

Insurance Sector'S Contribution to Economic Development

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Abstract

Insurance sector's contribution to economic development has been recognized by many researchers and residents around the world. People's risk awareness increased with growing social and financial activities so that they pay more attention to insurance. In this case, it became meaningful to investigate the drivers for insurance consumption. Many articles analysed effects of factors affecting demand for insurance in different countries. In developed countries, insurance industry has developed for a long time and now is at a mature stage, which means that the influence of these determinants is stable. However, in most developing countries, insurance market obtained attention for a shorter period and is at a primary stage, supporting that there could be a lot of differences compared with that in advanced economies. This paper did a cross-region research about determinants of demand for life insurance and non-life insurance in China from 2009 to 2016 through a panel data method.

Keywords

Manuscripts; Corresponding authors; Copyright; Publishing ethics.

1. INTRODUCTION AND BACKGROUND

Insurance plays an important role in sustainable economic development, researchers and experts recognized that insurance serves market in three ways. Firstly, it helps to expands economic activities (W.N.W Azman et al. 2011); secondly, it provides a financial protection for insurant when facing unpredictable damage or loss; thirdly, insurance works as a financial intermediary in capital market to generate income. People always treat insurance (both life-insurance and non-life insurance) as a tool for risk management. Life insurance always provides a financial protection for dealing with the insured's death. It is the most popular and widely accepted kind of insurance. Non-life insurance is referred to insurance for goods and properties and is given against for physical and economic damage. Due to these significant functions, insurance sector has developed rapidly in recent years. For example, the insurance spending¹ in OECD countries increased from 5.093% in 1987 to 8.963% of GDP in 2016 (see figure 1).

¹ Insurance spending is defined as the ratio of direct gross premiums to GDP, which represents the relative importance of the insurance industry in the domestic economy. This indicator is expressed as a percentage of GDP.

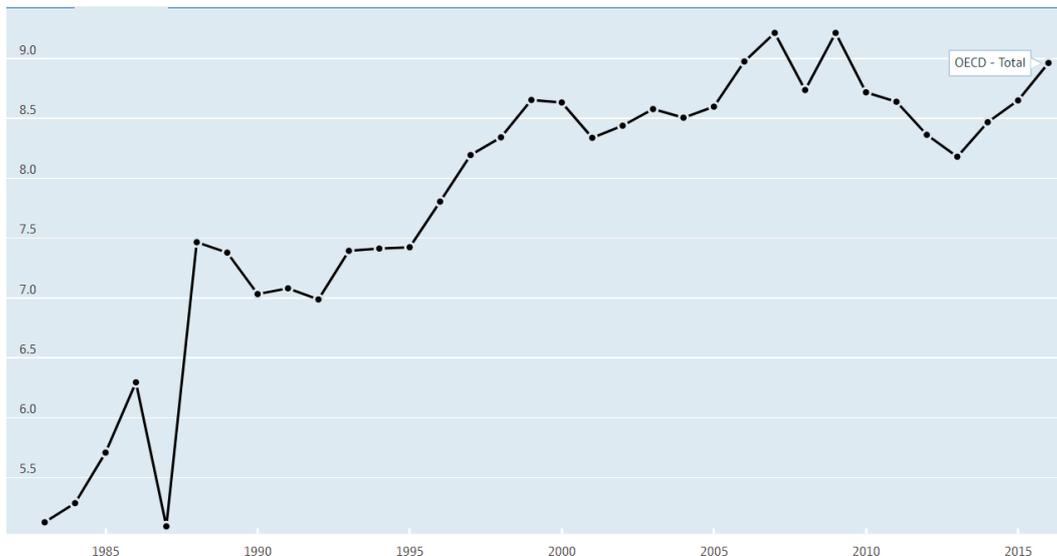


Fig 1. Insurance spending (indicator).

