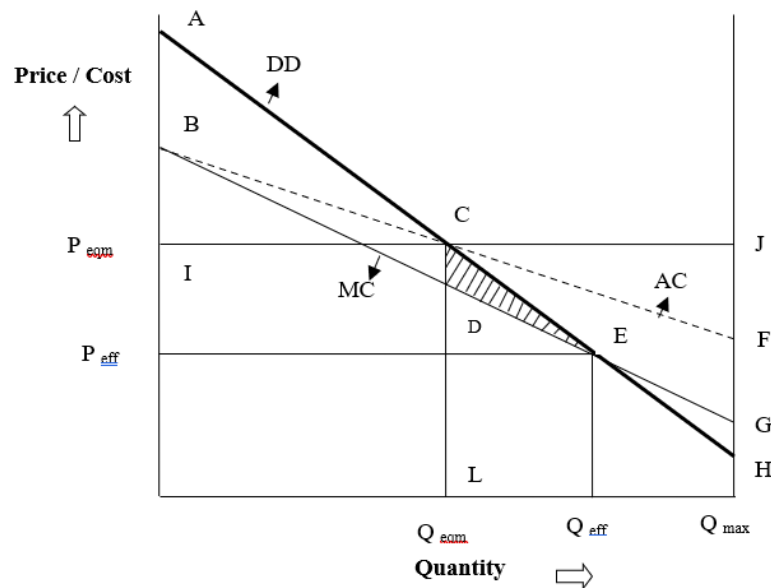
Figure 4: *Efficiency cost of adverse selection.*

7.3.2. Advantageous selection: The initial theory of selection in insurance markets emphasized the possibility of adverse selection, and the resultant efficiency loss from underinsurance [14,15]. Consistent with this theory, many empirical analyses suggest that insurance markets such as health, the insured have higher average costs than uninsured [16]. However, in life insurance market, there exists "advantageous selection". Those with more insurance have lower average costs than those with less or no insurance. Cutler, et al. [16] provide a review of the evidence of adverse and advantageous selection in different insurance markets. The framework in this study, graphical presentation in Figure 5, makes it easy to describe the nature and consequences of advantageous selection. Here in contrast to adverse selection, with advantageous selection individuals who value insurance the most are those who have, on average, the least expected costs. This translates to upward sloping MC and AC curves (Figure 5). Here source of market inefficiency arises because here i) Consumers vary in their marginal cost ii) Banks are restricted to uniform pricing and iii) Equilibrium price is based on average cost. However, with advantageous selection, the resultant market failure is one of over-insurance rather than under-insurance (i.e., Qeff<Qeqm in Figure 5, as pointed out by de Meza and Webb (2001) in their study. In general, insurance providers have an additional incentive to reduce price, as the infra-marginal customers whom they acquire as a result are relatively good risks. The consequential welfare loss is given by the shaded area Δ CDE. It has resulted because of excess of MC over willingness to pay for individuals whose willingness to pay exceeds the average costs of the insured population. In Figure 5, welfare can also be evaluated in other situations i) mandating contract H (ΔABE-ΔEGH) ii) mandating contract L (normalized to zero) and iii) competitive equilibrium (ΔABE-ΔCDE) and efficient allocation (ΔABE).
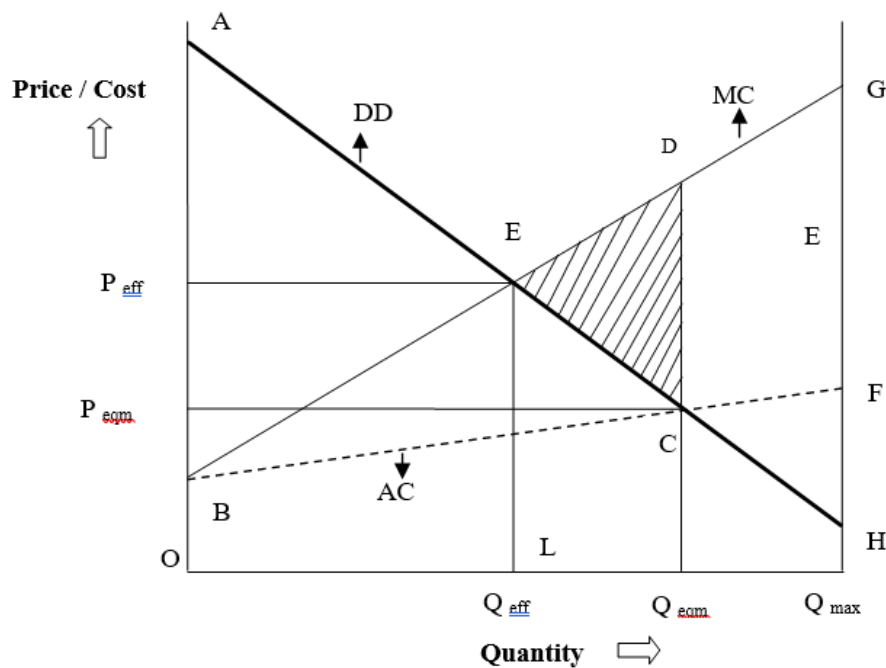
Figure 5: *Efficiency cost of advantageous selection.*

