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# Article

# Insuring cultures: Unveiling diverse paths of national influences on insurance in developed and developing realms

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# **GLOBAL BUSINESS & FINANCE REVIEW**

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# Insuring Cultures: Unveiling Diverse Paths of National influences on insurance in Developed and Developing Realms

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#### ABSTRACT

**Purpose:** Our research aims to delve into the influence of diverse national cultures on the consumption of life insurance across various countries. We will conduct a comprehensive analysis, drawing on Hofstede's cultural dimensions, to understand how national cultural dimensions shape life insurance consumption's landscape in developed and developing nations.

**Design/methodology/approach:** This study utilized data from 57 countries from 1996 to 2020 and employed a comprehensive set of regression models in our analysis, encompassing pooled Generalized Least Squares (GLS), Feasible Generalized Least Squares (FGLS) after accounting for autocorrelation and heteroskedasticity, random GLS with control for country-specific autocorrelation, the Fama-MacBeth model, and cross-sectional analysis employing means of time series.

**Findings:** Uncertainty avoidance, long-term orientation, and indulgence significantly influence life insurance demand. The impact of uncertainty avoidance and indulgence varies between developed and developing countries. Variables such as dependency ratio, the percentage of the Muslim population, tertiary education, and world governance indicators display differing effects in developed and developing nations. Conversely, national income, social security, bank development, stock market development, inflation, individualism, and power distance consistently impact life insurance demand in both contexts.

**Research limitations/implications:** Limitation of this study lies in the utilization of static national cultural dimensions, without considering their gradual fluctuations. Our findings are useful for life insurance managers to formulate product launch plans tailored to countries with distinct cultural characteristics. Our findings remind investors in insurance companies to exercise caution once the insurance company tends to enter into developed countries which score high in IVR or MAS, or developing countries with high PDI or UAI scores.

**Originality/value:** This paper provides a comprehensive empirical analysis of the determinants of life insurance expenditures in developed and developing countries, which fills a gap in the literature and helps scholars, insurance practitioners, and policymakers to understand more comprehensively the insurance needs of people in different cultures.

Keywords: National culture, Life insurance, Indulgence, Developed and developing countries

#### I. Introduction

† Corresponding author: Kang Pil Cho E-mail: chokp@cbnu.ac.kr The insurance market has experienced substantial growth, surging from US\$2,760,241 to US\$6,219,498

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million between 2000 and 2020. Concurrently, the life insurance sector has also exhibited substantial expansion, rising from US\$1,590,482 million to US\$2,681,517 million amidst this complex environment (Swiss Re Institute Sigmar Explore). This trend has piqued scholarly interest in determinants behind individuals' demand for life insurance.

Recent research has observed that conventional socio-economic and legal factors partially elucidate the evolution of the life insurance industry across diverse countries (Alhassan & Biekpe, 2016; Gaganis et al., 2020; Hu et al., 2022). Recognizing the customer's perception of insurance value is influenced by their cultural values and beliefs, several pioneering studies have introduced national culture as a crucial determinant. Scholars have employed cultural dimensions proposed by Hofstede to analyze life insurance consumption (Hofstede, 1995; Chui & Kwok, 2008; Park & Lemaire, 2011; Outreville, 2018). As a newly developed national cultural dimension in Hofstede's framework, whether Indulgence vs. Restraint (IVR) affects life insurance consumption has not been examined. They did not test whether national culture affects life insurance demand differently in developed and developing countries. Meanwhile, Trinh et al. (2016) reveals that the influence of national culture on non-life insurance expenses varies notably between developed and developing countries. Hence, whether national culture, including IVR, shapes life insurance expenditure differently in developed and emerging countries deserves to be investigated.

This study fills the academic gap by answering whether Hofstede's cultural dimensions, including IVR, exert differing effects on life insurance consumption in developed and emerging countries. As per the IMF's classification, this research utilizes data from 28 developed and 29 developing countries within 1996 and 2020. Methodologically, the study mainly employs pooled data regressions.

The paper's subsequent sections are organized as follows: in section II, we conduct literature review concerning the factors affecting life insurance consumption. Section III elucidates the specifics of the data and empirical models utilized within this research. Following this, section four comprehensively showcases the findings and initiates a subsequent discussion. Finally, the paper culminates with an insightful conclusion based on the accumulated research and analysis.

#### II. Literature Review

#### A. Demographic Factors

Several studies have explored diverse demographic factors to elucidate variations in life insurance consumption among countries. An increase in dependents often prompts wage earners to secure heritage through life insurance for their dependents in the event of their demise (Browne & Kim, 1993). Conversely, an excessive number of dependents might constrain expenses allocated to life insurance due to higher daily expenses required (Alhassan & Biekpe, 2016;). However, the correlation between dependency ratio and life insurance consumption might be insignificant (Dragos et al., 2017).

Longer life expectancy implies increased human capital accumulation for income producers but also signifies great financial loss in case of premature death before retirement (Ward & Zurbruegg, 2002). While longer life expectancy facilitates life insurance consumption by potentially reducing their prices (Ye et al., 2009), this correlation might be diminished: as wage earners approach retirement age, they have accumulated substantial wealth over their working years and face to a low probability of death before retirement (Pliska & Ye, 2007; Hodula et al., 2021). Elderly has negative influence on insurance consumption (Kim, 2022). Sometimes life expectancy may have no impact on insurance demand (Mitra & Ghosh, 2010).

Religion often discourages the purchase of life insurance, perceiving it as commodifying death (Browne & Kim, 1993; Gaganis et al., 2020). The percentage of Muslims in the population is used here to symbolize religion's potential discouragement of life insurance consumption. Regarding education, higher educational attainment may equip individuals with better life insurance knowledge, heighten risk awareness, and augment income generation capabilities (Yusuf et al., 2009; Lin et al., 2017). However, Anderson & Nevin (1975) find a negative correlation between the education level of the household head and life insurance purchases, while the correlation between education and life insurance consumption may not consistently hold (Sliwinski et al., 2013).

