

## Quantifying the Economic Benefits of Personal Financial Planning and Its Determinants

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### Abstract

This study applies the model in the paper of Hanna and Lindamood (2012) to quantify the economic benefits of personal financial planning in insurance and investment sector, and determine several factors impact on it through the survey in the South East region of Vietnam. In general, we found that CEWIS is impacted by the age, gender, occupation of insurance holder, the insurance premium, and the probability of compensation while CEWIV is significantly affected by the income, marital status, the risk aversion of respondents and the money they invest. For all insurance holders, the higher the probability of compensation are, and the lower cost respondents have to pay, the higher the economic benefit they desire. For people who spend their savings only on insurance, the older people who have to pay higher insurance premium will get less economic benefits than younger individuals. Men more likely to take more benefits from insurance than women. The respondent's occupation also has a significantly positive impact on the benefit they can have from investing. Nevertheless, there are some differences with those who spend their savings on investing and insurance, and people whose choices include insurance. For the respondents who spend their savings only on investing, CEWIV is significantly impacted by the respondents' marital status, their income, the amount of money and their risk aversion in investment. Single people seem to get more economic benefits in their investment than those with other marital status embracing marriage. Besides, investors can absolutely take more economic benefits from their investment even if they put less money in their investment as long as they have lower risk aversion. People with higher income usually get more benefits thanks to more effective investment. For those who choose both insurance and investment, CEWIV is significantly impacted by money for investing and the probability of gaining. The age also affects to CEWIV but not significantly. Our findings indicated that the higher probability of gaining, the less money for investing and the younger people, the higher CEW the respondents have from their investment. Finally, there are also some distinctive with people whose choices contain investment which might be opposite to two rest groups of respondent. We subsequently propose some advice and recommendations that may be useful for an insurance and investment consulting company in Vietnam.

**Keywords:** Personal Finance, Financial Planning, insurance, investment, economic benefits

### Introduction

If finance is known as a core and essential part of the enterprise, it is also plays an important role for individuals. Personal financial planning (PFP), therefore, should be evaluated as it should be because it can not only help us manage our assets in a sensible way but also make the assets grow. This point is mentioned in several papers such as E. Thomas Garman et al. (1996), Annamaria Lusardi and Olivia S. Mitchell (2006), etc. It can be considered as a chief element in generating a thriving finance sector and the sustainable wealth of individuals. However, personal financial planning depends on many factors such as age, occupation, gender, marital status, income, etc., which were discussed in the paper of Kawachiet al (1999), Tahira Hira and Cazilia Loibl (2006), Li, Jessie (2011), etc. So as to have an effective personal financial planning, the individual needs to recognize the economic benefits from it and its determinants. Accordingly, we carried out the study of "Quantifying the Economic benefits of Personal Financial Planning and Its Determinants" with the passion of finance and the expectation to contribute to the sector of researching about PFP. By applying and developing a specific version of theoretical models in Hanna and Lindamood's paper (2012) we contribute to the practical life of citizens in the South East region of Vietnam. We would like to quantify the economic benefits through this survey which has not been done in previous researches. This study hopefully supports the citizens to realize the importance of financial planning through our computation and analysis about the economic benefits of PFP. From that, the Vietnamese citizens in the South East region can have a better life based on a stable financial situation that simultaneously contributes to the wealth of the country.

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## Literature Review

### What is Personal Financial Planning (PFP)?

**Personal Finance** is defined as the management of money, financial decisions and activities of an individual or household in terms of budgeting, savings, insurance, investments, mortgages and more.

Generally, **Financial Planning** is a comprehensive analysis of a person or family's current financial position by using currently known variables in order to predict the future value of assets, short-term and long-term needs.

"**The Personal Financial Planning** involves complete financial profile of an individual with his/her family. Mostly, the term Financial Planning is considered synonymous with Investment Planning", Dr. Alok Bansal et al. noted.

### Personal Financial Planning and its economic benefits

Personal Financial Planning is a significant sector in planning finances. In spite of many various papers with respect to Personal Financial Planning researched. The majority of them focused on followed areas: Financial Planning in Retirement was the aspect attracting the concern of a large number of researchers (Todd et al. 1997, Diss. Zhou and Peng 2003; Mitchell et al. 2011, etc.); next was PFP related to households (Jagolinzer and Philip. 1995; Overton and Rosilyn H. 2007; etc.) and Corporate sectors (Thomas Garman et al. 1996, Anonymous 2013, etc.); Education sector was also presented in a considerable number of articles (TH Eysell 1999, S.M. Taylor et al. 2006, David S. Murphy and Scott Yetmar 2010, etc.); CPA, AICPA's Contribution and the benefits of PFP were, however, discussed in very few papers.

In fact, there are some industrial surveys presented a little content as an access to the economic benefit of PFP aspect, such as *Schulaka (2009), FPA, and Ameriprise Value of Financial Planning Study*, in which the consumer confidence about their financial future with a comprehensive financial planning relationship is analyzed by Harris Interactive in the summer of 2008. At that time, Warschauer and Sciglimpaglia paper was the vanguard of official study in PFPs' economic benefits terms. Warschauer noted that "...it is time that scholars begin the discussion of the possible value to be gained by an individual or family in retaining a professional financial planner and in their efforts to complete and follow a comprehensive personal financial plan...". Warschauer and Sciglimpaglia (2008) pointed out six aspects where financial planner makes recommendations consisting of emergency fund management, debt management, goal assessment, insurable risk reduction, investment risk control and tax and estate assessment in *The economic benefits of personal financial planning* which just was an empirical analysis.

