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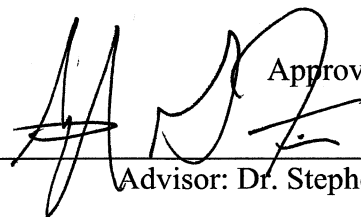
What Factors Drive the Development of Insurance Markets?
A Comparison Between Developed and Developing Countries

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By Lily Juan Van Elderen

A thesis submitted to the faculty of The University of Mississippi in partial fulfillment of
the requirements of the Sally McDonnell Barksdale Honors College.

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Abstract

LILY JUAN VAN ELDEREN: What Factors Drive the Development of Insurance Markets?

A Comparison Between Developed and Developing Countries

(Under the direction of Dr. Stephen Fier)

In this study, I use a sample of twenty-one developed and developing countries to examine (1) the country-specific factors related to non-life insurance market development and (2) how factors differ between developed and developing countries. Insurance density, penetration, and total premiums were used as dependent variables to proxy for the insurance market while GDP, inflation, population, fuel exports, population growth, gender, population density, and legal system are used as country-specific independent variables. A comparison of means was conducted to evaluate differences in the dependent variables across the developing and developed countries. Furthermore, regression analyses were conducted to examine the relationships that exist between the independent and dependent variables. Overall, the results from this study indicate there are key differences that exist between developed and developing countries when it comes to non-life insurance market development.

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List of Abbreviations

BRIP	Benchmark Ratio of Insurance Penetration
CPI	Consumer Price Index
EVI	Economic and Variability Index
GDP	Gross Domestic Product
GNI	Gross National Income
HAI	Human Asset Index
HDI	Human Development Index
LDC	Least Developed Country
OECD	Organisation for Economic Co-operation and Development
OLS	Ordinary Least Squares
UN	United Nations
WESP	World Economic Situation and Prospects

Introduction

Insurance, as defined by the Oxford Dictionary, is the practice or arrangement by which a company or government agency provide a guarantee of compensation for a specified loss in return for a payment premium. Several prior studies have investigated the impact of insurance market development on economic growth and vice versa. Insurance has been found to have a positive affect on economic investment, output, competition, and innovation (Feyen et al., 2011). However, while evidence suggests that there is a positive relation between insurance market development and economic growth, much less research has been done on what drives the insurance market development. Given the relatively little empirical research has examined the factors which impact insurance market development, researchers have concluded that further research is warranted. If insurance market development does influence economic development, developing a better understanding what drives national insurance markets is important. Therefore, the purpose of this paper is to study the relationship between country-specific factors and their effects on insurance market development and how those relations may differ across developed and developing countries.

The topic of this study is important for several reasons. First, while insurance market development can be seen as beneficial in that it may promote economic growth, it can also be viewed negatively from a moral hazard perspective. The insurance market can be a net positive as it plays a critical role in an economy by acting as a risk bearing mechanism and financial intermediary channel for premiums to be invested. Insurance markets can additionally help to improve the efficiency of other financial sectors, such as banking and capital markets, by reducing losses through credit. Furthermore, insurance

markets help to drive economic progress by providing jobs, contributing to a country's gross domestic product, and tax payments. The US Department of Labor recently reported over 2.6 million workers in the insurance industry. Despite the millions in losses paid out by insurers each year, many of these settlement claims are paid out to businesses which allows them to operate, thus creating jobs and tax payments to drive the economy and contributing to charities.

In contrast, moral hazard induced by the development of the national insurance market can be viewed as having an unfavorable effect on an economy. Moral hazard is the idea that an individual or party may act indifferent to various risks due to the underlying idea that insurance will indemnify. For example, investors building several high-rises in flood-prone areas with the belief that insurance will cover losses if they occur. Rising sea levels caused by climate change have started to change people's minds about living on the waterfront in flood-prone areas and there is evidence that there has been a shift in people's preferences of where they want to live (Tolan, 2021). Higher ground neighborhoods are seen as more desirable which has caused real estate prices to increase dramatically in these areas relative to prices in flood zones. However, the demand for coastal property remains high which has led investors to continue building in these coastal areas. A Harvard Business Review study revealed that people tend to overvalue short-term benefits such as oceanfront property while failing to see the long-term outcomes of potential losses due to the increasing intensity of climate change. While insurance markets provide several advantages for an economy, it could have the effect of exacerbating the moral hazard problem or even encouraging the existence of poor infrastructure. Another drawback of increasing insurance market development is the increased potential for fraud. In particular,

insureds may participate in fraudulent activity or commit criminal crimes in order to collect on loss payouts while fraud caused by insurance agencies can lead to distrust and a negative perception of the market.

