

# National culture and life insurance consumption

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## Abstract

This cross-disciplinary study examines the way national culture affects consumption patterns of life insurance across countries. Life insurance is a service that is abstract, complex, and focused on unsure future benefits. Because of the uncertainty and ambiguity inherent in the life insurance product, consumers are more likely to respond according to their cultural prescriptions. Our research hypotheses are tested empirically using Hofstede's cultural dimensions, and data from 1976-2001 across 41 countries. The findings show that individualism indeed has a significant, positive effect on life insurance consumption, whereas power distance and masculinity/femininity have significant, negative effects. The results are robust, even after controlling for economic, institutional and demographic determinants.

*Journal of International Business Studies* (2008) 39, 88-101.

doi: 10.1057/palgrave.jibs.8400316

**Keywords:** national culture; insurance; insurance consumption; Hofstede

## INTRODUCTION

This cross-disciplinary study examines the way differences in cultures across countries affect national consumption patterns of life insurance. It is a topic related to cross-cultural consumer behavior. The study also fills an important gap in the insurance literature, in which there is at present little discussion on the effect of national culture on insurance consumption.

Hofstede and Bond (1988) define culture as "the collective programming of the mind that distinguishes the members of one category of people from those of another. Culture is composed of certain values, which shape behavior as well as one's perception of the world." Studies have been conducted to investigate the effects of culture on various business practices. These include the study of managerial attitudes (Kelley, Whatley, & Worthy, 1987), business performance (Newman & Nollen, 1996), cross-border acquisition performance (Morosini, Shane, & Singh, 1998), investor stock trading decisions (Grinblatt & Keloharju, 2001), and corporate capital structures (Chui, Lloyd, & Kwok, 2002).

In the marketing area, extant research in consumer behavior suggests that culture influences the cognitive processes underlying consumer judgments and decisions (e.g., see Briley, Morris, & Simonson, 2000; Johar, Maheswaran, & Peracchio, 2006; Mandel, 2003; Steenkamp, ter Hofstede, & Wedel, 1999). Indeed, after reviewing the consumer research literature from the past 15 years,

Received: 31 May 2005

Revised: 29 December 2006

Accepted: 24 June 2007

Online publication date: 13 September 2007

Johar et al. (2006) conclude that it is time for researchers to take a broader look at consumers of different cultural backgrounds in order to understand how differences in cultural beliefs (such as individualism) may affect consumption. As reviewed in Hofstede (2001), De Mooij (1998a,fc, 2001) correlates Hofstede's cultural dimensions with data from consumer surveys across European countries by market research agencies, and generates some interesting preliminary findings. For instance, De Mooij finds that, relative to people in collectivistic countries, people in individualistic countries are more likely to engage in do-it-yourself activities: painting walls and woodwork, home carpentry, and plumbing. They tend to live in detached houses instead of apartments or flats, and are more likely to have a private garden. These findings suggest a lifestyle in which the person tries to be self-sufficient. In the consumption of beverages and food, De Mooij finds that people from societies with high uncertainty avoidance index (UAI) tend to use more mineral water, buy more fresh fruit, and consume less ice cream or frozen food. These findings indicate a search for simplicity and purity in food consumption.

National cultures not only affect the consumption of physical goods; they also affect purchase in the service industries. A higher percentage of people from masculine societies agree with the statement that "I often enjoy advertising" on TV." DC Mooij's (1998b) interpretation is that the skepticism of feminine cultures toward advertising is due to the perception that their markets have been swamped by advertising reflecting American masculine values. In the area of investment and financial services, De Mooij finds that people from high-UAI countries tend to invest less in stocks and more in precious metals and gems. Consistent with De Mooij's results, Kwok and Tadesse (2006) find that high-UAI societies such as Japan and Germany tend to adopt a bank-based financial system, whereas low-UAI societies such as the US and UK tend to adopt a market-based financial system. Bank deposits provide high-UAI investors with stable returns because the payoff is contractually fixed, and usually guaranteed by deposit insurance. By contrast, low-UAI investors prefer to invest in stock markets, which yield higher but more volatile returns.

Closely related to the finance and investment industry is the insurance industry. While people invest to reap returns from their investment, many of them also purchase life insurance to safeguard their family members' welfare in the case of

accidental death. We believe that national culture should play a significant role in explaining the differences of life insurance consumption patterns across countries. The reason for this stems from some recent findings in the consumer behavior literature, which indicate that cultural effects on the consumer decision process depend on the particular product. For instance, Briley et al. (2000) propose that culture is influential when the decision task requires the consumer to provide reasons for their consumption. This is because, when people search for reasons, they will access decision rules (existing norms) that, to a large extent, differ cross-culturally. Leung, Bhagat, Buchan, Erez, and Gibson (2005), in their review of studies in culture and international business, highlight a stream of research that indicates that culture tends to have a strong impact on individual behavior under conditions of uncertainty and ambiguity. The above findings suggest that culture is likely to have a significant impact on decision-making when consumers need to provide reasons for their consumption, and this cultural impact on behavior is amplified by uncertainty and ambiguity.

It is well known that life insurance is a service that is very abstract, complex, and focused on unsure future benefits; it is a service difficult for consumers to evaluate even after purchase (Crosby & Stephens, 1987). In other words, inherent uncertainty and ambiguity are involved in the consumption of life insurance. Furthermore, to find a life insurance policy that can best suit the needs of the beneficiaries, consumers will usually consider the proposals, the agent, and the image of the company. They will search for reasons that are probably based on culturally conferred decision rules to justify their choices of insurance proposals. Indeed, Crosby and Stephens (1987), in their study of consumer behavior in the life insurance industry, conclude that it is naive to assume that people "buy" the agent and the company without trying to verify their performance in delivering the service. Because of the unique nature of life insurance, culture is expected to be a critical determinant underlying the systematic differences in consumption of life insurance across countries. Previous studies in life insurance consumption, however, have not yet investigated the relationship between national culture and life insurance (e.g., Beck & Webb, 2003; Browne & Kim, 1993; Outreville, 1996). The current research aims to fill this gap. In addition to examining whether national

culture affects life insurance consumption, it is also interesting to explore whether the same set of national-culture dimensions that affect the investment industry also affect the insurance industry. Furthermore, are the effects of national culture sufficiently significant, economically speaking, to warrant the attention of practitioners in the life insurance industry?