Nevertheless, none of them measured the economic benefit of PFP until Hanna and Lindamood paper came in 2012. Hanna and Lindamood showed the estimation about the monetary value of financial planning advice in three types of benefits planners comprised of increasing wealth, preventing loss, and smoothing consumption. In details, the benefit of PFP in the economy was estimated based on the formulas created in the Economics Literature. The primary accession is about the characteristics of an individual's utility function where the economic benefit could be seen as the differences in Certainty Equivalent Wealth of expected utility for each level of risk aversion.

### The Expected Utility and Certainty Equivalent Wealth (CEW)

In *the Utility valuation of risk in retirement saving accounts* (2003), Poterba, Rauh, Venti and Wise compared the value of different choices in portfolio for retirement savings by using an instance of expected utility in which the assumption was given that households have a Constant Relative Risk Aversion (CRRA) utility function so as to get the purpose of maximizing the expected utility of total wealth at retirement. Following this approach, Hanna and Lindamood explored the analysis and estimation of the financial planning advices' benefits. They applied Poterba et al. (2003) analysis concerning the benefits of financial planning advice based on some additional assumptions instead of the interest in public policy implications as Poterba et al. paper, Hanna and Lindamood (2012) noted. Hanna and Lindamood (2012) estimated the monetary value of three types of economic benefit listed above by giving examples.

In *the first instance of estimating the Monetary Value of Risk Reduction* when it came to the insurance purchase, Hanna and Lindamood assumed some utility function  $U(W)$ . For the initial wealth ( $W_0$ ), they assumed that two scenarios are possible. The first one is you will lose an amount of  $L$  with the probability  $p$  if you do not purchase insurance where the wealth level should be  $W_0 - L$ , or keeping the same initial wealth of  $W_0$  with the probability  $1 - p$  in case of purchasing insurance.

The expected utility of the decision not to purchase insurance is:

$$EU_1 = pU(W_0-L) + (1-p) U(W_0) \quad (1)$$

They then assumed that M is the load for a cost of  $C = pL(1+M)$ . The expected utility in this case is:

$$EU_2 = U(W_0-C) \quad (2)$$

It is worthwhile to purchase the insurance in the situation of  $EU_2 > EU_1$ , Hanna noted. They then took an additional function to calculate the value of knowing that the insurance should be purchased.

Hanna et al. (2012) pointed that CEW would be  $EU_1 = \exp(EU_1)$  (3) when the utility function is the natural log of wealth  $U(W) = \ln(W)$ . The natural log utility function has a relative risk aversion level of 1.0.

The two next functions are related to a class of Constant Relative Risk Aversion (CRRA) we mentioned above which can be presented as:

$$U(W) = \frac{W^{1-x}}{1-x} \quad (\text{When } x \neq 1) \quad (4)$$

Where  $x$  is the coefficient of relative risk aversion and the CEW is the function inverse:

$$W = (1 - x)U^{\frac{1}{1-x}} \quad (5)$$

This example was given with two scenarios. In the first scenario, Hanna et al. It is assumed that a household has a total wealth of \$2,500,000. The amount of \$2,000,000 will be the loss (L) with the probability  $p$  of 0.001 if the household does not purchase the insurance. Or this household has another choice to buy the insurance to cover such the \$2,000,000 loss for the expected value of the loss ( $pL = \$2,000$ ) plus a load of 20% and the premium of \$2,400.

There is the same total wealth for a household in the next scenario, but different  $p$  of 0.01,  $L = \$500,000$ . The expected value of the loss ( $pL = \$5,000$ ) plus a load of 20% and the premium of \$6,000.

The monetary value of the advice to purchase the insurance, then can be estimated by the difference between the CEW of not using insurance and the CEW of using insurance. Table 1 below presents the results of calculations at different level of relative risk aversion. The conclusion for both scenarios was that the higher the relative risk aversion level, the higher the value of the advice to purchase the insurance.

Table 1 shows the differences in Expected Utility according to Relative Risk Aversion Risk Reduction Strategies for Two Scenarios.

Table 1 The Monetary Value of Differences in Expected Utility for Risk Reduction Strategies for Two Scenarios

Value of Advice to Purchase Insurance (Differences in Certainty Equivalent Wealth)		
Relative Risk Aversion	Scenario 1: 0.1% chance of loss of 80% of wealth	Scenario 2: 1% chance of loss of 20% of wealth
0	-400	-4,000
1	1,620	-428
2	7,560	234
3	27,071	1,002
4	93,138	1,893
5	283,009	2,928
6	614,487	4,810
7	932,709	5,539
Premium	2,400	6,000

Table 2 of Hanna and Lindamood (2012)

Assuming the household's initial wealth is \$2,500,000, and each insurance policy has a load of 20%. The value of the advice is calculated as the difference between the Certainty Equivalent Wealth (CEW) of insurance and the CEW of no insurance.

In the next example of *Estimating the Monetary Value of Wealth Increases*, some other assumptions were given by Hanna et al. For the same initial wealth ( $W_0$ ), there was an assumption that you plan to invest an amount ( $I$ ) of your wealth for the rate of return ( $r$ ). You might lose all of your investment ( $I$ ) for the choice of risky portfolio, with the profitability  $p$ , or gaining a growth in value  $I(1+r)$ , with profitability  $1-p$ . The expected return is:

$$EU_1 = pU(W_0 - I) + (1-p)U(W_0 + rI) \quad (6)$$

Assuming that you then could choose to invest  $I$  in a safe investment with a zero after-tax real return instead of a risk portfolio where the expected return is:

$$EU_2 = U(W_0) \quad (7)$$

Hanna and Lindamood (2012) pointed that your expected wealth will less than  $(1-p).r.I$  compared to the choice of risk investment if you choose to invest  $I$  in a safe investment.