#### **B.** Economic Factors

Increasing income often correlates with heightened life insurance consumption. Individuals with higher incomes tend to suffer more losses without a proportional increase in the life insurance share within their financial portfolios. In this case, people can afford life insurance and may perceive it as a necessity (Outreville, 1996; Feyen et al., 2011). While a wellestablished social security system might positively impact life insurance consumption by increasing survival rates of purchasers (Bernheim, 1991), conflicting views exist, suggesting a non-existent impact or an inverse relationship between social security and life insurance demand (Hwang & Greenford, 2005; Hong & Ríos-Rull, 2007).

The interplay between the insurance industry and banking sectors has strengthened, with life insurers actively engaging in capital markets for risk transfer and additional profits (Baluch et al., 2011). Bancassurance, a distribution channel for life insurance, has gained prominence (Cummins & Rubio-Misas, 2021). Bank concentration dynamics and stock market influences present regime-switching effects on life insurance (Dragotă et al., 2022). While some studies assert a negative interaction between stock markets and life insurance (Chen et al., 2012), others denote that stock market development promotes life insurance market growth by improving cost efficiency (Cummins & Rubio-Misas, 2021). However, inconsistencies exist regarding the relationship between household investment in the stock market and life insurance demand

(Liebenberg et al., 2012).

Inflation tends to negatively affect life insurance demand, particularly in developed or emerging countries, as it erodes the future value of life insurance benefits (Alhassan & Biekpe, 2016; Canh et al., 2021). Meanwhile, certain studies exhibit insignificant correlations between inflation and life insurance consumption in specific market contexts (Hwang & Gao, 2003).

#### C. Institutional Factors

Beck & Webb (2003) highlight that the average Worldwide Governance Indicators (WGI) significantly influence life insurance demand. Similarly, Chang & Lee (2012) reveal a notably positive correlation between the average WGI and life insurance penetration in low-income countries, indicating that governance effectiveness positively correlates with life insurance density.

Legal frameworks also play a pivotal role in shaping the life insurance market. Park & Lemaire (2011) assert that the Common Law system encourages life insurance consumption by offering enhanced protection for policyholders and superior law enforcement quality compared to the Civil Law system.

#### D. Developed vs Developing Countries

Feyen et al. (2011) suggests that the determinants of life insurance consumption may perform differently in developed and emerging countries because of the development of insurance products in these two groups of countries are different. Following this suggestion, Gaganis et al. (2020) introduces the development of country as a moderator and find that impact of some legal factor on life insurance expenditure varies between developed and emerging economies. Using 55 OECD and developing Asian countries, Akhter et al. (2020) find that dependency ratio and life expectancy significantly affect life insurance consumption in emerging Asian region while such impact was insignificant in OECD countries.

Moving to non-life insurance field, Trinh et al. (2016) discovered that cultural drivers of non-life insurance perform differently in advanced and emerging countries. They further expand this conclusion to middle-and high-income countries (Trinh et al., 2021). Therefore, it is anticipated that the impact of national culture on life insurance consumption will manifest distinctively in advanced and emerging economies.

#### III. Hypothesis Development

#### A. Individualism vs Collectivism (IDV)

Hofstede (1995) emphasizes the prevalence of mutual and compulsory insurance in low Individualism vs. Collectivism (IDV) countries, attributing it to the pervasive belief in "sharing risk" within collectivist societies. Conversely, in high-IDV nations, individuals engage in insurer-entrepreneur trading risks and tend to manage risk individually (Hofstede et al., 2010; Park et al., 2002).

Chui & Kwok (2008) assert that in high-IDV societies, reliance on financial support from social networks is perceived as a vulnerability. Hence, the inclination to safeguard dependents by acquiring market-based life insurance is more welcomed, considering insurance contracts as more reliable than familial financial support. This reliance on social networks significantly influences individual tendencies towards life insurance uptake.

It is pertinent to acknowledge that the socio-economic environment has transformed over the past two decades. This transformation results in remarkable distinction between the advanced and developing countries. Consequently, examining the impact of individualism on life insurance consumption in different groups of countries becomes imperative.

H1: There exists a positive correlation between Individualism and life insurance consumption in both developed and developing countries.

#### B. Power Distance Index (PDI)

Hofstede et al. (2010) conceptualize PDI as a measure of how society handles disparities in individuals' physical and intellectual capacities, leading to varying levels of power and wealth inequality.

In high-PDI countries, subordinates tend to defer to their leaders, entrusting them with authority. In return, dependents of subordinates often expect to receive financial protection from these superiors upon the subordinates' demise (Chui & Kwok, 2008). Thus, the expectation of financial benefits from supervisors in high-PDI societies may render the purchase of market-based life insurance seemingly unnecessary.

Like IDV, changes in social and financial landscape have the potential to reshape class inequalities arising from power distance, especially in some developing countries. Therefore, whether the impact of power distance on life insurance consumption remains unchanged in both developed and developing countries shall be investigated.

H2: Power Distance exhibits a negative impact on life insurance demand in developed nations and this impact does not alter its direction in developing countries.

#### C. Masculine vs Femininity (MAS)

Hofstede (1995) introduces the concept of Masculinity (Femininity) and claims that in high-Masculinity states, social security is established through redistribution via national insurance. Hofstede et al. (2010) note that in high-MAS countries, the prevalent family structure is characterized by the traditional division of labor - 'father earns and mother cares.' Conversely, in low-MAS societies, sharing earning and caregiving responsibilities between parents is encouraged.

Lin & Grace (2007) argue that the 'father earns and mother cares' family structure can lead to financial vulnerability as it relies solely on the husband's employed income. This vulnerability encourages higher life insurance consumption. Contrarily, Duker (1969) contends that families with working wives tend to spend less on life insurance compared to households with homemakers. Park et al. (2002) document a marginally significant positive correlation between MAS and the pervasiveness of insurance, attributing it to the valuation of insurance as an asset.

However, Chui & Kwok (2008) discover a significantly negative correlation between MAS and life insurance demand. They argue that individuals in low-MAS societies prioritize the needs of their dependents, resulting in higher spending on life insurance compared to individuals in high-MAS countries. Based on prior research, the relationship between masculinity and the utilization of life insurance remains inconclusive. transformation of family structures in numerous developing nations, attributed to their industrialization, adds complexity to this correlation. Thus, it is worth in-depth study by dividing all samples into developed and developing countries.