The remainder of this paper is organized as follows. In the second section, we hypothesize the relationships between national culture and life insurance consumption. In the third section, we describe the data and methodology. The results are reported in the fourth section. The fifth section discusses the theoretical and practical implications of the findings. The paper ends with a summary and conclusions section.

## NATIONAL CULTURE AND LIFE INSURANCE CONSUMPTION

### The Effect of Individualism

Based on the literature of cross-cultural psychology, the primary focus of this study is on how individualism, a common dimension of national culture, may affect national consumption patterns of life insurance. Markus and Kitayama (1991) provide an integrative model based on the concept of self to summarize much of the cross-cultural research of psychology. The model has gained widespread support among social psychologists. Markus and Kitayama contend that the various cultures of the world place differing emphasis on two aspects of tasks relevant to everyday life: independence (i.e., tasks related to agency and autonomy) and interdependence (i.e., tasks related to communion and affiliation). Cultures in which the first process is primary are said to foster an independent construal of self, whereas cultures in which the second process is dominant are said to foster an interdependent construal of self. The independent construal of self is more often seen in North American and Western European cultures, whereas the interdependent construal of self is often found in Asian cultures (Heine & Lehman, 1995). In this study, we relate these self concepts to life insurance consumption, contending that people with an independent construal of self tend to rely more on market life insurance and less on social network security (financial help offered by fellow kinsmen to one's dependants upon one's death) than people with an interdependent construal of self. We shall present our arguments under two aspects: the

*availability* and the *desirability* of social network security.

People with an interdependent construal of self are constantly aware of others, and focusing on their needs, desires and goals. The assumption is that, while promoting the goals of other people, one's own goals will be attended to by the person with whom one is interdependent. Obviously, interdependent selves cannot and do not attend to the needs and goals of *all* others. Their attention is usually confined to members of a social group with whom they share a common fate (Markus & Kitayama, 1991). This group is likely to extend beyond one's immediate family to close friends and relatives. Should one member die early, others are expected to and will probably provide financial help to that member's dependants. With social network security in place, one has less need of market life insurance. In fact, insurance purchase may be considered redundant, because it incurs unnecessary expenditure. By contrast, people with an independent construal of self strive to assert their individuality and stress their separateness from the social world (Heine & Lehman, 1995). They do not focus on others' needs, desires and goals. Their social group of relevant others is usually small, often confined to members of the nuclear family. Should one die early, one cannot count on fellow kinsmen to provide financial support for one's dependants. In fact, it is unreasonable to count on relatives' help, as it is quite likely that one did not extend such help to other relatives either. As social network security is *unavailable*, one needs to resort to market-based life insurance to safeguard the welfare of one's dependants.

Putting the availability issue aside, an independent self may also consider the social network security *less desirable* than market life insurance. Empirical studies have repeatedly shown that people with an independent construal of self tend to exhibit self-enhancement biases, whereas those with an interdependent construal of self do not have such a tendency (Gelfand et al., 2002; Heine & Lehman, 1995). By engaging in self-enhancement biases, they view themselves in unrealistically positive terms. They tend to draw satisfaction from the belief that they can exercise inner attributes to overcome the environment. Reliance on others' help may be viewed as a sign of weakness. Consequently, to an independent self, a social network security system is less desirable than a market-based insurance system. By contrast, people

with an interdependent construal of self do not exhibit self-enhancement biases. To them, the market insurance system is not necessarily more desirable than social network security.

Since we cannot readily measure the degree of independent/interdependent construal of self across cultures, we need an empirical proxy for these self concepts. In the present study, we use the individualism index developed by Hofstede (1983, 2001) as our proxy.<sup>1</sup> We use Hofstede's cultural dimensions because they are the most widely used cultural indices in the international business literature and contain a relatively large number of country observations.<sup>2</sup> In explaining his concept of individualism, Hofstede (2001: 210) notes that "the central element in our mental programming involved in this case is the self-concept." Hence, according to Hofstede (2001), individualism pertains to the degree to which people in a country tend to have an independent rather than an interdependent self-construal; the reverse is the case for collectivism. Following this line of reasoning, we put forward the following hypothesis:

**Hypothesis 1:** The life insurance consumption of a country is positively related to its level of individualism.

### The Effect of Other National Cultural Dimensions

Of the four dimensions suggested by Hofstede, the individualism/collectivism dimension is considered "the most significant cultural difference among cultures" (Triandis, 2001: 907). However, Kirkman, Lowe, and Gibson (2006) recommend that researchers should not consider only one dimension in their study. They review 64 studies of culture using Hofstede's dimensions at the individual level of analysis, and find that 54 of these studies examine only the individualism/collectivism dimension. The remaining 12 studies, which include cultural dimensions in addition to individualism/collectivism, all find significant effects of these other dimensions. Kirkman et al. (2006) contend that the inclusion of cultural values other than individualism/collectivism in the other 52 studies would have led to important insights. Following their recommendation, we further explore the effects of the other cultural dimensions on national patterns of life insurance consumption.