Source: OECD (2018)

China has achieved robust growth in both economic and cultural aspect, which leads to considerable improvement in Chinese insurance sector. In 2016, Chinese insurance market has acquired highest growth since 2008, in which total premium income increased 27.5%, reaching to RMB 3.1 trillion. It is showed that China has exceeded Japan and became the second largest insurance market in the world. Specifically, in 2016, the Chinese life insurance market grew by 31.7% to reach a value of \$262.5 billion (see figure 2); and the Chinese non-life insurance market grew by 22.4% to reach a value of \$203.4 billion (see figure 3). Nevertheless, it is predicted that Chinese insurance market will process growth decelerate in coming years because of tightening regulations and lower economic growth (Thomas P. Fitzgerald, 2017). Overall, Chinese insurance market is considered to have potential growth in the future although it still has more uncertainty than mature market in advanced economy.

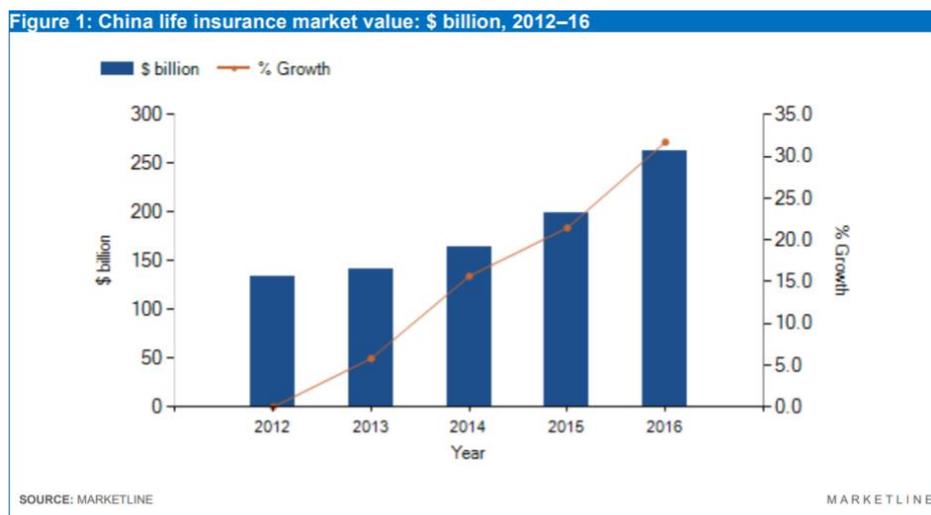


Fig 2. China life insurance market value

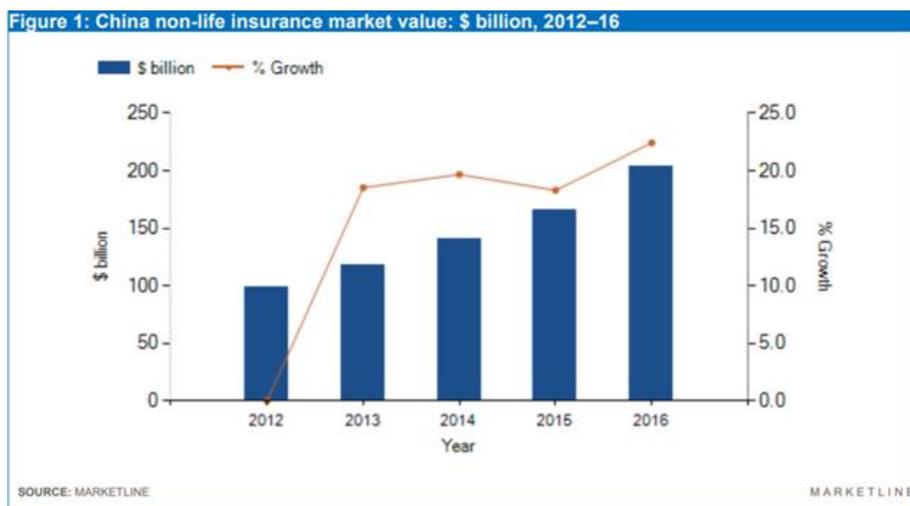


Fig 3. China non-life insurance market value

However, due to the imbalanced endowment of natural resources, infrastructures, environmental factors and historical policies, China faces regional imbalanced development. (Lingyan Suo, Ruiyun Wanyan, 2017) For example, in 2016, GDP in eastern provinces is RMB 410186.4 million, which occupied 52.6% of total GDP, meanwhile, the percentage of GDP in central provinces, western provinces and northeastern china is 20.6%, 20.1% and 6.7% respectively. Under this circumstance, it is notable that there are much regional differences in insurance market development and insurance consumption. Eastern china (relatively high-income economy), central china (middle-income economy) and western china (low-income economy) will be analysed separately to compare the regional differences.

Despite insurance's significance, the factors affecting demand of insurance are worth being analysed as well. It was believed that there are many factors affecting demand of insurance, such as level of income, education degree, population density and urbanization and so on. Life and non-life insurance consumption respond to different needs and are in part driven by different factors. (Giovanni Millo and Gaetano Carmeci, 2011) because there is always a country or regional specific bias (Mapharing, Mogotsinyana and Otuteye, Eben, 2015). According to Thomas P. Fitzgerald (2017), Chinese insurance market will mainly be driven by state regulation, and economic and social factors.

This article will investigate the determinants of life and non-life insurance consumption in China from a geographical perspective in the period from 2009 to 2016 through panel data method, it is motivated by the regional imbalanced development in the China, who is the largest developing country in the world. At the same time, some suggestions will be provided based on the outcome of this research proposal to both insurance companies and policymakers to encourage development of insurance industry in emerging markets.