The differences in Expected Utility according to Relative Risk Aversion Risk Reduction Strategies were estimated and listed in Table 2 for three scenarios. The conclusion for three of scenarios

Three scenarios were given for the initial wealth of \$2,490,000; \$2,400,000 and \$2,000,000 with 2.04%, 25% and 25% return in their investment, respectively either in the safe investment with 0% after-tax real rate. The value of the advice is then calculated as the difference between the CEW of the more aggressive investment and the CEW of a safe investment.

Table 2 The Monetary Value of Differences in Expected Utility for Risk Reduction Strategies for Three Scenarios

Value of Advice to choose more aggressive Portfolio			
Relative Risk Aversion	Scenario 1: 1% chance of loss of investment (19.7% of wealth at stake)	Scenario 2: 1% chance of loss of investment (19.7% of wealth at stake)	Scenario 3: 1% chance of loss of 20% of wealth
0	\$5,000	\$50,000	\$5,000
1	4,428	44,832	4,943
2	3,766	39,024	4,885
3	2,998	32,521	4,827
4	2,107	25,273	4,768
5	1,072	17,242	4,708
6	-134	8,407	4,647
7	-1,539	-1,230	4,586

Table 3 of Hanna and Lindamood (2012)

The last example was shown in order to *estimate the Monetary Value of Consumption Smoothing Advice* by mentioning to a saving account each year of a household for their comfortable retirements in the future. Hanna and Lindamood (2012) gave a standard intertemporal additive utility function and the lifetime utility. In this paper, notwithstanding, we just applied the two first estimations for The Monetary Value of Risk Reduction and Wealth Increases in terms of two specific domains mentioned in our methodology.

Hanna and Lindamood (2012) showed the estimations of PFP economic benefits by presenting simplistic assumptions which might not be practical. As a matter of fact, there are not all assumptions and theories completely appropriate to the practical society. Hence, bringing the real case to the calculation of PFP economic benefits is still a challenging issue which has not been conducted in any previous papers. In this paper, we aim to put a new view where the economic benefits of PFP would be recognized apparently based on the on real-life data from a survey in order to explore the existence of PFP economic benefits in our real life.

### Measures of Risk Tolerance and Risk Aversion

As we mentioned, an important factor for estimating the Monetary Value as well as the economic benefits of Personal Financial Planning (PFP) is the risk aversion calculation. The notion of risk aversion was developed by Pratt and Arrow in the middle of the 1960s and derived by Pålsson in 1996.

Barsky et al. (1997) observed that risk tolerance could be the reverse of the economic concept of risk aversion. There are at least four methods of measuring risk tolerance: asking about investment choices, asking a combination of investment and subjective questions, assessing actual behavior, and asking questions based on hypothetical, according to Hanna et al. (2001). The first three methods, nevertheless, had some of the limitations. Therefore, Hanna et al. (2001) chose to ask hypothetical

questions because of its close relevance to the theoretical concept of risk aversion based on a modified version of Barsky et al. (1997) questionnaire. They presented an aggregation of hypothetical questions to a larger sample compared with Barsky et al. survey's sample in 1997. Their modified questions are similar to this initial one:

*“Suppose that you are the only income earner in the family, and you have a good job guaranteed to give you your current (family) income for life. You are given the opportunity to take a new and equally good job, with a 50-50 chance it will double your after-tax income and a 50-50 chance that it will cut your after-tax income BY  $(1-\lambda)$  % Would you take the new job?”*

All questions were given with the same hypothetical apart from the different percentage reductions in after-tax income. The measure what value of  $\lambda$  the respondent willing to take the risk is the essence of questions that could result by asking what percentage the respondent willing to cut in their after-tax income  $(1-\lambda)$ . Equation 8 must hold, Barsky et al. (1997) noted. Hanna et al. (2001) and Hanna and Lindamood (2004) followed to this note as well.

$$.5 U(2C) + .5 U(\lambda C) > U(C) \tag{8}$$

A constant relative risk aversion utility function was assumed, followed by a showing of the Arrow-Pratt measure of relative risk aversion  $A$  in the relationship with  $\lambda$  which could be seen at Equation 9.

$$\lambda = (2 - 2^{1-A})^{\frac{1}{1-A}} \tag{9}$$

Equation 9 holds if  $A \neq 1$ ,  $\lambda = .5$  when  $A = 1$ . The relative risk aversion can be easily calculated by asking questions with different levels of risk tolerance.

Barsky et al. (1997) presented a measure based on showing a set of hypothetical job questions to a sample of 11,707 respondents aged 51 to 61. Several years after that, Hanna et al. (2001) gave a modified version of Barsky et al. (1997) hypothetical choices to 377 respondents belonged 19-57 age group on their Web survey because they observed some defects in Barsky et al. (1997) measure. There was an ambiguity in terms of income tax, the limitation of higher levels of risk aversion and no nomination for the alternatives. Hence, Hanna et al. (2001) laid a developed aggregation of pension choices instead of job ones with more levels of low risk tolerance or high risk aversion. In 2004, Hanna and Lindamood indicated that both of hypothetical job and pension choices in Barsky et al. (1997) and Hanna et al. (2001) questionnaires, respectively, may have been too complicated for many respondents to completely understand. That was the reason for the appearance of graphical illustrations in Hanna and Lindamood (2004) questions in order to grow the opportunities for respondents understand the impact of hypothetical replacements and more sensitive their true risk level. We, however, hold the position that those additional graphics seem not to definitely make a considerable increase in the chances for respondents understand questions. Moreover, the measure of Hanna and Lindamood (2004) based on the Hanna et al. (2001) hypothetical pension choices are just mostly suitable for respondents who belong to the old group of age. So they would fail when responding from 152 students who were primarily (74%) young, with an age range of 21 to 44 and a mean age of 23 in two personal finance classes at Ohio State University. In addition, there should be some distinctions about risk-attitude as well as risk aversion levels of respondents in specific domains. Some aspects of this one were discussed by E. U. Weber et al. (2002) and Xiaohao Ding et al. (2010). From these observations and presentations, in this paper, we also use the hypothetical income choices in our questionnaire, but it is available for more various age groups of the respondents who aged 18 onward, and without graphical illustrations. We simultaneously modify some points in hypothetical questions so as to make our research appropriate to the realistic condition in Vietnam concerning two specific common domains which are the insurance and the investment.