People differ in their physical and intellectual capacities. The power distance index (PDI) reflects the way in which society deals with such differences. Some societies let these differences grow over

time into inequalities in power and wealth, whereas other societies try to play down such inequalities as much as possible. Hofstede (1983) reports that there is a global relationship between power distance and collectivism: collectivist countries always show large power distances, but individualist countries do not always show small power distances. The Latin European countries - France, Belgium, Italy and Spain, plus (marginally) South Africa - show a combination of high power distance and individualism. In this study, we hypothesize that countries with high power distance are associated with lower life insurance consumption. When subordinates surrender more authority to their superiors, they expect the superiors to look out for their welfare and provide more protection. If they die early, their family members may also be taken care of, to a certain extent. Consequently, there is less need of market insurance. This argument is somewhat different from our earlier argument of individualism-collectivism. In the case of collectivism, the dependence is on the group members; in the case of power distance, the dependence is on the leader, who may or may not be a kinsman. Our second research hypothesis is as follows:

**Hypothesis 2:** The life insurance consumption of a country is negatively related to its level of power distance.

The uncertainty avoidance index (UAI) assesses the extent to which people feel threatened by uncertainty and ambiguity, and try to avoid these situations. Low uncertainty-avoidance societies socialize their people into accepting or tolerating uncertainty. They will take risks more readily. By contrast, people living in high uncertainty-avoidance societies tend to have a higher level of anxiety, which may manifest itself in greater nervousness, emotionality, and aggressiveness. As a coping mechanism against uncertainty, these people would prefer a more predictable environment. Instead of relying on fellow kinsmen to provide financial help for one's dependants upon one's death (which may or may not come forth), life insurance purchase is more dependable, since it is a financial contract. We therefore put forward our third hypothesis below:

**Hypothesis 3:** The life insurance consumption of a country is positively related to its level of uncertainty avoidance.

The fourth cultural dimension is masculinity-femininity (MAI).<sup>3</sup> Masculine societies emphasize the traditional masculine values, such as the importance of showing off, of achieving something visible, and of making money. Feminine societies tend to put relationships with people before money, caring for the preservation of the environment, and extending help to the weak. The effect of MAI on life insurance consumption is ambiguous. One may argue that people living in high masculinity societies may buy more insurance in order to take charge of their own destiny and have better planning. Nevertheless, people in high femininity societies may also use more market life insurance since they are emotionally more sensitive to the needs of their dependants. Because of such opposing effects, instead of putting forward a formal hypothesis, we shall let the empirical findings show us the relationship between MAT and life insurance consumption.

#### DATA AND METHODOLOGY

The key dependent variable of the present study is life insurance consumption across countries. As in previous research, such as Beck and Webb (2003), Browne and Kim (1993) and Outreville (1996), we use *life insurance density* as our proxy. This is measured as life insurance premium per capita in constant US dollars, and can be interpreted as the average amount a typical person spends on life insurance in a country. However, such an indicator has its limitations. First, it aggregates the demand and supply factors of life insurance, and we cannot distinguish the demand factors from the supply factors (Beck & Webb, 2003). Nevertheless, this aggregation problem will bias toward finding insignificant relationships (Beck & Webb, 2003; Browne & Kim, 1993). Second, it is affected by the price of life insurance across countries, and these prices are affected by the market structure and the government policies in each country. To remedy this limitation, we follow the method used in Beck and Webb (2003). They suggest that, since price is a function of supply-side factors that are likely to affect how efficiently insurance companies can operate, the inclusion of these supply-side factors in the regression model can control for the price effect. For instance, underdevelopment of the financial market, lack of property protection and contract enforcement can impede life insurance companies from investing efficiently, and hence affect the price of their insurance products. Therefore Beck and Webb (2003) suggest using measures

of the development of financial market and institutional variables as control variables to reduce bias caused by the missing price variable.

Regarding the sample design, Sivakumar and Nakata (2001) describe a common methodological problem in cross-cultural studies. Two countries are selected as representing different levels of one or more cultural factors. Persons and firms are surveyed in those countries, and differences in responses are attributed to distinct cultural values. In fact, the differences may be due to country differences other than the cultural differences. Kirkman et al. (2006) also observe that, rather than testing for the mediating effects of cultural values, after assessing country differences on cultural values, some studies use a country dummy variable, rather than cultural values, as a predictor variable. Without mediation tests, researchers cannot attribute country differences to culture. To address this issue, one solution is to use a very large number of cultures, which would allow for randomization of the variance on non-matched cultural and spurious relationships and the elimination of rival hypotheses.<sup>4</sup> Relative to other cross-cultural studies, our study has a fairly large sample of 41 countries, with the sample period ranging from 1976 to 2001. Furthermore, instead of using country dummy variables, we use the cultural values as the independent variables. To control for other country effects, we also include a list of economic, institutional and demographic determinants as control variables. The definitions and data sources of all our variables are detailed in Table 1.

#### Economic Determinants

Since consumption usually increases with income, we expect life insurance consumption to also increase with income. However, life insurance provides benefits over the long term, and these long-term benefits will be reduced by inflation. Hence we expect inflation to be negatively related to life insurance consumption. Previous studies have shown that, although life insurance consumption is positively related to income, it is negatively related to expected inflation (Beck & Webb, 2003; Browne & Kim, 1993; Outreville, 1996).<sup>5</sup> Just as in the banking business, moral hazard and adverse selection are the two most important factors affecting the profitability of the insurance business, Any financial innovations, such as effective information processing, that can help banks reduce moral hazard and adverse selection in their lending business will also benefit the insurance industry.