The topic addressed in this study is also important I focus exclusively on non-life insurance market development. Non-life insurance includes lines of business such as auto, homeowners, and commercial, and any other lines of insurance not related to life insurance. This coverage is very common and not only covers individuals but also businesses. According to the 2022 Non-life Insurance Market Summary report, global non-life insurance premiums have grown at a rate of 4.8% from 2016-2020 (MarketLine, 2022). This indicates that the non-life insurance market has grown increasingly important to the world economy and thus developing a better understanding of what factors relate to non-life insurance market development is important.

This study was conducted to primarily look at these country-specific factors that drive the insurance market development and their relations in both developed and developing countries. I conduct this analysis by comparing the means of measures for insurance market development across developing and developed countries and also use regression analysis which allows me to consider the influence of multiple country-specific factors on insurance market development. Based on the results of my analyses, I find that developed countries tend to have higher levels of insurance market development than developing countries and that various country-specific factors such as population growth, population density, legal system, and the importance of fuel exports all impact the degree to which national insurance markets are developed.

Literature Review

A review of several studies written over the past 30 years share the consensus that the development of insurance markets may contribute to economic growth. Although there are several articles emphasizing the important role of financial institutions in the economy, there has been much less research done on the economic impact of the insurance market. The insurance market plays a key role alongside banking and capital markets in a country's financial sector. In fact, the total assets of insurance companies grew faster than that of banks during the 1990s according to Davies, Podpiera, and Das (2003). Benefits from the presence of an insurance market include risk transfer, indemnification, and financial intermediation which help to manage risk more efficiently. By minimizing uncertainty and reducing the impact of large losses, insurance can encourage innovation and competition. In addition, insurance helps to promote financial resources through the collection of premiums which in turn is invested to support the economy.

According to a 2018 Deloitte Insights report, the service sector has continued to account for a large proportion of the world's gross domestic product over the past several years (Buckley, 2018). The world insurance market, which comprises a significant proportion of the service industry, has grown at a rate of 10 percent each year since the 1950s as stated in Browne and Kim (1993). Past research, such as (Outreville 1996), has found that national insurance markets is essential to economic growth. Prior literature has shown that some countries' economies have grown more than others while others have not grown at all. Factors including social, economic, institutional, and demographic background not only affect market development but also the speed of economic growth.

Although many prior researchers have found a relationship between insurance market development and economic growth, some of the results from the studies vary.

Wanat, Papiez, and Smiech (2016) completed a cross-sectional dependence and country-specific heterogeneity analysis of a ten transition European Union member countries from a period of 1993-2013. The authors used gross domestic product (GDP) and insurance density, in addition to capital and education levels, to conclude that further research should be done on a per-country basis to determine the relationship between insurance market development and economic growth. Despite their findings being consistent to the results of similar studies, the results were not the same as those obtained by Curak, Loncar, and Poposki (2009). The research was conducted with the same group of countries but used a broader set of economic control variables, including inflation and investment, to find that insurance market development both positively and significantly promotes economic development.

Some studies, including Ward and Zurbruegg (2000) and Kramaric and Galetic (2013), analyzed the insurance penetration and per capita income of a range of countries to determine that market growth has an “S-curve” trend. The curve starts out sharp before increasing. The smooth increase shows how insurance development corresponds with countries in both lower and higher stages of development. Non-life insurance markets also proved to have a bigger effect on developed countries versus developing countries. Countries with lower GDP per capita tended to have relatively lower rates of insurance penetration. Furthermore, reports demonstrate that insurance markets have continued to develop over the last several years.