H3: A negative relationship exists between Masculinity and life insurance consumption in both developed and developing countries.

#### D. Uncertainty Avoidance Index (UAI)

Hofstede et al. (2010) define uncertainty avoidance as a society's approach to facing an unpredictable and ambiguous future. Low-UAI societies tend to embrace uncertainty, while individuals in high-UAI countries typically exhibit low tolerance for unknown conditions. Notably, uncertainty avoidance does not equate to risk avoidance, as clarified by Hofstede et al. (2010).

Chui & Kwok (2008) find that in high-UAI societies, there is a propensity for life insurance purchases, providing contract-based financial protection to beneficiaries. However, while the coefficient of UAI is significantly positive when life insurance density is the dependent variable alongside four national variables, UAI's consistent encouragement of life insurance consumption remains uncertain.

Contrasting views emerge as Hofstede (1995)

suggests that countries emphasizing predictability tend to have stronger governmental control, with social insurance considered a fundamental aspect of social security. In addition, Park et al. (2002) propose a weak and statistically insignificant correlation between UAI and insurance demand. They argue that in high-UAI countries, personal savings and material wealth accumulation might be preferred over life insurance. Outreville (2018) contends that UAI negatively correlates significantly with life insurance demand in certain periods. The relationship between people's preference for life insurance and UAI appears multifaceted, necessitating further study.

Social security welfare systems, serving as substitutes for life insurance, exhibit significant differences between advanced and developing countries. Therefore, it is necessary to investigate whether uncertainty avoidance consistently promotes life insurance consumption in advanced and developing countries separately.

H4: There is a positive correlation between Uncertainty Avoidance and life insurance consumption in both developed and developing countries.

#### E. Long-vs Short-Term Orientation (LTO)

Hofstede & Minkov (2010) expand the concept of Long-Term Orientation by emphasizing virtues oriented towards future rewards, perseverance, and thrift. According to Hofstede et al. (2010), LTO-WVS elucidates why countries progress from poverty to affluence but do not tend to shift among affluent nations. Park & Lemaire (2011) discovered a statistically significant positive correlation between LTO and life insurance demand. This correlation aligns with the motivation for life insurance consumption driven by wealth accumulation, as supported by Mahdzan & Victorian (2013), consistent with the principles of thrift.

However, Park & Lemaire (2011) is limited as it contains only 27 countries, predominantly form Asia, Europe, North America and Oceania. To comprehensively understand the impact of LTO on life insurance consumption, it is crucial to explore its effects in African and South American countries, which are pivotal in global economic development. Furthermore, given that countries with similar LTO characteristics may be at different developmental stages, it is imperative to examine whether the positive influence of LTO on life insurance remains consistent across varying stages of development.

H5: Long-Term Orientation positively impacts life insurance consumption in both developed and emerging countries.

#### F. Indulgence vs Restraint (IVR)

The examination of how indulgence influences individuals' inclination toward life insurance can be of our interest. Hofstede et al. (2010) introduce Indulgence vs. Restraint (IVR), illustrating the inclination to freely gratify fundamental human desires, emphasizing enjoyment of life and leisure. Trinh et al. (2016) notes an insignificant correlation between indulgence and non-life insurance consumption in developed countries, while in developing nations, this correlation becomes significantly negative. Similar inclinations regarding non-life insurance are observed in high-middleincome countries (Trinh et al., 2021).

Nevertheless, the influence of Indulgence on life insurance consumption remains unknown. Within societies characterized by high levels of indulgence, which prioritize life satisfaction and enjoyment of life, people may concurrently hold elevated expectations for their living standards. Sustaining such a lifestyle necessitates income earners to exert effort in financing it. Bequest motives (Bernheim, 1991; Li et al., 2007) suggest that income producers in such societies need to purchase life insurance to ensure sufficient financial support against mortality risk, thereby maintaining their dependents' living standards.

Furthermore, people in high-IVR societies tend to prioritize personal life control (Hofstede et al., 2010). Study conducted by Mahdzan & Victorian (2013) uncovers that purchasing life insurance enhances life control by mitigating financial losses due to uncontrollable mortality risks. Moreover, individuals from high-indulgent societies exhibit optimism and a belief in frequent positive experiences (Hofstede et al., 2010). Based on the Life-Cycle motivation theory, individuals often pay for life insurance following positive life events (Mahdzan & Victorian, 2013).

As a result, we anticipate that life insurance consumption in high-indulgent countries may exceed that in low-indulgent countries. Additionally, the economic and demographic contexts of developed and developing countries cannot be overlooked, even if both may be characterized as 'high-indulgent countries,' such as Brazil and the USA. Therefore, simplifying the relationship by asserting that indulgence will invariably promote life insurance consumption, irrespective of the country's developmental stage, is overly simplistic. It is imperative to investigate the impact of indulgence on life insurance consumption in both advanced and emerging countries.

**H6:** Indulgence versus Restraint (IVR) exerts a positive influence on life insurance consumption in both developed and developing countries.

Figure 1 demonstrates the impact of national cultural dimensions, demographic indicators, economic conditions and institutional factors on life insurance consumption in both developed and developing countries respectively.



Figure 1. Impact of national culture on Life insurance consumption

# IV. Research Design and Methodology

To examine the impact of national culture on life insurance consumption in different countries, we use Hofstede's National Dimension Score to measure the national cultural characteristics of each country. For control variables, following Beck & Webb (2003) and Chui & Kowk (2008), we use three different types of variables: demographic, economic, and institutional. In our research, 28 developed and 29 developing countries were involved in the research period from 1996 to 2020. The definition and data sources of all variables used in this study are detailed in Table 1.