Table 1 Definitions and sources of variables

Density	The per capita life insurance premiums in constant 1995 US dollars. Source: Beck, Demirguc-Kunt and Levine (2003).
Cultural indexes	The individualism index (IDV), power distance index (PDI), uncertainty avoidance index (UAI), and masculinity/femininity index (MAI) Source: Hofstede (2001).
GDP per capita	GDP per capita in constant 1995 US dollars. Source: <i>World Development Indicators</i> , World Bank.
Expected inflation rate (%)	The average inflation rate in the prior five years. Inflation rate is calculated as the natural log difference of the consumer price index. Source: <i>International Financial Statistics</i> , IMF.
Bank sector development (%)	The ratio of the total deposit money bank assets and gross domestic product. Source: Beck, Demirguc-Kunt, and Levine (2003).
Stock market development (%)	The ratio of the stock market capitalization to gross domestic product. Source: Beck, Demirguc-Kunt, and Levine (2003).
State	State takes the value 1 if the country is (or previously was) a socialist country, and 0 otherwise.
Creditor right	$Credit = SECURED1 + D_1 + D_2$ , where $D_1$ takes the value 1 if $AUTOSTAY = 0$ , and 0 otherwise; and $D_2$ takes the value 1 if $MANAGES = 0$ , and 0 otherwise. $AUTOSTAY = 1$ if there is restriction in the legal code that prevents secured creditors from gaining possession of collateral or liquidating a firm to meet obligations, and 0 otherwise. $MANAGES = 1$ if the firm continues to manage its property pending the resolution of the reorganization process, and 0 otherwise. $SECURED1 = 1$ if secured creditors are ranked first in the distribution of the proceeds that results from the liquidation of a firm, and 0 otherwise. By construction, <i>Credit</i> is increasing with creditor right, and is ranges from 0 to 3. Source: Levine (1999).
Contract enforcement	<i>ConRisk</i> reflects the risk that a government will modify a contract after it has been signed; it ranges from 1 (low contract enforcement) to 10 (high contract enforcement). Source: Levine (1999).
Dependency ratio (%)	The dependency ratio is the sum of the ratio of the population under age 15 to the population ages 15–65 and the ratio of the population over age 65 to the population ages 15–65. Sources: <i>World Development Indicators</i> , World Bank.
Religion (%)	The percentage of the population with Protestant, Catholic or Muslim beliefs. Source: La Porta, Lopez-De-Silanes, Shleifer, and Vishny (1999).

Hence it is expected that a strong bank sector can boost the development of the insurance market. Indeed, it is quite common in several countries to observe that banks are directly involved in the life insurance business. In a recent study, Beck and Webb (2003) suggest that bank sector development is one of the most robust determinants for life insurance consumption across countries and over time.

Life insurance companies, like banks, also play an important role in channeling funds from lenders to borrowers. Life insurance companies use the premiums received on their policies to invest in assets such as stocks, and use the earnings to pay out claims on their policies. A better-developed stock market may therefore enhance the growth of the life insurance market. To our knowledge, the relationship between life insurance consumption

and stock market development has not been tested so far.

Eight countries in our sample are (or previously were) socialist countries, and their life insurance markets have been determined by their governments for some years.<sup>6</sup> Without the appropriate working incentive, state-owned life insurance companies are inefficient, and this usually results in underproduction. We expect that the life insurance markets in these socialist countries will be less developed than in the rest of the countries in our sample. We use a dummy variable, *State*, to capture this effect.

#### Institutional Determinants

Levine (1999) records that financial intermediaries are better developed in countries with legal and

regulatory systems that give a high priority to the protection of creditors and to the effective enforcement of contracts. Beck and Webb (2003) also argue that the protection of private property rights and contract enforcement are important for the growth of the life insurance market. Using the rule of law obtained from the Political Risk Services as a measure of the degree to which people in a country trust the legal system to settle disputes and enforce contracts, Beck and Webb (2003), however, find that the rule of law cannot explain the variation in life insurance consumption across countries. In the current study, creditor right (*Credit*) is measured as the sum of the AUTOSTAY, MANAGES, and SECURED1 scores obtained from Levine (1999). We also use Levine's contract risk index (*ConRisk*). It is expected that the life insurance market will be better developed in a country that has high scores on creditor rights and contract enforcement.

### Demographic Determinants

Previous studies have proposed many demographic variables to explain life insurance consumption across countries. Among them, dependency ratio and religion are the most consistent and robust determinants of cross-country life insurance consumption. The positive relationship between dependency ratio and life insurance consumption is intuitive. When the number of dependants of a person has increased, this person needs to buy more life insurance. Whereas Browne and Kim (1993) and Beck and Webb (2003) find a significant, positive

relationship between dependency ratio and life insurance consumption across countries, Outreville (1996) finds the relationship to be insignificant.

Browne and Kim (1993) suggest that religious people tend to purchase less life insurance, because they perceive that buying life insurance shows a distrust of God's protection. Browne and Kim (1993) and Beck and Webb (2003) find that life insurance consumption is significantly lower in Islamic countries than in other countries. However, Outreville (1996) find that the relationship between Muslim belief and life insurance countries in developing countries is weak. Our religion variable (*Religion*) shows the share of the total population (in percentage) with Protestant, Catholic, or Muslim beliefs.<sup>7</sup>

### Regression Model

Tables 2 and 3 provide the descriptive statistics and the correlation matrix of our explanatory variables.<sup>8</sup> Since some of the explanatory variables are highly correlated, putting these variables in the same regression model leads to a severe multicollinearity problem. To remedy this problem in general, we use the principal component method to condense all the economic variables, institutional variables and demographic variables into the economic component ( $Prin_{Econ}$ ), the institutional component ( $Prin_{Inst}$ ) and the demographic component ( $Prin_{Demo}$ ) respectively. These three components are selected because they are the only ones with eigenvalues greater than 1 in the principal