Existing literature, such as Outreville (1990) and Wanat, Papiez, and Smiech (2016), used insurance premiums, insurance density, and insurance penetration in their research to make comparisons of insurance growth levels across multiple countries. Although

premium income measures the overall scale of the insurance market in each country, it fails to factor in the population element into its measurement. Insurance density is the ratio of premiums written to population which addresses the population factor concern but does not explicitly account for the relationship between the economy and insurance market. Several papers, including Kramaric (2013) and Phutkaradze (2014), used insurance penetration to determine if insurance market development influenced economic growth. It is calculated as the ratio of direct premiums written to a country's gross domestic product. The method captures the relative size and the importance of insurance in an economy but does not reflect that countries' different stages of development affects insurance penetration rates. Since none of these methods are ideal for accurately measuring insurance growth relative to economic growth, Zheng, Liu, and Deng (2009) proposed the Benchmark Ratio of Insurance Premium (BRIP) to solve the limitations of the previous measures. This measure was intended to be used to better understand insurance market growth on the international level. The measure considers the relationship with insurance penetration in addition to a country's population, economy, economic development stage and the scale of the current market. Zheng, Liu, and Deng (2009) concluded that level of insurance growth was increasing in developing countries in contrast to the decline seen in developed countries. Despite the rapid growth in development in emerging markets, the growth level in industrialized countries remains higher than that of developing countries.

Wanat, Papiez, and Smiech (2016) found the relationship between insurance market development and the economy can be categorized into three main topic groups. The first group of studies, including Feyen, Lester, and Rocha (2011), identify numerous factors, such as inflation, population density, and religion, which drive the development and

demand for insurance markets. Rosseau and Wachtel (2002) found that the relationship between inflation and economic growth is not as strong as the connection between financial sector development and economic growth. For a causal relationship to exist, inflation must maintain threshold effects that can be difficult to identify. The second set of articles, including Outreville (2013), have focused on the economy's influence over insurance market development. Lastly, a third set of studies examine the causal relations and the impact between insurance market and economic growth using variables such as insurance premiums, gross domestic product, and population density.

Prior literature has examined all of the three aforementioned topics, but this paper will focus only on the first two groups as the insurance market has rapidly grown over the past several years, especially in emerging markets which have seen almost double the growth in insurance development from 1997 to 2004 versus that of developed countries (Arena 2008). This leads to the question of which factors are currently driving insurance market development, both across developed and developing countries. Ward and Zurbruegg (2000) examined both the short- and long-term relations of economic growth and insurance market development exhibited in nine OECD member countries from 1961-1995. Their research included conducting a causality test to determine whether there was a relationship between economic growth and insurance market development and whether it followed a supply-leading or demand-following relation. Although their findings were inconclusive, many other researchers including Patrick (1996) have been able to provide evidence of a supply-leading relationship, where insurance market development leads to economic growth. Furthermore, the findings have suggested that other factors should be considered to understand the relationship more accurately. Regulatory framework and

cultural traditions are also likely to influence a country's attitude towards risk and possibly even the use of insurance as a risk management technique. Therefore, the influence of insurance markets on economies varies due to these country-specific characteristics.

Han, Li, Moshirian, and Tian (2010) acknowledged the findings of previous researchers that concluded that insurance activities had a positive impact on economic growth. However, the authors completed an empirical analysis of 77 economies to determine if the impact varied across different countries and lines of insurance business. The dataset was not only split into life and non-life insurance but also developed and developing economies. Inflation rate, trade balance, and gross fixed assets were utilized as variables alongside gross domestic product and insurance density for a cross-sectional and time series data examination to review the chosen economies over the period from 1994-2005. Results from the study reveal that overall insurance market development has a much larger influence in developing countries than in developed economies. A strong non-life insurance market was also revealed to have a greater impact on economic growth in developing countries.

Although many studies indicate that country-specific variables should be considered when analyzing economic growth and insurance market development trends, there is not a consensus as it relates to the relations that exist. Born and Bujakowski (2019) evaluated the development of life and non-life insurance markets in post-transition European countries. Their research initially involved exploring variations in the insurance markets of the selected countries to determine which factors had the greatest impact on market development. The authors identified affordability of premiums, comprehension of insurance products, trust of insurance companies, and need for coverage as country-specific

economic factors that affect a country's insurance density. Affordability and availability play a vital role in the demand for insurance. Affordability can be influenced by a variety of factors such as the options available and the competitiveness of the current insurance market. A lower average income of a population will also decrease the demand for insurance as individuals will be less inclined to purchase if it is out of their price range. Furthermore, individuals will also be less likely to obtain insurance if they do not understand its purpose. Beck and Webb's (2003) evaluation of life insurance consumption across the multiple economies concluded that higher levels of education were positively correlated with insurance market demand. Another consideration for explaining variations in insurance density across the selected dataset is the population's trust in the insurance markets. Insurance products can be difficult to evaluate due to the long period of time which may exist between the payment of premiums and the services received. Lastly, the need for coverage varies by economy due to state-sponsored and universal healthcare programs. Born and Bujakowski's (2019) findings found that affordability, comprehension, and trust for insurance companies had the biggest impact on market demand.