Categorize	Variable	Description	Abbreviation	Data Source		
Life Insurance Consumption	Life Insurance Density	Life insurance premium per capita, US dollars in natural log	Den	Sigma		
	Life Insurance Penetration	Life insurance premium in % of GDP	Pene	(Swiss Re)		
	Individualism vs Collectivism	Connection between individuals in a society.	IDV			
	Power Distance	Degree of the accepted power inequality between subordinates and superiors	PDI	-		
National Cultural	Masculinity vs Femininity	Degree of how emotional gender roles are distinct in a country.	of how emotional gender roles are distinct MAS Hountry.			
Dimensions	Uncertainty Avoidance	Degree of people feeling threatened by ambiguous or unknown matters	UAI	Minkov (2010); Hofstede Insights.		
	Long-Term Orientation	ong-Term Fostering of future-oriented virtues including perseverance, thrift, and preservation of family LTO values				
	Indulgence vs Restraint	Degree of allowance for gratification of basic and natural human desires.	IVR			
	Dependency Ratio	% of dependents of working-age population.	Dep	World Bank		
Domoorahio	Life Expectancy	Number of years as an infant is expected to live	LifeExp	World Bank		
Factors	Muslim Ratio	Percentage of population with Muslim belief in a country	Muslim	Central Intelligence Agency		
	Tertiary Education	Percentage of tertiary education enrolment (gross)	Edu	World Bank		
	Income	GDP per capita (current US\$) in natural log form	lnGDP	World Bank		
	Social Security (% of revenue)	Social security contributions and other contributions to social insurance schemes operated by governments	SS	World Bank		
Economic	Bank Sector Development	Ratio of total assets held by deposit money banks to GDP	Bank	World Bank		
Factors	Stock Market Development	Ratio of total value of all listed shares in a stock market to GDP	Stock	World Bank		
	Inflation	Measured by the consumer price index; annual % change of cost for purchasing one unite of goods and services	Inf	World Bank		
Institutional Factors	Average of World Governance Index	Average of 6 governance dimension, including Voice and Accountability, Political Stability and Absence of Violence, Government Effectiveness, Regulatory Quality, Rule of Law, Control of Corruption.	Ave_WGI	World Bank		
	Common Law	Dummy variable =1 if the country uses common law system and = $0$ otherwise.	CL	Central Intelligence Agency		

Table 1. Definition and source of data

Baseline empirical model is as follow:

# $$\begin{split} Ins_{it} &= \alpha + \beta_1 Dep_{it} + \beta_2 LifeExp_{it} + \beta_3 Muslim_t + \beta_4 Edu_{it} + \\ &\beta_5 GDP_{it} + \beta_6 SS_{it} + \beta_7 Bank_{it} + \beta_8 Stock_{it} + \beta_9 Infit + \\ &\beta_{10} Ave\_WGI_{it} + \beta_{11} CL_t + \beta_{12} CUL_t + \lambda Dyear + \epsilon_{it} \end{split}$$

Where Ins<sub>it</sub> measures life insurance consumption in the form of natural logarithm of life insurance density for country i in year t. In addition, life insurance penetration is also used in column (5) to check the robustness. Dep<sub>it</sub> is the total dependency ration for country i in year t. LifeExp<sub>it</sub> is the life expectancy for country i in year t. Muslim<sub>t</sub> is the ratio of Muslim population in country t. Edu<sub>it</sub> is the ratio of tertiary education enrollment for country i in year t. GDP<sub>it</sub> is the natural logarithm of GDP per capita (US\$) for country i in year t. SS<sub>it</sub> is the percentage of social security of country i in year t. Bank<sub>it</sub> is the bank development of country i in year t. Stock<sub>it</sub> is the stock market development of country i in year t. Inf<sub>it</sub> is the actual inflation rate

Table 2. Descriptive statistics analysis

of country i in year t. Ave\_WGI<sub>it</sub> is the average world governance index of country i in year t.  $CL_t$ indicates whether the country adopts common law.  $CUL_t$  is an array of cultural variables for country t, including the individualism/ collectivism (IDV), the power distance index (PDI), the masculinity/ femininity index (MAS), the uncertainty avoidance index (UAI), the long-/short-term orientation index (LTO), the indulgence /restraint index (IVR). Dyear is a set of year dummy variables employed for the time effect on life insurance consumption within distinct countries. $\varepsilon_{it}$  is the error term for country i in year t. Tables 2 and Tables 3 illustrate the descriptive statistics and the correlation matrix of our independent variables.

Following models are contained in each table when demonstrating results: According to Chui & Kwok, (2008), (2009) and Park & Lemaire (2011), we use pooled GLS (column 1), the cross-sectional time-series feasible generalized least square regression (FGLS) after controlling for heteroskedasticity and autocorrelation

	Ν	Mean	SD	Min	Max	Median
Den	1212	5.15	2.22	0.69	8.84	5.38
Pene	1246	2.43	2.55	0.00005	17.27	1.57
IDV	1238	46.95	23.17	13	91	41
PDI	1238	61.57	22.00	11	100	65
MAS	1238	48.79	18.61	5	100	50
UAI	1238	66.59	22.07	8	100	66
LTO	1238	48.41	22.60	4	100	47
IVR	1238	45.7	21.00	4	97	45
Dep	1238	50.06	8.79	16.07	85.32	49.94
LifeExp	1236	75.83	5.40	53.44	83.9	76.59
Muslim	1238	18.45	31.93	0	99.4	4.3
Edu	1059	54.36	24.60	4.92	150.88	55.4
lnGDP	1238	9.42	1.27	5.55	11.73	9.56
SS	1112	20.04	16.67	0	68.51	19.44
Bank	1184	86.51	41.79	5.73	219.08	79.26
Stock	1004	67.24	59.29	.02	526.2	48.85
Inf	1229	4.86	9.58	-4.48	168.62	2.58
Ave WGI	1238	0.56	0.87	-1.27	1.95	0.62
CL	1238	0.3	0.46	0	1	0