Table 2 Descriptive statistics

Variable	Mean	Median	Standard deviation	Minimum	Maximum	Observations	No. of countries
Life insurance density	341.79	103.56	763.87	0.012	11201.08	1477	58
Life insurance penetration (%)	1.94	1.15	2.56	0.004	28.29	1477	58
Individualism	51.80	54.00	24.32	6.00	91.00	1477	58
Power distance	53.20	55.00	22.22	11.00	104.00	1477	58
Uncertainty avoidance	65.47	68.00	22.55	8.00	112.00	1477	58
Masculinity/femininity	51.52	53.00	20.29	5.00	110.00	1477	58
Real GDP per capita	13240.9	11248.02	11327.84	218.889	58915.33	1474	58
Expected inflation (%)	15.66	7.25	29.29	-0.103	270.66	1296	58
Bank sector development (%)	57.27	48.43	36.19	0.047	189.74	1417	58
Stock market development (%)	41.55	22.38	54.44	0.040	510.50	1047	56
Social security to GDP (%)	14.29	13.15	9.24	0.000	42.70	1120	54
Creditor right	1.51	1.00	0.99	0.000	3.00	1227	41
Contract enforcement right	8.21	8.96	1.53	4.680	9.98	1250	42
Accounting standard	63.75	64.00	11.24	31.000	83.00	1174	38
Dependency ratio (%)	59.17	55.59	13.18	37.067	107.21	1477	58
Religion (%)	70.69	83.85	32.51	1.500	99.60	1474	57

Table 3 Correlations

Variable	LnDen	LnPen	IDV	PDI	UAI	MAI	LnGDPPC	Einf	Bank	Stock	SS	Credit	ConRisk	Account	Dept
LnPen	0.89***														
IDV	0.69***	0.54***													
PDI	-0.65***	-0.46***	-0.71***												
UAI	-0.19	-0.28*	-0.32**	0.19											
MAI	-0.06	-0.03	-0.02	0.11	0.18										
LnGDPPC	0.90***	0.61***	0.65***	-0.69***	-0.02	-0.06									
Einf	-0.35**	-0.43***	-0.19	-0.00	0.31*	0.09	-0.17								
Bank	0.67***	0.59***	0.31*	-0.41**	-0.01	0.20	0.63***	-0.37**							
Stock	0.47***	0.62***	0.21	0.01	-0.52***	0.05	0.23	-0.32*	0.44**						
SS	0.76***	0.54***	0.69***	-0.68***	0.03	-0.34**	0.78***	-0.18	0.44**	-0.06					
Credit	0.04	0.24	-0.13	-0.04	-0.28	0.00	-0.12	-0.15	0.20	0.30*	-0.05				
ConRisk	0.88***	0.71***	0.64***	-0.62***	-0.19	-0.13	0.84***	-0.59***	0.68***	0.29*	0.74***	0.12			
Account	0.62***	0.68***	0.53***	-0.25	-0.66***	-0.19	0.37**	-0.48***	0.25	0.63***	0.32**	0.23	0.49***		
Dept	-0.77***	-0.62***	-0.42***	0.49***	0.01	0.12	-0.79***	0.32*	-0.62***	-0.20	-0.53***	-0.17	-0.77***	-0.27	
Religion	-0.08	-0.27*	0.12	-0.03	0.06	-0.14	0.09	0.09	0.44**	-0.28	0.18	-0.65***	0.06	-0.24	0.19

Notes: The correlation coefficients are between the natural logarithm of life insurance density (LnDen), the natural logarithm of life insurance penetration (LnPen), the individualism index (IDV), the power distance index (PDI), the uncertainty avoidance index (UAI), the masculinity/femininity index (MAI), the natural logarithm of real GDP per capita (Inc), the expected inflation rate (Einf), the bank sector development (Bank), the stock market development (Stock), the social security to GDP ratio (SS), the creditor right (Credit), the contract enforcement right (ConRisk), the accounting standard (Account), the dependency ratio (Dept), and the share of people with religion in the total population (Religion).  
 \*\*\*Significance at 1% level; \*\*Significance at 5% level; \*Significance at 10% level.

component analysis. Our basic empirical model is described by the following equation.<sup>9</sup>

$$\ln s_{it} = \alpha + \beta X_{i,Cut} + \eta_1 Prin_{Econ,it} + \eta_2 Prin_{Inst,i} + \eta_3 Prin_{Demo,it} + \lambda D_{Year} + \varepsilon_{it} \quad (1)$$

where  $\ln s_{it}$  is the life insurance consumption measured in the natural logarithm of density (LnDen) for country  $i$  in year  $t$ .  $X_{i,Cut}$  is an array of cultural variables that includes the indexes on individualism (IDV), power distance (PDI), uncertainty avoidance (UAI) and masculinity/femininity (MAI) for country  $i$ . These cultural variables vary across countries, but they are invariant across time for a given country.  $ft$  is a vector of coefficients corresponding to these cultural variables. Our hypotheses predict that whereas the coefficients on IDV and UAI are positive, the coefficient on PDI is negative. The coefficient on MAI should be determined empirically.  $Prin_{Econ,it}$  and  $Prin_{Demo,it}$  are, respectively, the scores on the economic component and the demographic component of country  $i$  in year  $t$ .  $Prin_{Inst,i}$  is the score on the institutional component of country  $i$ .<sup>10</sup>  $D_{Year}$  is an array of year dummy variable that is used to capture the time effect on life insurance consumption across countries. Finally,  $\varepsilon_{it}$  is the error term for country  $i$  in year  $t$ . Since we have a pool of time series and cross-sectional data, we use the pooled GLS technique to estimate Equation (1).<sup>11,12</sup>