## Methodology

We developed a new survey and publicized in two ways, including offline and online survey. It was randomly mailed to people at several organizations such as companies, schools, coffee shops, and other people at other public locations. In this paper, we combined the establishment of the new version of expected utility with its application and consideration in practical sectors concerning investment and insurance. To do that, we use the survey as an innovative point which had not been mentioned in previous research in order to collect data and calculate the expected utility and Certainty Equivalent Wealth (CEW) mentioned in our Literature review. The survey was sent to 350 persons within the age range from 18 to 60 in lots of different kinds of occupation to make sure that the statistics were diversified and properly valid. There are 304 valid responses through both the online and offline survey; the rest of the world is invalid. In addition, we computed the wording and added the data to the utility

function of insurance and investment in order to measure the economic benefits of financial planning. The further specific information and description of our respondents are shown as follows:

Table 3 The description of qualitative variables

Variables		Percentage (%)
Illustration	Name	
AGE GROUP	AGEGROUP	.
18-21		18.8
22-27		36.2
28-40		24.7
41-60		20.4
>60		0
GENDER	GENDER	
Male		40.8
Female		59.2
STATUS	STATUS	
Single		54.9
Married		39.8
Divorced		4.6
Other		.7
GROUP OF JOB	JOBGROUP	
Business, finance& banking, accounting, insurance		39.5
Training and education		9.2
Administrative and state		5.6
Information and technology		4.9
Healthcare		4.6
Art and entertainment		2.0
Electron and technology		4.6
Agriculture, forestry and fishery		3.0
Linguistics and Newspapers and magazines		5.1
Housework		3.6
Politics and military		4.7
Student		12.9
Different sectors		0.3
NET INCOME PER MONTH	INCGROUP	
Less than or equal VND 5 million		29.6
Over 5 to VND 10 million		37.2
Over 10 to VND 18 million		19.1
Over 18 to VND 32 million		9.9
Over 32 to VND 52 million		3.3
Over 52 to VND 80 million		1.
Over VND 80 million		0

Table 4 The description of quantitative variables

Variable	Unit	Name	Minimum	Maximum	Mean
Cost of purchasing insurance	VND	C	0	24000000	5100544
The probability of compensation	%	PROBCOM	0	80	6.6
The total amount of money for investment	VND	MONFIV	0	240000000	14460469
The certainty equivalent wealth of insurance	VND	CEWIS	-23924874	1789094	3834438
The certainty equivalent wealth of investment	VND	CEWIV	230453234	5347408	7483555
The probability of gain	%	PROBOG	0	100	72.2
Risk aversion in investment	N/A	AIV	0.5	17.1	1.7

The insurance section was divided into two scenarios: Scenario 1 was presented for no accident and the accident type 1 that meant in this scenario the injured party would get no compensation; assumed that the loss of this case was  $L_1$  with the probability  $p_1$ . Scenario 2 was accident type 2 and the injured party would receive the compensation; similarly,  $L_2$  was used as the loss of this scenario and  $p_2$  was the probability (with  $p_1 + p_2 = 1$ ). It might be more specific than the original equation of Hanna and Lindamood in terms of  $L$ . Applying the utility function of Hanna and Lindamood (2012) from the estimate of the Monetary Value of Risk Reduction by purchasing and not purchasing insurance; in this research, we unanimously established two recent different utility functions  $U(W)$  as follows: The expected utility of the decision not to purchase insurance is:

$$EU_1 = p_1(W_0 - L_1) + p_2(W_0 - L_2) \quad (L_1 \geq 0) \quad (10)$$

The expected utility of the decision to purchase insurance is:

$$EU_2 = p_1(W_0 - L_1 - C) + p_2(W_0 - C) \quad (L_1 \geq 0) \quad (11)$$

In the questionnaire,  $W_0$ ,  $C$  and  $L_2$  are known as the annual savings of respondents, the annual cost of purchasing insurance and the average claim that they are compensated by the insurance company when the insurance events happened, respectively. In addition,  $p_1$  and  $p_2$  also were taken from the respondent's answers which was based on their experience in using insurance. The monetary value of the decision to purchase the insurance, then could be estimated by the difference between the CEW of not using insurance (Scenario 1) and the CEW of using insurance (Scenario 2).

For the investment section, the survey used some questions to collect the percentage of the amount of money invested per year among the respondent's annual savings, and the probability of risky portfolio or a risk-free investment was also investigated with the spread from 0 to 100%. This survey would evaluate relatively about the conjuncture of investor's financial investment. Besides, it could define the annual return and the probability of gaining profits of the investors based on their estimation. We applied the original equations (6) and (7) of Hanna and Lindamood (2012) which were mentioned in the Literature review to measure the Certainty Equivalent Wealth (CEW) in investment.