7.3.3. Graphical presentation summary: Analyses relate to Figure 4 & Figure 5 illustrate that the demand and cost curves are sufficient information for welfare analysis of equilibrium and non-equilibrium pricing of existing contracts. In other words, cases of different preferences & confidential information can have the same welfare implications if they generate similar demand and cost.

7.4. Future study direction

This is essential for carrying out empirical approach under welfare analysis, which can be a direction for future research in this study. Also, a test whether insurance premium has any impact on the probability of VI policy adoption that influences digital-banking adoption in Canada, can be conducted as a future study.

8. Goal of the Current Effort: How can it be Instrumental to the Canadian Eonomy?

It is well recognized now that the 2024 Canadian federal budget introduced mandates in aim to enhance consumer protection and promote inclusivity [10]. Since the VI is well suited under the 2024 Canadian federal budget introduced mandates, the goal of this study is to bring the issue to bank-management, particularly BoC's attentions in Canadian economy so that the proposed new product (VI) becomes a product in digital-banking operation. It raises questions: how can this new VI product be instrumental to the banking sector and to Canadian society? Why is it important? Why now?

Answering the questions posed, it is palatable to say that shifting risk away from digital-banking customers will directly help both the banking sector and the customers. It can attract new or probable customers who were on the brink using digital banking services but just felt it was risky. The application of Akim's model [5] in policy design can ease the customers with incentives for increasing usages of digital services while keeping best utility of it. In

promotional operation, banks can offer incentives based on certain numbers of digital banking transactions in a month or yearly basis.

Overall, any legal new product such as the VI can be the lifeblood of business, companies, and societies. It can ease a few ways such as: ensured new value for customers, improved society, and continued existence of the company in competitive market.

Having the VI in place can ensure risk-free e-banking services in Canadian economy. It can guarantee enhanced self-service-banking transactions in Canadian economy. This can be beneficial to customers because it can ensure savings in the form of cost and time. As a result, customers and probable customers will flock to it when they use banking services. By extra advancement such as adopting the VI product in today's ICT usages, the banking sector can be further competent, cutting down its operating costs, meeting customers' needs and keeping up with global changes. Eventually the service provider will be able to cut down fees of banking-services including customer's yearly fees against each account.

How can the BoC contribute to bank-led e-banking Journey in Canada?

With this win-win prospect for producers and users of the VI product in e-banking service-market and for the economy of the nation, the VI product can contribute significantly to today's slow-down economy. To sail through tough competition and to sustain revenues, the BoC can engage more than before promoting banks on adoption the VI product for ensuring absolute risk-free digital-banking services. However, it has failed to ensure absolute risk-free digital banking services where the number of complaints in multi-faucets have been growing [2,8].