## EMPIRICAL FINDINGS

We use an unbalanced panel data of 41 countries over the years from 1976 to 2001 to estimate Equation (1), and Table 4 reports the results. When life insurance density is regressed on the three principal components, the estimated coefficients on the economic and institutional components are significantly positive, and the estimated coefficient on the demographic component is negative but insignificant. These findings agree with our expectation. When individualism (IDV) is added into the model, we find that the estimated coefficient on IDV is significantly positive, and the estimated coefficient on  $Prin_{Demo}$  becomes significantly negative. The adjusted  $R^2$  increased from 0.70 to 0.83, and the increase in  $R^2$  is also highly significant. This finding suggests that, after taking into account the economic, institutional and demographic factors, the difference in individualism can explain an additional 13% of the variation in life insurance density across countries. This finding supports our Hypothesis 1, that the consumption of life

Table 4 National culture and life insurance density

Model	1	2	3	4	5	6
Prin <sub>Econ</sub>	1.743*** (29.61) [1.93]	1.238*** (24.99) [2.33]	1.526*** (29.50) [2.04]	1.737*** (29.31) [1.96]	1.783*** (30.48) [1.96]	1.285*** (26.93) [2.39]
Prin <sub>Inst</sub>	0.200*** (3.34) [2.24]	0.128*** (2.78) [2.25]	-0.018 (-0.34) [2.37]	0.185*** (2.95) [2.46]	0.148** (2.46) [2.31]	0.064 (1.33) [2.67]
Prin <sub>Demo</sub>	-0.078 (-1.31) [1.86]	-0.243*** (-5.27) [1.91]	-0.206*** (-4.01) [1.90]	-0.089 (-1.46) [1.95]	-0.115* (-1.95) [1.89]	-0.288*** (-6.47) [1.94]
IDV		0.035*** (24.53) [1.39]				0.030*** (17.42) [2.19]
PDI			-0.032*** (-17.77) [1.28]			-0.011*** (-5.99) [2.02]
UAI				-0.001 (-0.83) [1.20]		0.004*** (3.11) [1.32]
MAI					-0.011*** (-5.15) [1.05]	-0.008*** (-5.21) [1.12]
F-stat	73.19 (0.00)	140.38 (0.00)	107.23 (0.00)	70.66 (0.00)	73.65 (0.00)	142.61 (0.00)
Wald	1953.50 (0.00)	3933.10 (0.00)	2993.00 (0.00)	1955.80 (0.00)	2040.70 (0.00)	4431.20 (0.00)
Condition	10.17	11.82	12.09	12.03	11.91	21.98
Adjusted R <sup>2</sup>	0.70	0.83	0.78	0.70	0.71	0.84
R <sup>2</sup>	0.71	0.83	0.79	0.71	0.72	0.85
F( $\Delta R^2$ )		580.31***	304.74***	0.57	25.75***	724.16***

Notes: This table reports the results of the pooled GLS regressions of the natural logarithm life insurance density on individualism index (IDV), uncertainty avoidance index (UAI), power distance (PDI), masculinity/femininity index (MAI), and the three principal components over the years from 1976 to 2001. The F-statistic (F-stat) is used to test the null hypothesis that all the estimated coefficients on the independent variables (including the time dummy variables) are equal to zero. The Wald statistic (Wald) is used to test the null hypothesis that all the reported estimated coefficients are equal to zero. The p-values of F-stat and Wald are in parentheses. The row "Condition" reports the condition number. F( $\Delta R^2$ ) is the F-statistic for the change in R<sup>2</sup>. The changes in R<sup>2</sup> in models 2-6 are in comparison with the R<sup>2</sup> in model 1; the t-statistics are in parentheses and the variance inflation factors are in square brackets.

\*\*\*Significance at 1% level; \*\*significance at 5% level; \*significance at 10% level.

insurance is higher in individualistic countries than in collectivistic countries.

When life insurance density is regressed on power distance (PDI) and the three principal components, we find that PDI has a strong negative relationship with life insurance density. The coefficient of -0.032 is statistically significant at the 0.01 level. This finding is consistent with our Hypothesis 2. Alternatively, when life insurance density is regressed on uncertainty avoidance (UAI) and the three principal components, we find that the relationship between life insurance consumption and UAI is insignificant. This finding does not support our Hypothesis 3. There is a possible reason

for this. Hofstede (2001: 148) warns that "uncertainty avoidance does not equal risk avoidance." Risk is often expressed as a percentage of probability that a *particular* event may happen. Anxiety and uncertainty are both diffuse feelings, with no specific object. Rather than lead toward an escape from risk, uncertainty avoidance leads to an escape from ambiguity. When UAI is replaced by masculinity/femininity (MAI) in the model, we find that the estimated coefficient on MAI is negative (-0.008) and statistically significant at the 0.01 level. The significant, negative effect of MAI on life insurance consumption seems to indicate that the femininity effect dominates the masculinity effect.

In the full model, which includes all the cultural variables and the economic, institutional and demographic principal components, we find that the estimated coefficients on IDV and UAI are significantly positive and the estimated coefficients on PDI and MAI are significantly negative. These findings support our three hypotheses.

Criticism may be raised regarding the use of Hofstede's cultural dimensions, since Hofstede's cultural scores are based on his empirical work in 1967-1973, which may be outdated (Shenkar, 2001). To investigate whether our results are affected by the possible changes in these scores over time, we collected updated scores on individualism, power distance, and masculinity/femininity from the GLOBE project conducted by House, Hanges, Javidan, Dorfman, and Gupta (2004). We obtained similar findings.<sup>13</sup>