	lnDen	Pene	IDV	PDI	MAS	UAI	LTO
lnDen	1						
Pene	0.708***	1					
IDV	0.642***	0.484***	1				
PDI	-0.696***	-0.480***	-0.721***	1			
MAS	0.00800	0.0370	0.189***	0.0160	1		
UAI	-0.281***	-0.371***	-0.286***	0.307***	-0.090***	1	
LTO	0.138***	0.106***	-0.0150	0.144***	0.0260	0.156***	1
IVR	0.540***	0.392***	0.381***	-0.566***	-0.00300	-0.287***	-0.386***
Dep	-0.235***	-0.0430	0.0400	-0.0260	-0.0290	-0.0370	-0.357***
LifeExp	0.726***	0.257***	0.457***	-0.550***	-0.055*	-0.0400	0.113***
Muslim	-0.503***	-0.318***	-0.278***	0.290***	-0.0100	-0.145***	-0.254***
Edu	0.493***	0.211***	0.305***	-0.376***	-0.262***	0.154***	0.212***
lnGDP	0.857***	0.454***	0.640***	-0.664***	-0.0340	-0.141***	0.135***
SS	0.310***	0.00700	0.295***	-0.163***	0.061**	0.423***	0.457***
Bank	0.652***	0.515***	0.381***	-0.495***	-0.085***	-0.353***	0.102***
Stock	0.440***	0.519***	0.236***	-0.215***	0.0290	-0.439***	-0.00100
Inf	-0.471***	-0.241***	-0.238***	0.283***	-0.108***	0.169***	0.048*
Ave_WGI	0.868***	0.525***	0.698***	-0.767***	-0.0460	-0.273***	0.052*
CL	0.100***	0.264***	0.182***	-0.129***	0.102***	-0.510***	-0.382***
	IVR	Dep	LifeExp	Muslim	Edu	lnGDP	SS
IVR	1						
Dep	0.203***	1					
LifeExp	0.331***	-0.310***	1				
Muslim	-0.383***	0.165***	-0.320***	1			
Edu	0.121***	-0.300***	0.624***	-0.398***	1		
lnGDP	0.419***	-0.361***	0.832***	-0.384***	0.631***	1	
SS	-0.094***	-0.218***	0.386***	-0.472***	0.396***	0.417***	1
Bank	0.287***	-0.200***	0.608***	-0.188***	0.346***	0.567***	0.0260
Stock	0.313***	-0.128***	0.116***	-0.053*	0.0120	0.300***	-0.195***
Inf	-0.208***	0.067**	-0.387***	0.090***	-0.164***	-0.398***	-0.0310
Ave_WGI	0.553***	-0.139***	0.709***	-0.474***	0.465***	0.834***	0.333***
CL	0.323***	0.211***	-0.129***	0.0180	-0.163***	-0.065**	-0.477***
	Bank	Stock	Inf	Ave WGI	CL		
Bank	1						
Stock	0.390***	1					
Inf	-0.361***	-0.184***	1				
Ave WGI	0.574***	0.312***	-0.380***	1			
CL	0 170***	0 338***	-0.082***	0 135***	1		

 Table 3. Correlation analysis

Note: The correlation coefficients are between the natural logarithm of life insurance density (InDen), the life insurance penetration (Pene), the individualism index (IDV), the power distance index (PDI), the masculinity/ femininity index (MAS), the uncertainty index (UAI), the long-/short-term orientation index (LTO), the indulgence /restraint index (IVR), the dependency ratio (Dep), the life expectancy (LifeExp), the share of Muslim people in the total population (Muslim), the share of people participated tertiary education in total population (Edu), the natural logarithm of GDP per capita (InGDP), the social security (SS), the bank sector development (Bank), the stock market development (Stock), the real inflation rate (Inf), the average of world governance index (Ave\_WGI), common law (CL).

(column 2, column 5), the random GLS controlling autocorrelation caused by country-specific effects (column 3), Fama MacBeth model (column 4) and the cross-sectional analysis on means of time-series variables (column 6). Muslim<sub>t</sub>, CL<sub>t</sub>, and CUL<sub>t</sub> were time-invariant. Standard fixed-effects model was inappropriate since time-invariant variables were perfectly collinear with unit-specific dummy variables (Kripfganz & Schwarz, 2019). Meanwhile, individualism and uncertainty avoidance capture 90% country fixed effects (Griffin et al., 2017). Thus, we do not control country-specific effects in this study.

### V. Results and Discussion

#### A. For Developed Countries

Table 4 illustrates the operational dynamics of national cultural dimensions across 28 developed countries while factoring in demographic, economic, and institutional variables.

The dependency ratio within developed countries displays a notably positive correlation with life insurance consumption in columns (1), (5), and (6) at a 1% significance level. This finding resonates with the research conducted by Browne & Kim (1993) and Beck & Webb (2003). Wage earners with greater dependent responsibilities tend to be more inclined towards procuring life insurance, thereby ensuring substantial financial protection for their dependents.

The coefficients associated with GDP per capita consistently maintain a positive and statistically significant relationship, except in column (4), aligning with previous studies by Dragos (2014). The increased income equips consumers with higher disposable incomes, facilitating their ability to afford life insurance coverage. Notably, the coefficients related to social security portray a significant negative association across all regressions except in column (3), mirroring the findings of research by Feyen et al. (2011) and Hodula et al. (2021). The prevalence of a robust social security system within developed nations provides alternatives to commercial life insurance, thereby diminishing individuals' reliance on life insurance. Furthermore, the coefficients associated with stock market development consistently display a significantly positive relationship across four models, aligning with the research conducted by Cummins & Rubio-Misas (2021). The presence of well-established stock markets empowers insurance companies to invest with premiums efficiently.

In terms of institutional factors, the variable Ave\_WGI demonstrates a significant negative correlation with life insurance consumption across columns (2), (5), and (6). This suggests that within developed countries, a higher Ave\_WGI may escalate the compliance cost for insurance companies. Consequently, this cost elevation could lead to a hike in life insurance prices, potentially reducing the overall life insurance consumption (Franks et al., 1998).

Shifting to national cultural dimensions, their impact on life insurance consumption in developed countries is less pronounced than initially anticipated. Surprisingly, individualism, power distance, and uncertainty avoidance do not significantly correlate with the demand towards life insurance in developed countries. This analysis result challenges the hypotheses outlined in H1, H2, and H4, albeit in line with findings similar to those of Chui & Kwok (2008), albeit with a weaker effect. However, masculinity displays a noteworthy negative correlation with life insurance density and penetration across columns (2), (5), and (6). Life insurance consumption in developed countries characterized by lower masculinity surpasses that in nations with higher masculinity scores. This finding corroborates earlier studies (Chui & Kwok, 2008; Park & Lemaire, 2011), supporting H3. In societies with lower masculinity, apart from sensitivity towards the needs of dependents, the prevalence of dual-income family structures facilitates greater affordability of life insurance through multiple income sources.