Browne, Chung, and Frees (2000) conducted research of 25 OECD countries which account for a considerable proportion of overall world non-life insurance market. The authors analyzed the variation in property-liability insurance demand to identify which economic conditions affect the demand for insurance across different lines of insurance. This particular study differed from that of prior studies as the researchers analyses focused on specific lines of business as opposed to simply combining insurance purchases across all lines of property and casualty insurance. The use of disaggregated data allowed for testing of country-specific characteristics, such as education levels and income, to

determine whether these factors influence household and business insurance consumption. The study particularly focused on motor vehicle and general liability coverages. A majority of motor vehicle insurance is purchased by individuals in contrast to general liability insurance that is purchased by businesses. The researchers used characteristics such as income, risk aversion, wealth, probability of loss, and insurance price to find which factors influence property and casualty insurance demand the most. The results demonstrate different lines of insurance coverage are affected by both economic and demographic factors. Analysis of the legal system variable revealed strong statistical significance in both coverages which suggests that there is a greater insurance demand in common-law countries versus that of statutory law countries. Income was found to be positively correlated with both coverages but had a bigger effect on motor vehicle insurance. Findings further indicated that insurance consumption and level of risk aversion were positively correlated. This result was consistent with prior studies done by researchers such as Szpiro (1985) and Pratt (1964). Overall, the authors concluded that the use of disaggregated data was more favorable to explain variations of insurance consumption in different countries.

In addition to the findings discussed above, the degree of risk aversion has also been found to have positive correlation with insurance consumption. Prior researchers such as Pratt (1964) and Arrow (1965) have concluded that the more risk averse an individual is the higher amount of insurance purchased. Schlesinger (1981) confirmed this theory through his evaluation of the optimal insurance decision and its direct relation to an insured's level of risk aversion. Results from his study indicated that more insurance was purchased by individuals who had a higher degree of risk aversion, high loss probability, or a lower level of initial wealth. Outreville (2014) reviewed prior literature on risk

aversion with a specific interest in variables that affect insurance demand. His research categorized risk aversion into two main groups: measurement and magnitude, and socio-demographic variables. Gender, age, race, and religion were used as variables in the study and were found to have a clear affect over an individual's degree of risk aversion. Many studies such as Nelson (2012) support the claim that women are more risk averse than men. Age is often associated with having a significant impact on one's level of risk aversion. Riley and Chow (1992) found that an individual's risk aversion decreases with age until 65 years when it significantly increases. This is confirmed by Halek and Eisenhauer's (2001) study of risk aversion factors. In contrast, Outreville (2014) points out that "cohort effects" complicate the correlation between age and risk aversion. For example, adolescents today may be more risk averse than those who grew up during periods of economic growth. Prior research studies, such as Siegel and Hoban (1997), have analyzed the effects of race on risk aversion. Barksy, Juster, Kimball, and Shapiro (1997) found variations in risk tolerance based on race and religion. Although white people are found to be the most risk averse, Asians and Hispanics tend to be the most risk tolerant while Native Americans and blacks tend to fall somewhere in the middle. Additionally, higher risk tolerance was found to be common with Jews in contrast to Protestants who tend to be more risk averse. Another study done by Kogan and Wallach (1964) suggests that characteristics such as an individual's education, position, geographic location, prior experience, and family background can partially explain differences in individual approaches to risk. Other characteristics such as family size, marital status, level of education, and career field have remained unclear as to their relationship with risk aversion. Some may argue that these

traits may affect an individual's risk aversion while others may say that one's lifestyle choices are influenced by them.