### DISCUSSION

After controlling for the economic, institutional and demographic principal components, Hofstede's cultural dimensions explain an additional 14% of the variation of life insurance density across countries (the adjusted  $R^2$  increases from 0.70 to 0.84). Such a finding confirms that national culture plays a significant role in explaining the national differences in life insurance consumption. Of the four cultural dimensions, individualism shows the highest level of significance, followed by power distance and masculinity-femininity. In an individualistic society, the social group of relevant others is usually small - often confined to members of the nuclear family. Should one die early, one cannot count on fellow kinsmen to provide financial support for one's dependants. Furthermore, people tend to draw satisfaction from the belief that they can exercise their inner attributes to overcome the environment. Reliance on others' help may be viewed as a sign of weakness. Instead of relying on social network security, which is less desirable or available, they resort to market-based life insurance to safeguard the welfare of their dependants. Alternatively, power distance also shows a strong negative relationship with life insurance consumption. In a country with high power distance, subordinates surrender more authority to their superiors. In return, they expect their family needs to be better taken care of by their superiors in case of emergency. There is less need for market insurance. Similarly, masculinity is also inversely related to life insurance density. While people living in high masculinity societies may buy more

insurance in order to take charge of their own destiny and have better planning, people in high femininity societies may use more market life insurance since they are emotionally more sensitive to the needs of their dependants. The negative, significant coefficient of MAS indicates that the femininity effect dominates the masculinity effect.

Somewhat surprising is the relatively weak significance of the uncertainty-avoidance dimension. The estimated coefficient on UAI is significantly positive only in the full regression model. When life insurance density is regressed on uncertainty avoidance (UAI) and the three principal components, we find that the coefficient of UAI is insignificant. We expect that people in high-UAI countries will be more likely to buy life insurance, as insurance is a financial contract that is more reliable than financial help from fellow kinsmen. One possible explanation for the weak significance, as warned by Hofstede (2001: 148), is that uncertainty avoidance is not necessarily the same as risk avoidance. This result is different from the finding in the finance and investment area. Kwok and Tadesse (2006) find that high-UAI societies tend to adopt a bank-based financial system, whereas low-UAI societies tend to adopt a market-based financial system. Bank deposits provide high-UAI investors with stable returns because the payoff is contractually fixed and usually guaranteed by deposit insurance. Alternatively, low-UAI investors would prefer to invest in stock markets, which yield higher but more volatile returns. Kwok and Tadesse (2006) find that the coefficient of UAI is consistently negative and significant, despite adding various control variables.

Leung et al. (2005) provide a state-of-the-art review of studies in culture and international business. They observe that, although in many studies the cultural variable is statistically significant, the strength of the relationship (i.e., the size of the coefficient) is relatively weak in practical terms, reflecting the fact that culture does not explain a large amount of variance. However, in our study of cross-country life insurance consumption, the cultural variables are both statistically and economically significant. The cultural dimensions together explain an additional 14% of the variation of life insurance density. The estimated coefficient on IDV of 0.03 indicates that the per capita life insurance consumption in 1995 constant US dollars per year ( $\ln \text{Den}$ ) will increase by 30% for every 10-point increase in Hofstede's individualism index (the index ranges from 6 to 91). Similarly, the

estimated coefficient on PDI of  $-0.011$  indicates that Ln Den will decrease by 11% for every 10-point increase in Hofstede's power distance index (the index ranges from 11 to 104). The effects of national culture are economically significant, and warrant the attention of practitioners who work in the insurance industry.

We can think of several implications for multinational insurance companies that sell life insurance policies around the world. The first implication refers to the choice of market location. When multinational insurance companies survey possible locations for foreign market entry, in addition to considering economic, demographic and institutional factors, they should also consider national culture. Given limited financial and human resources, *Ceteris paribus*, the firms should first approach countries with higher scores of individualism (IDV) and lower scores of power distance (PDI) and masculinity/femininity (MAI).

The second implication refers to the market segmentation within a host country. As explained in Hofstede (1983), differences in national cultures are statistical in nature. Characterizing a national culture does not mean that every individual within that culture is mentally programmed in the same way. The national culture reflects the average pattern of beliefs and values, around which individuals in the country differ. Researchers have shown that there is indeed plenty of within-country variation on cultural values (e.g., Au, 1999). For instance, on the average, Chinese are more likely to have an interdependent self-construal than Americans. However, an entrepreneur living in Shanghai (the commercial center of China) may have a higher independent self-construal than a small-business owner living in a rural town in the US. When a multinational insurance company enters China, it may target population segments that are less influenced by the traditional culture. In its marketing efforts, the firm may focus on young executives in big cities. These people study Western textbooks, and are exposed to Western mass media. Their relocation into big cities because of employment opportunities separates them from their kinsmen in the rural areas. With the supportive social security network far away, they are more likely to resort to market life insurance for the protection of their dependants.

The third business implication refers to the contents of advertising. In promoting life insurance to this group of potential customers, the insurance company may highlight the fact that the

traditional dependence on fellow kinsmen or leaders in supporting one's dependants may no longer function well under the changing environments. With rising income, one can afford the purchase of market life insurance. It is better to get things well planned and put them under one's control in order to ensure that their dependants' needs will be taken care of.

## SUMMARY AND CONCLUSIONS

Linking the two streams of literature in culture and insurance, this cross-disciplinary study examines how national culture affects the different consumption patterns of life insurance across countries. Life insurance is a service that is abstract, complex, and focused on unsure future benefits. Because of the uncertainty and ambiguity of the life insurance product, consumers are more likely to respond according to their cultural prescriptions. Our empirical findings show that individualism indeed has a significant, positive effect on life insurance consumption, whereas power distance and masculinity/femininity have significant, negative effects. The results are robust, even after controlling for economic, institutional and demographic determinants. However, the relationship between uncertainty avoidance and life insurance consumption is weak.