The correlation analysis reveals a significant positive relationship between Long-term Orientation (LTO) and life insurance consumption across columns (1), (2), (5), and (6) at a 1% significance level. Notably, individuals residing in developed countries characterized by high-LTO cultural orientation exhibit a higher propensity to purchase life insurance products than those in nations with a low-LTO culture. This finding supports H5 and aligns with Park & Lemaire (2011)'s research. The wealth accumulation aspect of life

VARIABLES	Pooled GLS (1)	FGLS(2)	GLSAR(3)	Fama(4)	FGLSPene(5)	CSTS(6)
Dep	0.0396***	0.0030	0.0085	0.0172	0.0587***	0.0334***
	(4.053)	(0.398)	(0.726)	(0.152)	(2.645)	(2.871)
LifeExp	0.0335	0.0526***	0.0439	-0.1127	-0.0124	-0.1312***
	(1.129)	(2.953)	(1.563)	(-0.397)	(-0.296)	(-7.571)
Muslim	-0.0102	-0.0017	0.0394	-0.0769	0.0653	0.0046
	(-0.782)	(-0.132)	(1.066)	(-0.735)	(1.314)	(0.529)
Edu	0.0014	0.0051***	0.0031	-0.0033	0.0045	0.0046***
	(0.800)	(3.718)	(1.409)	(-0.182)	(1.028)	(4.125)
lnGDP	1.3499***	1.3861***	1.1011***	1.9826	1.3036***	1.2416***
	(10.685)	(14.832)	(8.185)	(1.272)	(4.610)	(12.268)
SS	-0.0113***	-0.0133***	0.0018	-0.0282*	-0.0277***	-0.0152***
	(-3.867)	(-6.256)	(0.347)	(-1.740)	(-4.106)	(-10.917)
Bank	0.0042***	0.0011*	0.0004	0.0038	0.0037*	0.0012
	(3.487)	(1.852)	(0.423)	(0.340)	(1.671)	(1.370)
Stock	0.0035***	0.0005	-0.0007	0.0128**	0.0055***	0.0050***
	(4.234)	(1.074)	(-1.276)	(2.191)	(3.228)	(9.173)
Inf	-0.0595***	-0.0109	-0.0075	-0.1209	-0.0147	-0.4759***
	(-2.679)	(-1.635)	(-1.113)	(-1.062)	(-0.909)	(-8.874)
Ave_WGI	-0.1010	-0.2122*	-0.0847	-1.4984	-1.0329***	-0.2389*
	(-0.627)	(-1.929)	(-0.610)	(-0.927)	(-3.610)	(-1.684)
CL	0.1951*	0.1561	0.3354	0.1675	1.1471***	0.1068
	(1.791)	(1.463)	(1.089)	(0.523)	(3.098)	(1.254)
IDV	0.0006	0.0074**	0.0029	0.0189	-0.0066	0.0079***
	(0.219)	(2.498)	(0.417)	(0.962)	(-0.551)	(3.271)
PDI	-0.0015	-0.0058**	-0.0071	0.0078	-0.0092	-0.0050***
	(-0.643)	(-2.127)	(-0.982)	(0.439)	(-1.062)	(-4.100)
MAS	-0.0026	-0.0063***	-0.0060	-0.0187	-0.0161*	-0.0073***
	(-1.640)	(-3.179)	(-1.201)	(-1.671)	(-1.701)	(-6.360)
UAI	-0.0029	-0.0023	-0.0067	0.0150	-0.0024	0.0006
	(-1.381)	(-1.018)	(-1.216)	(1.064)	(-0.391)	(0.414)
LTO	0.0109***	0.0167***	0.0101	0.0109	0.0383***	0.0056***
	(4.817)	(6.295)	(1.451)	(0.799)	(4.578)	(2.729)
IVR	-0.0198***	-0.0098**	-0.0087	-0.0218	-0.0255	-0.0276***
	(-5.723)	(-2.372)	(-0.801)	(-1.374)	(-1.547)	(-13.100)
Constant	-10.9066***	-11.7035***	-8.4586***	-4.6894	-9.9076***	4.8683***
	(-5.688)	(-9.879)	(-3.090)	(-0.365)	(-2.976)	(2.889)
Observations	377	377	377	377	377	616
Wald chi-square	1414	3015	383.6		540.5	
$R^2$	0.807	0.806	0.703	0.991	0.531	0.827
Adj-R <sup>2</sup>	0.798	0.785	0.689	0.825	0.479	0.822

Table 4. Determinants of life insurance in developed countries

Note: \*\*\*, \*\* and \* means significance at 1%, 5% and 10% level. Z-statistics in parentheses. Year fixed effects are included but not reported. We compute  $R^2$  and Adj- $R^2$  for FGLS by assessing correlation between the observed response and the predicted response. We use the overall  $R^2$  and Adj- $R^2$  for GLS.

insurance coincides with thrift advocated in LTO cultures, as observed by Hofstede et al. (2010) and Mahdzan & Victorian (2013).

However, the relationship between Indulgence vs. Restraint (IVR) and life insurance consumption displays a significantly negative correlation in three out of six regressions. This contradicts to our initial hypothesis H6 and diverges from the findings of Trinh et al. (2016) regarding non-life insurance. Aggarwal and Goodell (2018) note a positive relationship between sovereign wealth fund governance and IVR due to enhanced freedom of speech in high-IVR nations. This result suggests that high-IVR developed countries may possess superiorly managed social security systems funded through sovereign wealth funds, potentially replacing the commercial life insurance.

#### B. For Developing Countries

Table 5 presents an analysis of the factors influencing life insurance consumption across 29 developing countries. Demographic factors are a consistent negative correlation between the dependency ratio and life insurance demand except for column (3). The presence of more dependents tends to elevate living expenses, thereby reducing the portion of remaining household income allocated to life insurance purchases (Alhassan & Biekpe, 2016).