Although numerous researchers mention socio-demographic factors affecting insurance market development, there are few papers that focus on the relationship between education and insurance market demand. Ionică, Petrescu, Ionică, and Constantinescu (2012) analyzed insured behavior to determine if level of education impacted an individual's decision to purchase insurance. Their assessment was compared to results from other socio-demographic factors such as income, gender, age, and employment. Outreville (1990) stated that the demand for insurance should increase with higher levels of education. This perception is due to the idea that those more educated are likely to not only be more aware but also better informed of the benefits of using insurance as a tool for protection. One of the key factors that influences insurance coverage is employment. The level of education can be associated with differences in career fields in addition to employment income. Therefore, potential insureds with lower levels of education will tend to have lower average incomes than that of consumers who are more educated. Jacob and Lundin (2005) found that the demand for insurance decreased with lower income levels. In contrast, consumers with higher income and education levels are more likely to purchase insurance for better healthcare options and additional security for their assets. This theory is confirmed through a study done by Sapelli and Viall (2003) where research was done to examine the relationship between education and probability of purchasing private insurance. Moreover, gender has continued to be a factor for differences in earnings potential. Prior work, such as Currie (1995), has revealed that women with equivalent education on average earn less than their male counterparts. This income differential thus

causes an indirect relationship with the level of insurance coverage obtained by an individual. A recurring trend in findings throughout similar studies, such as Halek and Eisenhauer (2001), is that education, income, and wealth tend to be highly correlated.

Hussels, Ward, and Zurbruegg (2005) examined prior literature on the legal environment's influence of insurance market development to provide guidance for policymakers seeking to promote market demand. Their findings were consistent with Esho et al. (2004) in that a higher level of legal enforcement of property rights leads to a higher insurance demand. Esho et al. (2004) further tested the effect of legal origin of a country on property-casualty insurance consumption but was unable to find a connection to insurance market growth, thus implying that there is no significant impact on insurance demand. In contrast, La Porta et al. (1997) reveals that the level of legal system of a country correlates with the amount of legal protection and enforcement. Other results indicate that the size and extent of insurance markets is dependent on the type of legal environment.

Over the past several years, there have been numerous articles published such as Gurley and Shaw (1955) regarding the role of financial institutions and their influence on economic growth. The global insurance market has continued to see a steady increase over the last several years including a 2% growth rate in 2021 despite fears of lower profits due to COVID-19 concerns according to McKinsey & Company's 2022 Outlook report (Bueno, Catlin, Deetjen, and Lorenz, 2022). Through collection of premiums and investment activities, the insurance industry is a main component of an economy. Phutkaradze (2014), Kugler and Ofoghi (2005), and Han (2010) among other prior literature have emphasized the importance of a national insurance market presence for economic growth. Although Beenstock, Dickinson, and Khajuria (1988) only included developed countries in their

study, Esho, Kirievsky, Ward, and Zurbruegg (2004) analyzed both developed and developing countries. Their findings not only found that national income is positively correlated with property-casualty insurance consumption but also imply that the demand for insurance increases as income rises. Furthermore, research conducted by Ma and Pope (2003) focused on factors that encouraged foreign insurers' interest in an economy. Factors such as gross domestic product, foreign direct investment (per capita), and real interest rate revealed that countries with a higher gross domestic product tend to attract more foreign insurer involvement thus driving an increase in market demand. Despite the study focusing mainly on developed countries, it is important to note that the high growth potential in emerging countries is expected to pique more interest from international insurers.

While prior papers have investigated the factors that drive insurance market development, limited research has examined potential differences which may exist across countries which differ on the basis of economic development status (i.e., developing versus developed countries). A developing country is defined by the United Nations as a low-income economy with lower levels of industrialization and Human Development Index (HDI) due to limited access to noneconomic factors such as education and healthcare resources. Alternatively, developed countries have relatively high levels of economic growth through industrialization and technological advances. Income levels and GDP per capita tend to be higher in developed countries as well. Therefore, the purpose of this paper is to analyze various economic factors on a per country basis to determine the differences in the factors that drive insurance market development between developing and developed economies.