2. LITERATURE REVIEW

2.1. Factors Affecting Life Insurance Demand

From previous study, factors affecting insurance expenditure can be divided into four categories generally. However, some factors have different effects for consumers' willingness for life insurance and non-life insurance and, in addition, due to the different level of development of insurance market,

Economic factors

Income is one of the factors which is tested to be most essential for life insurance consumption. According to Thorsten Beck, Ian Webb. (2003), this is because life insurance can provide a safeguard for income potential and future consumption of insurant. A cross-section of 48 developing countries from Outreville, J. (1996); Browne, M., & Kim, K. (1993) found that life insurance is more affordable for consumers when income increases. However, it is found that insurance expenditure becomes less sensitive to income growth in relatively developed countries, this is mainly because wealthy people can always cover their risk with financial portfolio (Ward, D., & Zurbruegg, R. 2002)

Higher level of financial development positively impacts life insurance spending (Samir Aguentaou, Ahmed Baijou, 2015) as it increases consumers' confidence for financial institution. A panel data analysis on 68 countries from Thorsten Beck and Ian Webb (2003) showed a positive link between life insurance demand and banking sector development.

Social and demographic factors

Education is considered to be a proxy for risk aversion which impact the consumption of life insurance. Truett, D., & Truett, L. (1990) indicated that education degree is positively related to life-insurance spending by time series regression analysis between Mexico and the US. Education is always linked to income, which means that people with higher level of education are more likely to acquire higher wages or salary, resulting more spending on life insurance. (Sara Emamgholipour, et al., 2017) In addition, education is a non-significant factors that affect consumption in developed countries as highly educated people always are more able to deal with risks and insurance market is mature in advanced economies (Chien-Chiang Lee, Chun-Wei Lin. 2018)

Hwang, T., & Gao, S. (2003) found that the relationship between life insurance and level of urbanization is statistical significantly and positive, the reason is that people in area with higher level of urbanization have more awareness of preparing for themselves as there is always one child in a family. However, an analysis from Xiong, et al. (2013) stated that infant and children are less likely to be insured in China, especially for children with lower educated parents.