So, the question is: how can it be addressed soon?

Answer to the question posed: Motivation, ability and effort are essential in getting things done.

In general, people or policymakers who get things done typically have the motivation, initiative, and perseverance to accomplish their goals.

They have the self-discipline to stay focused on their tasks, develop strategies for success, and take action to complete them in a timely and functional manner [17]. In this case, the role of the BoC is no different. The BoC's prompt and effective efforts can be an asset addressing the digital-banking dilemma particularly psychological and emotional risk-factors in Canadian economy sooner than delaying.

Under the program, since digital banking can be operated effectively with a smaller workforce, reducing yearly bank-account-fees will be reasonable. Alternatively, digital banks may offer rebate for enhancing the number of transactions. Accordingly, it will be attached to customer's account where banks will be able to recover the incurred cost, which will require for running the proposed incentive program. Thus, engaging customers psychologically for using absolute risk-free digital banking can attract more users by improving customer satisfaction, customer-based, banks benefits including reduction of operational-cost. It can ensure Canadians to be Cashless society soon, which may attract other countries to follow Canada's footstep in the journey.
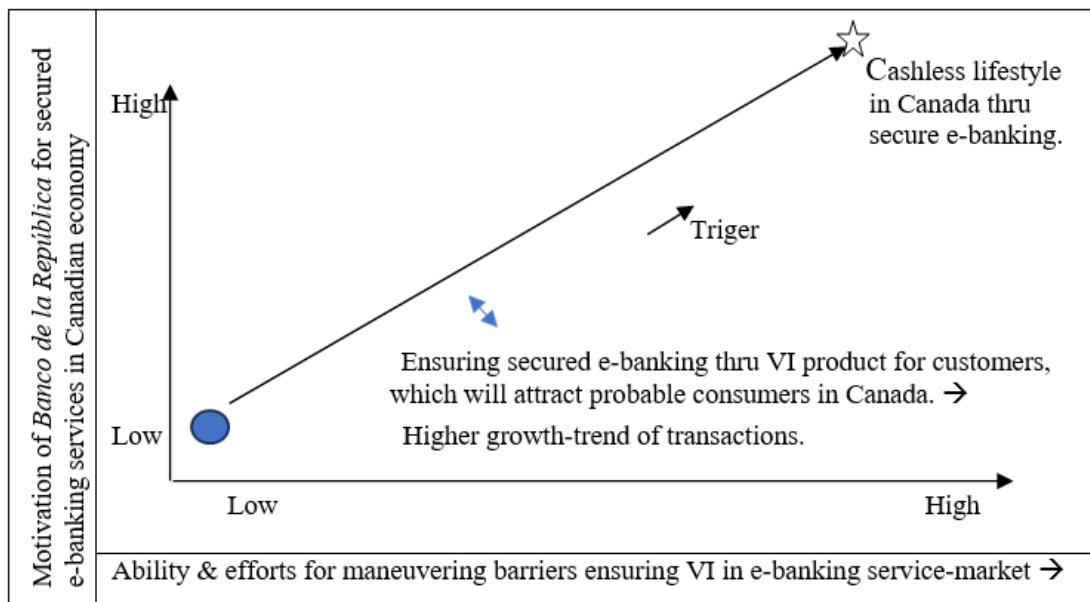
Figure 6: *Motivation, ability & efforts in policy-adoption process for the benefit of Canadian Society.*

Potentiality of the VI product in Growth & Development of Canadian economy

Since the BoC is Constitutionally privileged institution in Canada, its motivation and efforts are vital in adopting the VI policy in e-banking service-market there. Since the BoC enjoys all administrative, patrimonial, and technical autonomy, it can keep its commitment made during the COVID-19 severity for accelerating the digitalization of the national economy and finance by expanding participants. Therefore, the VI product can contribute significantly to growth-trend of transaction in e-banking service-market of Canadian economy. In this accomplishment, the Figure 6 clearly shows that the BoC's motivation and efforts must go parallelly for ensuring Cashless Canadian society.