Sample and Methodological Approach

Numerous researchers such as Han (2010) and Wanat et al. (2016) have provided evidence that a positive relationship exists between insurance markets and economic growth. Ward and Zurbruegg (2006) concluded that insurance market growth follows an “S-curve”. Despite the curve showing a relationship between both developed and developing countries and their insurance market growth, non-life insurance was revealed to have a greater effect on developed countries’ insurance markets than that of developing countries. Furthermore, economic characteristics vary by country due to population, area, and technology. Evidence from prior literature suggests that these characteristics influence the nature of the insurance market within an economy. As developed countries tend to be more industrialized, it can also be inferred that a positive relationship between economic factors and insurance market growth exists.

I used ordinary least squares (OLS) to study the relationship between different measures of non-life insurance market development and country-specific factors which I discuss below. Similar to prior research in Outreville (2012), total premiums, insurance density, and insurance penetration were used to proxy for insurance market development and serve as the dependent variables. The data for these variables were obtained from the OECD Insurance Statistics database and cover a 30-year time span, ranging from 1991-2020. The data for the independent variables were collected via the World Bank Open Data and World Population Review websites. Twenty-one countries, comprised of fourteen developed and seven developing countries, were selected based on their classification by the United Nations’ 2022 World Economic Situations and Prospects report representing national development. After removing observations that were missing data, the final

sample consists of a total of 449 observations, with 362 for developed countries and 87 for developing countries.

Based on prior literature and data availability, population growth, gender, GDP, inflation, population, fuel exports, population density, and legal system were selected as independent variables. These country-specific variables were included in the study as prior literature suggests they may be related to insurance market development and because Wanat et al. (2016) indicated that further research should be done with data on a per-country basis to better determine the relationship between economic growth and insurance market development. By analyzing the data from the country-specific characteristics, I can identify which factors have the biggest impact on insurance market development. Finally, I include year-specific control variables in each model.

Data and Variables

Dependent Variables

The insurance market development variables used in this study are total non-life insurance gross premiums, insurance density, and insurance penetration. The values were obtained from the OECD Insurance Statistics dataset. Due to the large spread between each of the dependent variables' minimum and maximum values, the values for the dependent variables have been logged. Similar variables were used by researchers such as Outreville (2012) and Wanat, Papiez, and Smiech (2016) to compare insurance market growth across various countries. Although total gross premiums and insurance density are both used to measure the overall scale of an insurance market in a country, insurance density also accounts for the population factor in its measurement. Furthermore, the insurance density variable does not consider the relationship between the economy and the insurance market. Insurance penetration addresses the concern by factoring GDP into its calculation. This variable, like total gross premiums, indicates the relative importance of the insurance market in an economy. Additional details about each dependent variable and their calculations can be found below.

Total Gross Premiums.

According to OECD data, gross insurance premiums are a major indicator of the importance of insurance market presence in an economy. It is defined as the total amount of non-life insurance premiums written within a country.

Insurance Density.

Insurance density is a measure of overall insurance market development within a country. It is defined as per capita premium and is calculated as the ratio of total non-life insurance premiums (in US dollars) to the population of a given country.

Insurance Penetration.

Insurance penetration can also be used to measure the development of the insurance market in a country and considers not only the demand for insurance premiums but also the relative size and importance of an insurance market. The insurance penetration rate of a country can be obtained by calculating the ratio of non-life direct premiums written to GDP expressed as a percentage.

Measures of National Development

This study was conducted using a dataset of developed and developing countries as classified by the 2022 United Nations World Economic Situation and Prospects report. A developed country is characterized as a high-income industrialized economy with advanced technological infrastructure and a high standard of living. In contrast, a developing economy is defined by the United Nations as a low-income country with poor infrastructure and lower levels of industrialization. As mentioned previously, my sample includes seven developing and fourteen developed countries. The selected countries and their locations can be found in Figure 1. Table 1 contains an overview of classifications by country.