Cultural factors

Cultural variables are too believed to affect life insurance demand. People's willingness to pay for insurance can be motivated by cultural environment (Sara Emamgholipour, et al., 2017). As people in less-developed countries have less cognizance of insurance and lower level of risk awareness, their desire for life insurance would be lower. There is a positive relationship between individualism index and need for life insurance (Andy C.W.Chui & Chuck C.Y.Kwok, 2009)

Institutional factors

Life insurance expenditure is positively affected by improvement of civil rights in Asian countries, while it is insignificant in OCED countries as the level of civil rights does not vary much across different regions in these countries (Ward, D., & Zurbruegg, R. 2002) Legal system inefficiency affects consumers' willingness to buy insurance negatively because people loss confidence under lower level of protection of property (Millo, G., & Carmeci, G, 2011)

2.2. Factors Affecting Non-Life Insurance Demand

Economic factors

Investigation from Damhoeri, Khairudin Bin (1992) indicated that price of life insurance also has effects on non-life insurance besides consumer income and civil liberty prevailing in a country since they define life and non-life insurance as complementary for each other.

The finding of Millo, G. & Carmeci, G. J Geogr Syst (2011) suggests that non-life insurance is a normal good as the expenditure on it is positively related to income. A research on emerging

market from 1998-2008 documents that an increase in GNI per capital will encourage consumption of non-life insurance (Elango, B, et al, 2011; Park, S. C., & Lemaire, J. 2012). A previous study in China indicated that increases in income have effect of promoting insurance consumption (Yuan, C., & Jiang, Y. 2015)

Cultural factors

Park, S. C., & Lemaire, J (2012) did an analysis on effects of cultural variables on demand for non-life insurance. They found that the expenditure on non-life insurance in developing countries negatively reacts to Power Distance and goes up with increase in Individualism and Uncertainty Avoidance.

Social and demographic factors

As for demographic factors, higher degree of urbanization is proved to promote require for non-life insurance positively because it is associated with higher probability of loss (Esho, N. et al, 2004). Another investigation stated that urban residents are more likely to own motor vehicle, so property-casualty insurance consumption is higher in urbanized area than that in rural area (Simona Laura Dragos,2014). Education also has a positive relation with non-life insurance demand based on an analysis covering 82 countries (Park, S. C., & Lemaire, J. 2012).

Institutional factors

An empirical investigation covering 68 countries over ten-year period from Park, S, et al, (2012) documents that common law can positively influence the spending on non-life insurance. Trinh, T., et al, (2016) found that Islamic law has negative effects of demand for non-life insurance in developing countries, while it does not affect that in developed countries.

3. AIMS, OBJECTIVES AND RESEARCH QUESTIONS

From literature review, we could see that there are many kinds of factors affecting the demand for insurance and the directions of effects of these factors on insurance may be different between developing and developed countries. Insurance industry has developed for a long time and reached a mature stage in most advanced economies. Nevertheless, it came into developing countries from past decades and is in a growth stage (Suo, L., & Wanyan, R, 2017). China is the largest developing country and its insurance market has obtained significant development in a short time. However, due to economic and cultural factors, there are regional differences in the effects of determinants impacting insurance demand in China. Meanwhile, Chinese insurance market is more vulnerable compared with mature market in developed countries as it has more political, economic and social uncertainties (Cheng Yuan & Yu Jiang, 2015). Based on these characteristics of China, this article is aimed to investigate sub-regional insurance demand and draw a comparison.

The first objective of this article, relies on the current situation in China, is to identify the factors affecting consumption of both life and non-life insurance in China and how they influence consumers' willingness to pay for these two kinds of insurance. Specifically, if there are any differences with previous studies in the outcome, this article will try to provide evidence to support. Secondly, this paper will conduct regressions for the three regions respectively to compare the results basing on the cluster results. Another aim of our article is to provide constructive advice based to methodology outcome for insurance companies and policymakers to regional disparity in term of health conditions in China and other emerging economies.

In order to achieve these objectives, this paper will frame three main research questions:

- What are the factors determining expenditure of life insurance and non-life insurance in China?
- What are the differences of effects of the affecting factors between life insurance and non-life insurance?