In contrast, life expectancy exerts a consistently positive and significant impact on life insurance demand across most columns, except for columns (4) and (6). The rationale behind this relationship lies in the fact that a higher life expectancy encourages the accumulation of wealth, consequently making life insurance more appealing due to the financial burden raising from accumulated human capital losses which is caused by mortality risk (Ward & Zurbruegg, 2002).

However, the regression models consistently show significantly negative coefficients for the percentage of Muslims in the total population. This trend aligns with the findings of Browne & Kim (1993) and Feyen et al. (2011). It suggests a tendency of lower demand for life insurance within Islamic countries.

When considering economic factors, the relationship between life insurance demand and various indicators including GDP per capita, social security, and stock market development aligns with the observed trends in developed nations. Additionally, our analysis indicates consistently positive coefficients for bank development across five models. A well-established banking system offers extensive distribution channels for life insurance products, potentially bolstering their accessibility (Gaganis et al., 2020).

Moreover, our findings reveal statistically significant negative coefficients for inflation across most models, except in column (5). Inflation adversely affects life insurance consumption (Canh et al., 2021). Inflation undermines the future value of life insurance policies and presents challenges in accurately pricing such policies due to its erosive effects on time value.

The coefficient of Ave\_WGI remains positively significant in all regression models. This is in line with the findings of Beck & Webb (2003) and Chang & Lee (2012). A well-developed institutional environment improves life insurance demand by enhancing policyholders' confidence through reducing information asymmetry and transaction costs in developing countries.

The impact of national culture on life insurance consumption is pronounced in developing nations. Both individualism and power distance significantly correlate with life insurance consumption in developing countries. These are consistent with the findings of Chui & Kwok (2008) and support both H1 and H2. Our findings differ from those of Park et al. (2002) and Park & Lemaire (2011) because we apply different control variables. In societies with high IDV scores, since reliance on others is deemed as weakness, a market-based life insurance policy rather than financial support from relatives is preferred. In societies with significant power inequality, subordinates grant authority to their superiors, and in return, superiors protect the financial well-being of subordinates' dependents who may suffer from the mortality of subordinates. As a result, life insurance for subordinates in high-PDI societies is less necessary than for those in low-PDI societies. The absence of a significant correlation between masculinity and life insurance consumption indicates a lack of support for H3.

The relationship between uncertainty avoidance and the demand for life insurance presents a

statistically significant negative trend across various columns, as highlighted in Outreville's study (2018). This trend notably deviates from the expected pattern in columns (4) and (6). Such an intriguing deviation challenges hypothesis H4 and contradicts previous

Table 5. Determinants of life insurance in developing countries

VARIABLES	Pooled GLS(1)	FGLS(2)	GLSAR(3)	Fama(4)	FGLSPene(5)	CSTS(6)
Dep	-0.0329***	-0.0110***	0.0060	-0.0345*	-0.0173***	-0.0570***
	(-6.812)	(-2.650)	(0.865)	(-1.862)	(-3.586)	(-15.895)
LifeExp	0.0435***	0.0373***	0.0452**	-0.0286	0.0673***	0.0058
	(3.055)	(3.223)	(2.006)	(-0.510)	(4.424)	(0.811)
Muslim	-0.0057***	-0.0037***	-0.0098***	-0.0067**	-0.0100***	-0.0066***
	(-5.106)	(-2.964)	(-2.905)	(-2.092)	(-6.703)	(-9.889)
Edu	-0.0051*	0.0001	0.0029	-0.0192	0.0027	-0.0116***
	(-1.675)	(0.041)	(0.901)	(-1.277)	(0.871)	(-1.773)
lnGDP	0.0475	0.7258***	0.6723***	0.0132	0.0601	0.0870***
	(0.658)	(12.373)	(7.406)	(0.087)	(0.784)	(2.988)
SS	-0.0014	-0.0057**	-0.0034	-0.0062	-0.0239***	-0.0136***
	(-0.367)	(-2.328)	(-0.930)	(-0.658)	(-6.280)	(-7.474)
Bank	0.0038**	0.0038***	0.0046***	0.0111***	-0.0017	0.0076***
	(2.559)	(3.235)	(2.775)	(2.833)	(-1.079)	(6.604)
Stock	0.0061***	0.0016***	0.0014**	0.0050	0.0069***	0.0062***
	(6.105)	(3.383)	(2.554)	(1.413)	(7.803)	(6.951)
Inf	-0.0325***	-0.0095***	-0.0149***	-0.0768*	-0.0007	-0.0234***
	(-5.325)	(-4.212)	(-5.366)	(-1.832)	(-0.268)	(-4.849)
Ave_WGI	0.9725***	0.4291***	0.2134*	0.9639***	0.2484***	1.1164***
	(11.713)	(4.702)	(1.815)	(3.126)	(2.973)	(19.984)
CL	-0.0842	0.2829**	0.1798	-0.4545**	1.0078***	0.1979***
	(-0.748)	(2.015)	(0.553)	(-2.299)	(5.575)	(3.172)
IDV	0.0161*** (4.389)	0.0227*** (4.705)	0.0144 (1.511)	0.0220** (2.818)	0.0278*** (6.288)	0.0196*** (8.792)
PDI	-0.0073**	-0.0203***	-0.0249**	0.0058	-0.0712***	-0.0030
	(-2.306)	(-5.086)	(-2.443)	(0.788)	(-12.222)	(-1.606)
MAS	0.0069* (1.902)	-0.0059 (-1.220)	0.0126 (1.185)	-0.0047 (-0.598)	0.0068 (1.531)	0.0101*** (3.807)
UAI	-0.0115***	-0.0280***	-0.0258***	0.0075	-0.0197***	0.0025
	(-3.791)	(-8.973)	(-3.192)	(0.684)	(-6.337)	(1.479)
LTO	0.0157***	0.0166***	0.0122*	0.0075	0.0370***	0.0106***
	(6.414)	(7.048)	(1.797)	(0.656)	(11.252)	(8.415)
IVR	0.0241***	0.0259***	0.0222***	0.0192**	0.0273***	0.0258***
	(9.991)	(13.066)	(3.141)	(2.692)	(8.099)	(17.950)
Constant	0.2038	-4.1053***	-4.6893**	5.7367	8.7204***	4.7436***
	(0.170)	(-4.054)	(-2.067)	(1.237)	(7.421)	(5.486)
Observations	370	370	370	370	370	638
Wald chi-square	2866	10827	769.3		1021	
$\mathbf{R}^2$	0.896	0.897	0.817	0.988	0.888	0.927
Adj-R <sup>2</sup>	0.890	0.885	0.808	0.987	0.876	0.925

researches (Chui & Kwok, 2008; Park & Lemaire, 2011; Park et al., 2002).