The primary element in estimating the benefits of PFP is risk aversion. As mentioned in the literature review, risk aversion is estimated essentially based on the Equation Barsky et al. (1997) noted. Hanna et al. (2001) in An Improved Measure of Risk Aversion and it was equation (8) mentioned in the literature review. This research would combine with the questionnaire of The Measures of Subjective Risk Tolerance in A Measure of Risk Tolerance based on Economic Theory; simultaneously, adapt the questions to be more suitable for each section: insurance and investment. In the insurance, the level of risk is defined with an opportunity to double or lose after-tax income by purchasing insurance. In a similar way, with investment, the subject would have another chance to double or lose after-tax income if they invest in safe or risky portfolio. Those questions, which are presented in the appendix, were easily applied for all the subject of the study. From the questions,  $\lambda$  – how the respondents willing to take the risk or the risk tolerance would be collected, and it was used back in equation (9) in literature review to calculate  $A$ – risk aversion. However, we can only define the range of risk aversion from under 1.0 to over 14.5 based on the level of risk tolerance that is from extremely high to extremely low.

After calculating the CEW in the insurance and investment sectors, we continue researching the impact of several factors on each field. These factors were chosen based on the references from previous papers and our evaluation.

As for insurance sector, because of the variation in occupation of the respondents, they might have the difference in using insurance. For obvious example, the more risky environment that people work in, the more sense of using insurance to protect themselves leading to the more economic benefits they can get from purchasing insurance. Besides, people might tend to buy insurance when they realize that they have more chances to get the claim which means that the more probability of compensation. Hence, the economic benefits of insurance can be also influenced by probability of compensation. Kawachiet al (1999) found that societies with high gender inequality are unhealthy for men & women. Li, Jessie (2011) noted that older people pay higher premiums than younger individuals. The benefits of insurance holders, therefore, could be influenced by their age, gender as well as the premium or the cost they have to pay for being insured.

In the investment sector, investors of any age group were impacted by the behavioral biases that can lead to the difference in their benefits from investing, Zipporah Nyaboke Onsomu (2015) noted. George M. Korniotis and Alok Kumar (2011) found that older investors are less effective in their investment, especially if they have the less level of education, lower income, and belong to minority ethnic groups. Dr. Dhiraj Jain (2012) pointed that the expected rate of return differs from individual to individual based on their level of market knowledge and risk taking ability. Besides, Charlotte Christiansen et al. (2011) pointed that marriage increase the likelihood of holding stocks for both men

and women. Therefore, the benefits from the investment can be impacted by the age, marital status, income group of respondents as well as their risk aversion. In this study, we also use the investment capital and the probability of gaining as independent variables since we think the economic benefits from investment might also be impacted by these two factors. We then establish two following models:

▪ In insurance:

$$\text{CEWIS} = \alpha_1 + \alpha_2 \text{AGEGROUP} + \alpha_3 \text{GENDER} + \alpha_4 \text{JOBGROUP} + \alpha_5 \text{C} + \alpha_6 \text{PROBCOM} + \text{U}_i \quad (12)$$

▪ In investment:

$$\text{CEWIV} = \beta_1 + \beta_2 \text{AGEGROUP} + \beta_3 \text{STATUS} + \beta_4 \text{INCGROUP} + \beta_5 \text{AIV} + \beta_6 \text{MONFIV} + \beta_7 \text{PROBOG} + \text{U}_i \quad (13)$$

Where:

- AGEGROUP, GENDER, STATUS, JOBGROUP, INCGROUP present for age, gender, marital status, the group of occupation and the group of income of the respondents, respectively
- AIV expose the risk aversion of the respondents concerning investment sector
- C as the cost of purchasing insurance
- PROBCOM is the probability of compensation
- MONFIV presents for the amount of money that the respondents use to invest among their annual savings
- PROBOG as the probability of gaining in the respondent's investment

We use STATA and SPSS software to run the regression for two models above by OLS method. The regression of model (12) would be run in turn for three groups of respondents' choice. The first group chose to use their annual savings for purchasing only insurance (group a). The second one had the choice to buy insurance and investment (group b). In the last group, buying insurance was contained in their choices (group c). Specifically, group c comprised of group a, group b added the choice of insurance and other purposes. The similar process was also done for model (13), but with group b and two other groups comprised of the group of people who chose to spend their savings only on investing (group a'), and the group of respondents that taking investment was contained in their choices as group c'. In which, group c' including group a, group b added the choice of investment and other purposes.

During the survey process, we still encountered many difficulties. The first one was the individual element in our questionnaire leading the respondents are less willing to provide their information. Hence, the valid data in our survey is considerably few and invalid information sometimes occurred. Besides, the diversification in the age range of the respondents is not probably complete because the insurance and investment sector are not much concern to the groups of people who are under 18 or over 60. The last limitation is that the original model in terms of insurance in the study of Hanna and Lindamood (2012) is extremely hard to apply to the fact today in Vietnam. Therefore, we modified the model to be more specific and suitable for the respondents with the purpose of creating more favorable conditions for our process of surveying.

## Results and Discussion

In order to discuss and consider the impact of some factors to the economic benefits of personal financial planning in insurance as CEWIS, we alternately applied model (12) for the different observations in three groups a, b and c of respondents based on their choices. Model (13) was simultaneously applied for group b and two others group consisted of group a' and c' so as to assess several factors that impact to CEWIV.