·What are the regional differences of effects of the affecting factors among western China, central China and Eastern China.

In order to finish the first question, we need to select the factors which were widely examined to impact the insurance consumption in past papers. In addition, it is necessary to identify other specific explanation variables in China due to specific economic or cultural conditions. This question can help to see whether the effects of factors affecting in China are different from that in other countries and track the reasons responsible for the differences.

As for the second question, the main aim is to investigate differences in the direction of same factors affecting life and non-life insurance and then try to explain the reasons contributing to the differences. To understand this question deeply, it is necessary to define life insurance and non-life insurance clearly, such as the ways in which they serve consumers and people's cognition for them.

Finally, because of the large income disparity among Western China, Central China and Eastern China, it is necessary to compare the regional results so that we can see how the factors impact residents' consumption on insurance differently. Following the comparison, this paper will put forward proposals to reduce regional gap in term of health conditions in China based on the comparison.

Overall, this paper focuses on determinants for life insurance and non-life insurance in China from a geographic perspective. It achieves the aims through these three questions

4. METHODOLOGY

4.1. Variables Selection and Data Collection

Dependent variable

In this article, insurance density² is defined as dependent variable. We select three different insurance income variables. They are total insurance income, life insurance income and non-life insurance income. In order to study the overall difference in inter-regional insurance income and to have a general understanding of the overall distribution of premium income among regions, we use three income indicators to cluster 31 regions using systematic clustering. Table 1 is the result.

Table 1. Cluster results

Cluster	Province	Total insurance income density	Life insurance income density	Non-life insurance income density
1	Beijing, Shanghai	5001.34	3709.59	1291.75
2	Anhui, Gansu, Guangxi, Guizhou, Hainan, Hunan, Jiangxi, Qinghai, Xizang, Yunnan	765.31	466.48	298.83
3	Fujian, Guangdong, Hebei, Henan, Heilongjiang, Hubei, Jiangsu, Jilin, Liaoning, Neimeng, Ningxia, Shandong, Shanxi, Shanxi, Sichuan, Tianjin, Xinjiang, Zhejiang, Chongqing	1453.45	1009.77	443.68

² Insurance density is used as an indicator for the development of insurance within a country and is calculated as the ratio of total insurance premiums to whole population of a given country.

It can be seen from Table 1 that among the 30 samples in the country, the three indicators in Beijing and Shanghai are significantly higher than other regions. The average total insurance density for the eight years in the two regions is 5001.34 yuan/person, which is more than three times that of the category 3 and more than six times that of the category 2, indicating that the per capita life insurance consumption of these two regions is much higher than other regions. The average density of life insurance and non-life insurance in the same situation. This shows that the insurance income of different provinces still has very big difference.

Independent variables

As for the independent variables, income per capital, per capita disposable income and investment in fixed assets (Qiongqi Xiao, 2010) are chosen as economic factors. Social and demographic factors consist of urbanization and average life span, and cultural variable is education and the ratio of people under 14. Based on the popularity of social insurance in China, the author creatively puts the employment of urban employees as an institutional factor. Table 2 is the variable description.

Table 2. Variables description

Economic factors	Income per capital	GDP / total income
	Investment in fixed assets	investment in fixed assets/GDP
	Per capita disposable income	total income / total population
Culture variable	Education	graduates of ordinary higher education / total population
Social and demographic factors	Urbanization	urban population / total population
	Dependency ratio	0-14 year old population and above 65 year old population / total population
Institutional factors	Employment rate	employees of urban units / total population
Other factors	Insurance payments	last year's insurance payments

In order to conduct regressions, this paper needs to acquire data for all independent and dependent variables from 2009-2016 and divide them into three groups in terms of region. Our sample contains annual data of 31 provinces in China Mainland, and all of the data of variables except credit size of banking sector are from China statistic Year Book, which is compiled by National Bureau of Statistical of China. Almanac of China's Finance and Banking provides the details of credit size of banking sector.