One plausible explanation for this discrepancy lies on the composition of our research dataset, which comprises a larger proportion of samples from developing countries in recent periods compared to previous studies. In societies characterized by a high uncertainty avoidance index (UAI), the presence of a robust social insurance system, considered as the fundamental for maintaining societal order (Hofstede, 1995), serves as an alternative to life insurance. Furthermore, individuals driven by heightened anxiety in high-UAI societies might favor aggressive risk-hedging approaches over life insurance (Park et al., 2002).

Furthermore, in low-UAI societies, individuals tend to change jobs more frequently than those in high-UAI societies. Thus, purchasing life insurance in low-UIA societies is more often as people tend to buy life insurance after getting a new job (Hofstede et al., 2010; Liebenberg et al., 2012).

The correlation between long-term orientation and life insurance consumption generally appears positive, except in column (4). Same trends have been found and explained in the discussion of developed countries.

The association between indulgence and life insurance consumption exhibits a notably strong positive correlation across all regression models. This implies that individuals in high-indulgent developing countries tend to allocate more income towards life insurance than their counterparts in low-indulgence developing nations, which is a departure from Trinh et al. (2016)'s conclusions. Residents of highindulgence societies typically uphold higher living standards than those in low-indulgence societies. As a precautionary measure to maintain household living standards following the mortality of income providers, the inclination to purchase life insurance is favored. Here life insurance serves as the bequest offering financial benefits (Bernheim, 1991; Mahdzan & Victorian, 2013).

Additionally, in high-indulgence societies, a sensitivity towards positive life events exists. These milestones in the life cycle tend to encourage a higher uptake of life insurance (Mahdzan & Victorian, 2013; Zakaria et al., 2016). The perception of control over life, an integral facet of indulgence (Hofstede & Minkov, 2010), can be reinforced through the preparing life insurance.

#### VI. Conclusions

Our research explores the various impact of national culture on life insurance consumption in both developed and developing countries. Table 6 summarizes all results in both developed and developing countries. Notably, we find distinct influences of national culture across nations, with significant variations between developed and developing countries, particularly regarding the dimension of Indulgence vs. Restraint (IVR). In developed countries, a negative correlation is observed between IVR and life insurance consumption, while in developing countries, IVR positively influences consumption.

Furthermore, our study identifies contrasting correlations between dependency ratios and life insurance demand in developed and developing countries. Additionally, we note significant relationship between the Average World Governance Indicators (Ave\_WGI) and life insurance demand, showing opposite trends across both country groups.

#### A. Contribution and Limitation

Our research investigates the influence of national culture, specifically the dimension of IVR, on life insurance consumption in developed and emerging nations. Since most research has concentrated on life insurance market in either the developed or developing countries, our study complements for existing literatures.

Using data spanning from 1996 to 2020, our study focuses primarily on North American and African nations, representing diverse developing countries.

Determinants of life insurance	Developed Countries	Developing Countries
IDV	Insignificant	Significantly Positive
PDI	Insignificant	Significantly Negative
MAS	Significantly Negative	Insignificant
UAI	Insignificant	Significantly Negative
LTO	Significantly Positive	Significantly Positive
IVR	Significantly Negative	Significantly Positive
Dep	Significantly Positive	Significantly Negative
LifeExp	Insignificant	Significantly Positive
Muslim	Insignificant	Significantly Negative
Edu	Insignificant	Insignificant
lnGDP	Significantly Positive	Significantly Positive
SS	Significantly Negative	Significantly Negative
Bank	Insignificant	Significantly Positive
Stock	Significantly Positive	Significantly Positive
Inf	Insignificant	Significantly Negative
Ave_WGI	Significantly Negative	Significantly Positive
CL	Insignificant	Insignificant

Table 6. Summarize the analysis results

These areas, characterized by high IVR scores, play pivotal roles in the global economic landscape and civilization (Chand, 2022).

However, the study has certain limitations. The national cultural dimensions examined within this research remain static. However, it is crucial to recognize that these dimensions, rooted in cognitive psychology and the human psyche, are inherently fluid. While undergoing rapid changes, they are subject to fluctuations over time.

#### B. Recommendation for Implication

Expanding life insurance business globally requires a profound understanding and adaption to different national cultures. Particularly, in consideration of IVR, insurance companies shall reassess their life insurance product distribution strategies. This involves prioritizing the allocation of life insurance products in high-IVR developing countries, while adopting a more conservative strategy in high-IVR developed countries where a mature social security system can partially fulfill the role of commercial life insurance.

Investors of insurance should exercise caution when the company tends to enter into developed countries with high-IVR or high-MAS scores, or developing countries characterized as high-PDI or high-UAI countries. Entering into the life insurance markets in these countries can be risky for insurance companies and may further destroy the wealth of investors.

#### C. Recommendation for Future Study

The academic contribution of this study lies in addressing the inherent challenges faced by multinational companies, particularly in the context of operating in diverse cultures. Navigating in different cultures can be both difficult and costly (Sabin, 2004). This challenge is pertinent for multinational insurance companies. Chang et al. (2012) further highlight the significance of national culture distance in influencing the performance of companies engaged in overseas operations. Hence, future scholars may investigate whether the national cultural distance between the country where an insurance company is located and the country where it conducts its life insurance business undermines the performance of the multinational insurance companies.

Furthermore, after the COVID-19 pandemic, investment portfolio worldwide encounters significant challenges (Isa & Daukin, 2022), including in life insurance markets. A crucial and timely of study will be investigating the role of national culture in recovery of life insurance markets post-COVID-19. This exploration can provide valuable insights and strategies for the rehabilitation of life insurance markets and enhancing their future resilience.

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