The impact of following independent variables to CEWIS in three groups of respondents' choices a, b, c is shown in table 5

Table 5 Regression results for the consideration of the impact of independent variables to CEWIS

Independent variables	Model 12a (Choose only insurance)	Model 12b (Choose insurance and investment)	Model 12c (Choices contained insurance)
AGEGROUP	-53470.1***	239595.2**	201371.1*
GENDER	-142888.8***	187143.1	120998.9
JOBGROUP	33585.13***	15027.02	3856.973
C	-1.013942***	-1.00197***	-1.004977***
PROBCOM	466350.6***	1202803*	1349219**
The number of observations	56	80	91

Note: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

For all groups of observations: 12a, 12b and 12c, the regression analysis showed that the cost of purchasing insurance (C) has a significant impact on CEWIS with the negative correlation. This result indicates that the lower cost respondents have to pay for being insured, the higher economic benefit they desire. Specifically, the value of CEWIS will go up 1.013942 VND, 1.00197 VND and 1.004977 VND when the cost of purchasing insurance declines 1 VND for those who choose only insurance, insurance and investment and having insurance in their choices, respectively. Besides, PROBCOM affects positively on CEWIS in three all models, but it seems less significant in model 12b and 12c than model 12a. In details, CEWIS will increase 466,351 VND, 1,202,803 VND and 1,349,219 VND when the probability of compensation goes up 1%, for group 12a, 12b and 12c, respectively.

In model 12a, as an overall view, CEWIS is significantly impacted by age, gender, job, the insurance premium and probability of a claim. The negative effect of C and AGEGROUP on CEWIS implies that the older people who have to pay higher premium for purchasing insurance will get less economic benefits than younger individuals. This result is completely similar to the founding of Li, Jessie in 2011 as well as the policy of all insurance companies around the world, including Vietnam since these firms always issue the higher premium for older customers so as to reduce the level of risk. In this model, GENDER also has the significant influence on CEWIS. In the dummy for GENDER, 0 presents for male and 1 presents for the female, this finding indicates that men take more benefits from insurance than women. This result is opposite to the finding of Jessica S. T. Kong (2010). In addition, the results see a significantly positive impact of JOBGROUP on CEWIS in this model.

There are some differences in the results of two rest models (12b and 12c). Firstly, AGEGROUP and PROBCOM have a less significant impact on CEWIS. Secondly, the finding presents a positive effect of AGEGROUP on CEWIS which is contradictory to model 12a. Additionally, GENDER and JOBGROUP do not have any impact on CEWIS. These distinctions might be caused by the bias from the mixing of many groups of respondent.

The impact of the following independent variables on CEWIV in three groups of respondents' choices is shown in table 7:

Table 6 Regression results for the consideration of the impact of independent variables to CEWIV

Independent variables	Model 13a' (Choose only investment)	Model 13b (Choose insurance and investment)	Model 13c' (Choices contained investment)
AGEGROUP	-1326943	-3306023*	.4791651
STATUS	-6083540***	-958177.3	-.4212334
INCGROUP	1.09e+07***	-140538.7	-.0127839
AIV	-577162***	-364834.7	6.079464***
MONFIV	-.9353284***	-.2490427***	-.5818612
PROBOG	3609895	2.23e+07***	-2.286095*
The number of observations	144	80	248

Note: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Based on the results of our regression analysis shown in table 7, for the respondents who chose to spend their savings only on investing (model 13a'), CEWIV is significantly impacted by the respondents' marital status, income, the amount of money and their risk aversion in investment. The positive correlation between the respondent's income (INCGROUP) and CEWIV indicates that the higher income the respondents have, the more the economic benefits they can get from PFP. For the dummy

of STATUS, the value of 0,1,2 and 3 expose for the marital status of single, married, divorced and others. The significantly negative influence of STATUS on CEWIV implies that single seem to get more economic benefits in their investment than those with other marital status embracing marriage. This finding probably do not against to Charlotte Christiansen et al. (2011) because the married people have more likelihood of holding stocks than single. However, it does not mean that they can take more benefits to them through the investment than single people due to the impact of other factors.

Besides, the results in model 13a' experience a negative correlation between the respondent's risk aversion (AIV), the amount of money they use for investing (MONFIV) and CEWIV. This result implies that people can absolutely take more economic benefits from their investment even if they put less money in their investment as long as they have lower risk aversion. In details, the value of CEWIV will increase 577,162 VND with the decrease of AIV by 1 unit. The value of CEWIV will increase .9353284 VND when MONFIV decrease 1 VND. In addition, the people with higher income usually get more benefits thanks to more effective investment since they might have higher education. This result is similar to the finding of George M. Korniotis and Alok Kumar in 2011.

For model 13b, CEWIV is significantly impacted by money for investing (MONFIV) and the probability of gaining (PROBOG). The age of respondent (AGEGROUP) also affects to CEWIV but not significantly. The results imply that the higher the probability of gaining, the less money for investing and the younger people, the higher CEW the respondents have from their investment. To be more specific, the value of CEWIV will increase 3306023 VND with the decrease of AGEGROUP by 1 age. The value of CEWIV increases by .2490427 VND when MONFIV decline 1 VND.

In model 13c', AIV has a significantly positive influence on CEWIV. The probability of gaining also impacts on CEWIV but in a negative way. These ones might be opposite to findings in model 13a' and 13b because of the bias from the mixing of many groups of respondent and the influence of other factors.

## **Conclusion**

For the insurance and investment sectors, our estimation about the economic benefits of personal financial planning and its determinants through applying developed versions of two models in Hanna and Lindamood's paper (2012) to the practical situation of Vietnam's citizens in the South East region, allowed several new generalizations which could be different from the considerations in Hanna and Lindamood's paper (2012) but seem reasonable in the current situation of Vietnam.