Once the BoC introduces the VI product through banking-provisions that authorize it in e-banking service-market, it will spread from bankers to customers in Canada. This life cycle of the VI product can be depicted using the S-curve. The S-curve in Figure 7 charts the growth-trends of revenue or productivity against time in Canada. In progression, as the VI product sets up itself, the growth trends in initial stages will be slow.
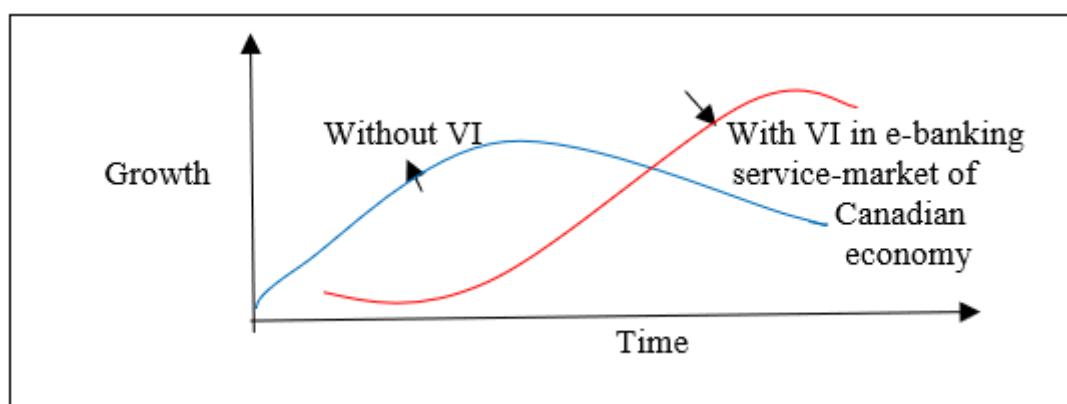
Figure 7: *Impacts of VI product in Canadian economy.*

The e-banking customers will begin demanding it, at some point. Accordingly, the growth trends will increase rapidly as time passes by. These incremental changes in stages will facilitate continuing the upward trends of growth. Near the end of its life cycle, the growth trend will slow down and may even begin to decline. In these stages, no amount of new investment in that product will yield a normal rate of [14,18]. However, it will set up a secured bank-led e-banking services through bankers who introduce this new product in e-banking services, which can present a cashless Canadian-society soon.

In this journey, the successive S-curve will come along to replace traditional banking. It will continue driving growth-trends of number of transactions where the VI is likely to have three stages of "product life." These stages can be spelled out as: i) a starting-up phase ii) a stage of rapid increase in revenue and iii) an ultimate declining stage. But it will never find the underlying cause of the curve. It will play vital roles presenting a secure system of bank-led e-banking, which will be attracted by probable customers in Canada. It will place the Canada to be the first country in the globe on e-banking progression aspect [19-22].

9. Conclusion

In today's Tech-driven world, the influences of functional, psychological and emotional factors or somewhat barriers regarding the resistance to the use of digital banking services have been undermining the expected growth-trends of digital transaction in economy country-wise such as Canada. Thus, adopting the policies of Voluntary Insurance (VI) as a new product in the bank-led e-banking service-market can be an impetus meeting today's digital-banking demand for marginalizing the dilemma of psychological and emotional risk-factors or barriers. Here welfare analyses are used as guidance for ensuring efficiency cost of competitive pricing of insurance so that the VI becomes appealing to parties involved. In case of bank as insurance provider, adverse selection in insurance market, welfare cost of inefficient pricing is quantitatively small and advantageous selection results the opposite. It can ensure higher growth trends of transactions country-wise such as Canada. Any policy-design efforts, which can ensure adding something new and increasing value is what will keep the banks be growing, which can ease economy booming further in Canada. Here the VI product will set up itself where the growth trends in the initial stages will be slow. The customers and probable customers of e-banking will begin demanding it, at some point. Accordingly, the growth trends will increase rapidly as time passes by. These incremental changes in stages will facilitate continuing the upward trends of economic growth. Near the end of its life cycle, the growth trend will slow down and may even begin to decline. However, it will set up a secured bank-led e-banking services. In this journey, the S-curve will come along to replace traditional banking where the continuation of higher growth-trends of transactions depends on the motivation and efforts of the BoC Institution in Canada. This theoretical contribution in this study can be instrumental to banking officials for designing effective policies in e-banking service market. Thus, the overall result can serve for the better-ness of its economy as well as for the Canadians, which can ensure cashless society soon.