This paper will use descriptive statistics data method to show the provincial data for both dependent and independent variables

4.2. Hypotheses

Based on literature review, this paper proposes three hypotheses.

H1: the level of income per capital, urbanization, and credit size of banking sector positively impact demand for all insurance.

H2: child dependency is negatively related to life insurance consumption.

H3: the level of education influences expenditure on non-life insurance positively, while it is not significant for life insurance.

4.3. Regression Equation

In this section, we use a panel data method to test the hypotheses for both life-insurance and non-life insurance respectively. According to survey on previous study such as Simona Laura Dragos (2014), Yuan, C., et al. (2015) and Trinh, T., et al, P. (2016), the equation is as follows:

$$\ln ID_{it} = \alpha_i + \beta_1 \ln INC_{it} + \beta_2 CREDIT_{it} + \beta_3 URB_{it} + \beta_4 EDU_{it} + \beta_5 CHD_{it} + \beta_6 SR_{it} + \epsilon_{it}$$

where ID_{it} represents life insurance or non-life insurance density for region i in year t ; INC_{it} is income per capital, which is measured by GDP per capital for region i in year t ; $CREDIT_{it}$ represents the level of financial development for region i in year t , estimated by ratio of credit size of banking sector to GDP; URB_{it} is level of urbanization for region i in year t , URB is ratio of urban population to total regional population; EDU_{it} is the percentage of college-educated population to total population for region i in year t ; CHD_{it} represents the proportion of the number of people under 14 to total population for region i in year t ; SR_{it} is proxy variable for saving rate, measured by total saving divided by GDP for region i in year t ; β_1, \dots, β_6 are coefficients for independent variables to be estimated; ϵ_{it} is random error.

Like many previous studies (Millo, G. & Carmeci, et al. 2011 and Simona Laura Dragos, 2014) which conducted cross-sectional and time-varying analyses, the independent variables are always highly correlated with each other, for example, highly educated people are more likely to acquire high level of income, which makes parameters difficult to identify. What's more, since the research is investigated among three regions, there would also be heterogeneity. To deal with these problems, an application of IV estimates would be appropriate.

4.4. Limitation

In the independent variables section, firstly, we do not use power distance, uncertainty avoidance from Hofstede, instead, we use a proxy for saving rate as an explanatory cultural variable (Zhong, M., Sun, et al. 2015), which represents consumers' preference for saving in different regions. Secondly, the regression does not include institutional factors since there is a single law in insurance market in China.

5. SIGNIFICANCE

Insurance is an interesting topic that has been studied by lots of researchers because it plays an important role in social development. For the topic of determinants for insurance demand, most previous concentrated on a cross-countries perspective to compare or focused on developed countries in which insurance markets are mature, and only a small number studied a specific country. This study fills the gap in the literature by investigating the largest developing country, China, and combining economic factors, social and demographic factors and cultural factors in the econometric approach. In addition, this paper analysis drivers of demand for both life insurance and non-life insurance in a country which has complex and imbalanced regional development.

For China, it fully opened insurance market since 2006 and started to accept foreign investors and competitors (Yao, Han, & Feng, 2007). Many empirical investigations showed that China's commercial insurance market is still at primary stage and people's knowledge about insurance is still insufficient (Suo, L., & Wanyan, R, 2017). What's more, Chinese insurance market obtained a regional imbalanced development, which means the level of insurance market development is also imbalanced and the same determinant may influence demand for insurance differently. In this case, our study analyses the factors which impact consumption for both life insurance and non-life insurance in a geographic perspective. Based on the result of this paper, firstly, readers can have a deep understanding of our topic. Secondly, our research outcome can provide good reference value for insurance companies to implement targeted measures to expand potential markets and adjust their development directions, meanwhile, policymakers

can adjust regulations on insurance sector to promote people's welfare and economic growth. Furthermore, this article would be a reference to reduce the regional disparity of level of insurance development and residents' health conditions.

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