As for all insurance holders in our survey, the higher the probability of compensation is, and the lower cost respondents have to pay for being insured, the higher the economic benefit they desire. For people who spent their savings only on insurance, we found that CEWIS is negatively impacted by the insurance premium and the age of respondents. These results imply that the older people who have to pay higher premium for purchasing insurance will get less economic benefits than younger individuals. This result is completely similar to the founding of Li, Jessie in 2011 as well as the policy of all insurance companies around the world, embracing Vietnam because these firms always issue the higher premium for older customers so as to reduce the level of risk. Additionally, for this group of respondent, men more likely to take more benefits from insurance than women. This result is opposite to the finding of Jessica S. T. Kong (2010). The results also see a significantly positive impact of respondent's occupation on the benefit they can have from investing. On the other hand, there are some differences with those who choose to spend their savings on investing and insurance, and people whose choices include insurance. Firstly, the age of respondents and probability of compensation have a less significant impact on CEWIS. Secondly, CEWIS is positively affected by the age which is contradictory to the first group of respondent. These distinctions might be caused by the bias from the mixing of many groups of respondent. Therefore, insurance enterprises in Vietnam should have suitable policy so as to bring the most economic benefits to their customers as well as promote the sustainable development of the company thanks to the increasing satisfaction of customers. Specifically, these firms should balance the enforcing of higher premium for older customers to reduce business risk, against the decision of reducing premium to increase their customers' benefits. Besides, insurance companies also should consider to loosen compensation policies in order to let customer get more probability of the claim as well as higher economic benefits from insurance purchasing. In addition, the insurance premium also need to be set up based on the age of insurance purchaser.

For the respondents who choose to spend their savings only on investing, CEWIV is significantly impacted by the respondents' marital status, their income, the amount of money and their risk aversion

in investment. Single people seem to get more economic benefits in their investment than those with other marital status embracing marriage. This finding probably do not against to Charlotte Christiansen et al. (2011) because the married people have more likelihood of holding stocks than single. However, it does not mean they can take more benefits from the investment than single due to the impact of other factors. Besides, investors can absolutely take more economic benefits from their investment even if they put less money in their investment as long as they have lower risk aversion. In addition, people with higher income usually get more benefits thanks to more effective investment since they might have higher education and more investment knowledge. This result is similar to the finding of George M. Korniotis and Alok Kumar in 2011. For those who chose both insurance and investment, CEWIV is significantly impacted by the amount of money for investing and the probability of gaining. The age of respondent also affects to CEWIV but not significantly. The results imply that the higher the probability of gaining is, the less the amount money for investing is, and the younger people are, the higher CEW the respondents can have from their investment. Finally, for people whose choices contain investment, AIV has a significantly positive influence on CEWIV. The probability of gaining also impacts on CEWIV but in a negative way. These ones might be opposite to two rest group of respondent because of the bias from the mixing of many groups of respondent. The investment consultant companies in Vietnam, hence, should pay more attention as well as provide better customer service group of small-capitalization or younger investor. This action not only can increase the benefits and the belief of their customers, but also promote the service's quality of the firm.

### Limitation and Further Research

Besides the new contribution this paper to the research of PFP, there are still some limitations to the study. In the survey, we let respondents answer our questions based on the estimation from their experience and interaction with the sector they choose as the probability of gaining when they invest or receiving the claim from the insurance company, their annual loss, etc. However, based on our best knowledge, there have not been any better ways to collect these factors yet.

We strongly hope that we can establish the models to apply to other industries in addition investment and insurance field. The situation of Vietnam's economy is still potential, especially in financial markets. Therefore, we also expect to the higher development of some financial service such as insurance, derivatives, etc. in order to make the research business of PFP become more varied and relevant.

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**Question 8:** What is the total value of your assets that you estimated as of the present time (Including: Cash, Bank Deposits, Property, etc.) ..... (VND)  
 If you convert all of your assets that you annually average accumulated (after consuming some indispensable expenditure) in cash, how much total money do you have?..... (VND/Year)

**Question 9:** Your monthly income belongs to which group follow:

- Less than or equal VND 5 million
- Over 5 to VND 10 million
- Over 10 to VND 18 million
- Over 18 to VND 32 million
- Over 32 to VND 52 million
- Over 52 to VND 80 million
- Over VND 80 million

**Question 10:** What is the purpose that you usually use your assets in? (*Probably having more than one choice*)

- Purchasing insurance
- Investing (Savings, Securities, Property, Loans, etc.)
- Others (*Please give the specific information*): .....

\*\*\* *If in your choice having "Purchasing insurance" please answer the questions for Insurance.*

**(From question 11 to question 21)**

\*\*\* *If in your choice having "Investing" please answer the questions for Investment. (From question 22 to the end)*

\*\*\* *If in your choices having both "Purchasing insurance" and "Investing" please answer the questions for two "Insurance" and "Investment" sectors.*

\*\*\***Stop if you only choose others.**

### ⊗ THE QUESTIONS FOR THE INSURANCE SECTOR

**Question 11:** The average annual expenses you usually lose in some cases which the malfunction or accident happened? ..... (VND/Year)

**Question 12:** At the current time, what kinds of insurance that you popularly use in your company (*or at school*)? The amount of money that your company deduct from your salary (*or the amount of money you have to pay*) to pay for that insurance premiums? (*Probably having more than one choice*)

- Health insurance: .....(VND/Month)
- Social insurance: .....(VND/Month)
- Unemployment insurance: .....(VND/Month)

(*According to the last update of the Law on Employment and Insurance Law, applied from 01<sup>st</sup> January 2015 in Vietnam, the percentage of monthly salary deductions to pay for the mandatory insurance coverage for workers with labour contracts for full 03 months in all agencies and units of 10.5% (Including 8% in Social insurance, 1.5% in Health insurance and 1% in Unemployment insurance)*)

**Question 13:** The premium you must pay for using the insurances out of some ones that you had in your enterprise (*or at school*)?