References

1. Rahman AM. Voluntary insurance for ensuring risk-free on-the-go banking services in market competition for bangladesh. J Asian Financ Econ Bus. 2018;5:17-25.

2. https://www.obsi.ca/media/egspvvhf/annual-report-2023_en.pdf

3. Robbins C. Banking Innovation in Canada is too slow. https://www.linkedin.com/pulse/banking-innovation-canada-too-slow-chris-robbins. (accessed 2017).

4. Santos AAD, Ponchio MC. Functional, psychological and emotional barriers and the resistance to the use of digital banking services. Innov Manag Rev. 2021;18:331-48.

5. Rahman AM. Ensuring risk-free digital-banking in us-economy: Application of akim's model. Int Bus Econ Stud. 2022;4:1-20.

6. OECD. Going Digital: Shaping Policies, Improving Lives. OECD Publishing, Paris. 2019.

7. Rahman AM, Tahmina R. Customers opinions on voluntary insurance as a new product in bank-led digital-banking for addressing perceived risk-factors. AIUB J Bus Econ. 2022;19:52-64.

8. https://cba.ca/How-Canadians-Bank-2024

9. Rahman AM, Islam S. For ensuring rapid growth risk-free digital-banking in greek-economy: An application of akim's model. J Econ Bus. 2020;23.

10. Tharmalingam T, Richards M, Prasad V. The future of digital only bank: Impact of Canada's 2024 Banking Mandates. 2024.

11. Rahman AM. Voluntary Insurance in Banking Services – New Product for Ensuring Risk-free Digital-banking of World-economy. Lambert Academic Publishing, United Kingdom. 2018.

12. Rahman AM. Microeconomics Basics, New Way Learning Microeconomics in the 21st Century era. Print Your Books Academic Publishing Company, Bangladesh. 2020.

13. Mankiw NG. Principles of Microeconomics. (5th edn), South-Western Cengage Learning, Natorp Boulevard, USA. 2008:pp.1-519.

14. Akerlof GA. The market for "Lemons": quality uncertainty & market mechanism. Quarterly J Econ. 1970;84:488-500.

15. Rothschild M, Stiglitz J. Equilibrium in competitive insurance Markets: An Essay on the Economics of Imperfect Information. Quarterly J Econ. 1976;90:630-49.

16. Cutler DM, Finkelstein A, McGarry K. Preference heterogeneity and insurance markets: explaining a puzzle of insurance. Am Econ Rev. 2008;98:157-62.

17. Urhahne D, Wijnia L. Theories of motivation in education: an integrative framework. Educ Psychol Rev. 2023;35:1-35.

18. Kaplan, Soren. Leveraging market, technology, and organizational S-curves to drive breakthrough growth. Innovation Point. 2017;1-6.

19. https://www.statista.com/studies-and-reports/

20. https://thefutureeconomy.ca/blogs/canadas-digital-transformation-challenges-and-solutions/

21. https://www.emerchantpay.com/insights/apms-in-focus-pse-colombias-widely-used-bank-transfer-payment-solution/

22. https://www.statista.com/study/57351/fintech-in-colombia/