As in other studies, the present study has its limitations. First, because of data availability problems, we do not include any pricing variables in our analysis, and we can estimate only a reduced-form model. A higher price of life insurance policy will definitely reduce the demand for life insurance. Following the suggestion of Beck and Webb (2003), we include financial market development and institutional variables in the regression model to reduce the bias caused by the missing price variable. Second, current research in cognitive psychology shows that the human mind is fluid and adaptive. This conception of the human mind gives rise to a dynamic view of culture, which contrasts sharply with traditional views that regard culture as more or less stable and static. This dynamic view of culture argues that it is represented by cognitive structures and processes that are sensitive to environmental influences. Our study follows the traditional, static approach; it does not examine such cognitive processes. As recommended by Leung et al. (2005), such a cognitive, dynamic process is better studied using the experimental approach. Our study confirms the presence of a cultural effect at the country level. It lays the

groundwork for more complex experiments to test how differences in the levels of a cultural dimension influence behaviors and perceptions.

### ACKNOWLEDGEMENTS

We thank our colleagues Helen Doeringhaus and Xu Huang for providing helpful comments. Andy Chui acknowledges the financial support from the Hong Kong Polytechnic University (A-PG29), and Chuck Kwok gratefully acknowledges the support of the Center for International Business Education and Research (CIBER) at the University of South Carolina for this research project.

### NOTES

<sup>1</sup>Several concerns have been raised regarding the Hofstede dimensions: (1) that his empirical work is based on a single, multinational corporation; (2) that the dimensions are too broad, and some other important value dimensions have not been included; and (3) that his cultural scores based on his empirical work in 1967–1973 may be dated. Despite these criticisms, Hofstede's dimensions are still the most widely used cultural indices in the international business literature.

<sup>2</sup>The initial dimensions of Hofstede are derived from his empirical work that took place in 1967–73. As reviewed in Leung et al. (2005), there have been novel dimensions. For instance, Schwartz (1994) has identified seven cultural-level dimensions of values. Leung et al. (2002) create a social axiom survey based on items culled from the psychological literature as well as from qualitative research conducted in Hong Kong and Venezuela. Alternatively, House et al. (2004) conduct a GLOBE project that adopts a theory-based approach. Despite the use of different items to identify cultural dimensions, House et al.'s results are consistent with previous findings, and most of the cultural dimensions identified are related conceptually and correlated empirically with Hofstede's dimensions, suggesting that the Hofstede dimensions are quite robust (Leung et al., 2005: 366).

<sup>3</sup>In the 2001 update of his book, Hofstede proposes one more cultural dimension: long-term orientation. However, the data for this dimension are less complete than those for the four original dimensions. If we include this variable in our test, our sample of countries will be reduced from 41 to 18, and the number of observations in our sample will be reduced from 853 to 377. Therefore this cultural dimension is not included in this study.

<sup>4</sup>However, a study using a large sample of countries is a rarity in international business research. Typically

two to four countries are compared in cross-national studies (Samiee & Jeong, 1994). To alleviate this issue, Sivakumar and Nakata (2001) suggest an algorithm in choosing country combinations that would strengthen hypothesis testing.

<sup>5</sup>Social security is not included in the current study, because previous studies indicate that the relationship between life insurance consumption and social security is insignificant (Beck & Webb, 2003; Outreville, 1996). Our conclusion will not be affected even if we include social security in our analysis.

<sup>6</sup>These socialist countries are Bulgaria, China, Czech Republic, Hungary, Poland, Romania, Slovak Republic, and Vietnam. Most of these socialist countries started to transform into market economies in the 1990s. However, the initial conditions of their life insurance markets are still quite different from those of the non-socialist countries. These differences in initial conditions could be an important determinant for the development of the life insurance markets across countries. The authors thank the referee for bringing up this point.

<sup>7</sup>We do not separate our religion measure into Protestant, Catholic and Muslim, because we believe that a religious person will generally purchase less life insurance if he/she perceives that buying life insurance shows a distrust of God's protection. Our measure on religion may underestimate the share of religious people out of the total population, because this measure only counts those people with a Protestant, Catholic or Muslim belief. For example, since Buddhism is very popular in Asia, our religion measure will underestimate the proportion of religious people in Asian countries. Data on other religions, however, are not available to us.

<sup>8</sup>We first compute the time-series means of the time-varying variables for each country over the years from 1976 to 2001 and then estimate the correlations across countries. We require each country to have at least 20 observations for this variable over the period from 1976 to 2001. Since none of the eight socialist countries has 20 observations on life insurance density, these countries are excluded from the correlation analysis.

<sup>9</sup>As a robustness test, we also estimate Equation (1) using the data for the explanatory variables instead of the three principal components. We obtain similar results for the relationship between life insurance consumption and the cultural variables.

<sup>10</sup>The economic component ( $\text{Prin}_{Econ}$ ) is positively correlated to national income, and developments in the bank and stock sectors, but it is negatively correlated to expected inflation rate and *State*. Therefore we expect the coefficient on  $\text{Prin}_{Econ}$  ( $\beta_{11}$ ) to be

positive. Since the institutional component ( $\text{Prin}_{inst}$ ) is positively correlated to *Credit* and *ConRisk*, we expect the coefficient on  $\text{Prin}_{inst}$  ( $\beta_2$ ) to be positive. On the other hand, the demographic component ( $\text{Prin}_{Demo}$ ) is positively correlated to the dependency ratio and *Religion*. As a result, the sign of the coefficient on  $\text{Prin}_{Demo}$  ( $\beta_3$ ) has to be determined empirically.

<sup>11</sup>To save space, we do not report the intercept estimate ( $\alpha$ ) and the estimated coefficients on the year dummy variables, because time effects are not the focus of this study.

<sup>12</sup>Judge, Hill, Griffiths, Lutkepohl, and Lee (1988) suggest that a value of variance inflation factor (condition number) that is 5 (30) or more is an indication of severe multicollinearity. In our regression analysis, all the estimated coefficients have variance inflation factors much less than 5, and the condition numbers of our regression are all less than 30.

<sup>13</sup>To conserve space, the additional findings using the GLOBE dimensions are not reported in this paper, but will be made available to readers upon request.

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