- Travel insurance: ..... (VND/Year)
- Motorcycle or car insurance: ..... (VND/Year)
- The types of life insurance: ..... (VND/Year)
- Accident insurance: ..... (VND/Year)
- Sickness insurance: ..... (VND/Year)
- Others (*Please give the specific information*): ..... (VND/Year)

**Question 14:** The average claim that you're compensated annually from the insurance company in the cases which the malfunction or accident happened? ..... (VND/Year)

**Question 15:** Based on your personal estimation, what is the probability that you will receive the claim from the insurance company? ..... (%)

### THE MEASURE OF RISK TOLLERANCE IN USING INSURANCE

**Question 16:** Suppose that you are given an unforeseeable insurance service pack, with a 50-50 chance it will double your claim compared with the premium that you have to pay annually in the case which the malfunction happened. If the premium you have to pay engrossed 20% of your annual income. Would you take this insurance pack?

- Yes
- No

***If your answer to #16 is NO, go to question #17.***

***If your answer to #16 is YES, go to question #20.***

**Question 17:** Suppose that the insurance company give an unforeseeable insurance service pack, with a 50-50 chance it will double your claim compared with the premium that you have to pay annually in

the case which the malfunction happened. If the premium you have to pay engrossed 10% of your annual income. Would you buy this insurance pack?

- Yes  No

**If your answer to #17 is NO, go to question #18.**

**If your answer to #17 is YES, you can stop.**

**Question 18:** Suppose that the insurance company give an unforeseeable insurance service pack, with a 50-50 chance it will double your claim compared with the premium that you have to pay annually in the case which the malfunction happened. If the premium you have to pay engrossed 8% of your annual income. Would you buy this insurance pack?

- Yes  No

**If your answer to #18 is NO, go to question #19.**

**If your answer to #18 is YES, you can stop.**

**Question 19:** Suppose that the insurance company give an unforeseeable insurance service pack, with a 50-50 chance it will double your claim compared with the premium that you have to pay annually in the case which the malfunction happened. If the premium you have to pay engrossed 5% of your annual income. Would you buy this insurance pack?

- Yes  No

**You can stop**

**Question 20:** Suppose that the insurance company give a different insurance service pack, with a 50-50 chance it will double your claim compared with the premium that you have to pay annually in the case which the malfunction happened. If the premium you have to pay engrossed  $\frac{1}{3}$  of your annual income. Would you buy this insurance pack?

- Yes  No

**If your answer to #20 is NO, you can stop.**

**If your answer to #20 is YES, go to question #21.**

**Question 21:** Suppose that the insurance company give a different insurance service pack, with a 50-50 chance it will double your claim compared with the premium that you have to pay annually in the case which the malfunction happened. If the premium you have to pay engrossed  $\frac{1}{2}$  of your annual income. Would you buy this insurance pack?

- Yes  No

### **⊗ THE QUESTIONS FOR THE INVESTMENT SECTOR**

**Question 22:** The amount of money you usually invest account for how many percentage to the total of your annual savings? ..... (%)

**Question 23:** Which fields do you usually invest to? (*Probably having more than one choice*)

- A. Non-risky investment (bank deposits, purchasing the government bond)  
 B. Risky investment (securities, business, loans, etc.)

\*\*\* *If you choose both two fields, please give the specific percentage of each field.*

*The percentage of investing in A account for ..... (% Total money of investing)*

*The percentage of investing in B account for ..... (% Total money of investing)*

**Question 24:** How many average percentage of annual return that you usually receive from your investment?

..... (%/Year)

**Question 25:** Based on your personal estimation, what is the probability that you will receive the return from your investment?

..... (%)

### **THE MEASURE OF RISK TOLLERANCE IN INVESTMENT**

**Question 26:** Suppose that you are the only income earner in the family and your income just depends on the profits from your investment. Currently, you are having a good investment, non-risky and guarantee to give you the better income for family life. After that, you are given the opportunity to take a new and more risky investment, with a 50-50 chance it will double your after-tax income and a 50-50 chance that it will cut your after-tax income by 20%. Would you accept this investment?

- Yes  No

**If your answer to #26 is NO, go to question #27.**

**If your answer to #26 is YES, go to question #30.**

**Question 27:** Suppose that you are given the opportunity to take a different investment, with a 50-50 chance it will double your after-tax income and a 50-50 chance that it will cut your after-tax income BY 10%. Would you accept this investment?

- Yes  No

**If your answer to #27 is NO, go to question #28.**

**If your answer to #27 is YES, you can stop.**

**Question 28:** Suppose that you are given the opportunity to take a different investment, with a 50-50 chance it will double your after-tax income and a 50-50 chance that it will cut your after-tax income by 8%. Would you accept this investment?

- Yes  No

**If your answer to #28 is NO, go to question #29.**

**If your answer to #28 is YES, you can stop.**

**Question 29:** Suppose that you are given the opportunity to take a different investment, with a 50-50 chance it will double your after-tax income and a 50-50 chance that it will cut your after-tax income by 5%. Would you accept this investment?

- Yes  No

**You can stop**

**Question 30:** Suppose that you are given the opportunity to take a different investment, with a 50-50 chance it will double your after-tax income and a 50-50 chance that it will cut your after-tax income by  $\frac{1}{3}$ . Would you accept this investment?

- Yes  No

**If your answer to #30 is NO, you can stop.**

**If your answer to #30 is YES, go to question #31.**

**Question 31:** Suppose that you are given the opportunity to take a different investment, with a 50-50 chance it will double your after-tax income and a 50-50 chance that it will cut your after-tax income by  $\frac{1}{2}$ . Would you accept this investment?

- Yes  No