Figure 1. Map of Developed and Developing Countries in Sample

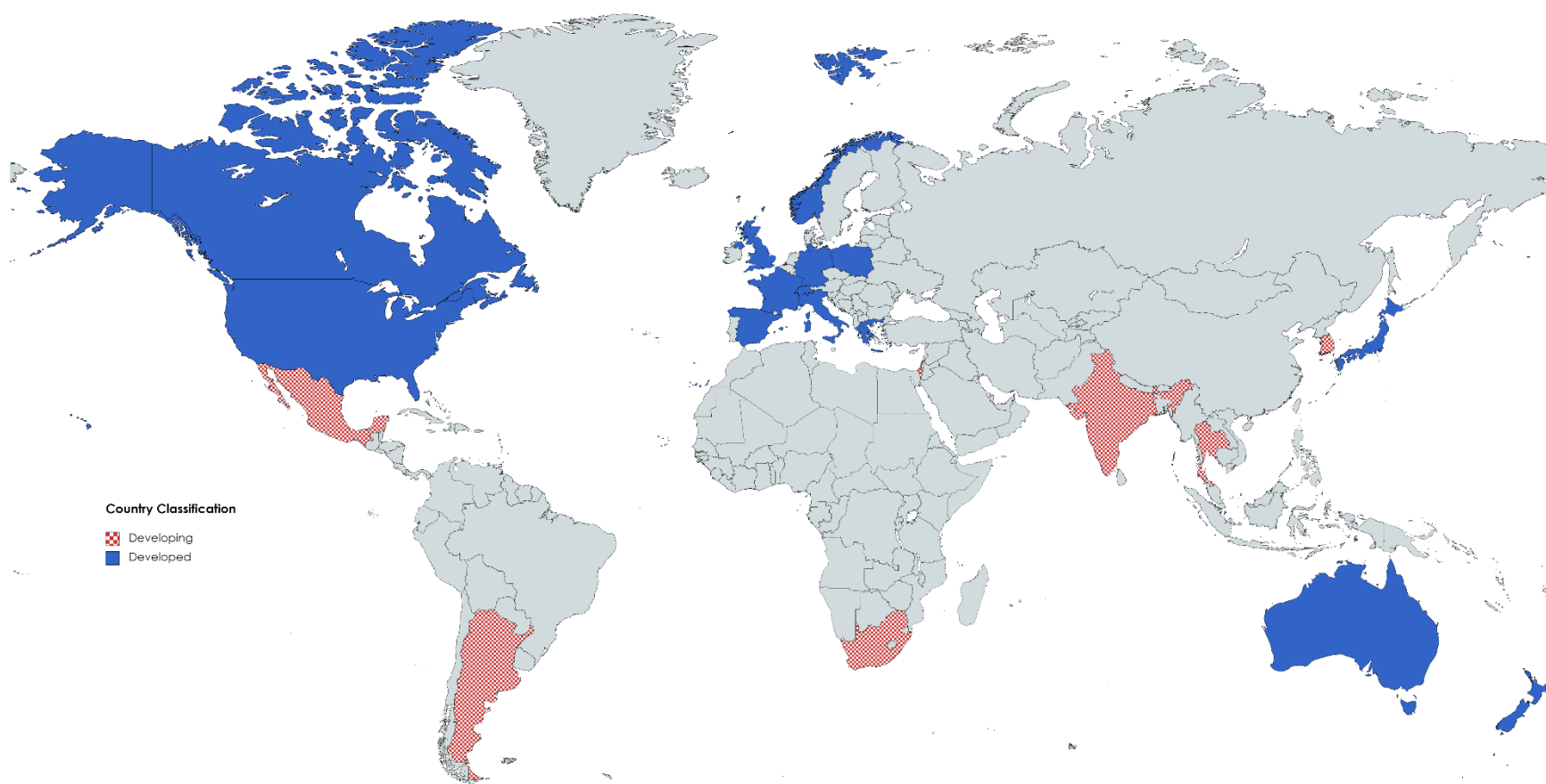


Table 1. Developed and Developing Countries in the Sample

Country	Country Code	Classification
Argentina	ARG	Developing
Australia	AUS	Developed
Canada	CAN	Developed
France	FRA	Developed
Germany	DEU	Developed
Greece	GRC	Developed
India	IND	Developing
Israel	IS	Developing
Italy	ITA	Developed
Japan	JPN	Developed
Mexico	MEX	Developing
New Zealand	NZL	Developed
Norway	NOR	Developed
Poland	POL	Developed
South Africa	ZAF	Developing
South Korea	KOR	Developing
Spain	ESP	Developed
Switzerland	CHE	Developed
Thailand	THA	Developing
United Kingdom	GBR	Developed
United States	USA	Developed

Independent Variables

A discussion of the independent variables used in this study as well as relevant literature is provided below. The data for the research was obtained from both the World Bank Open Data and World Population Review websites.

Gross Domestic Product (per capita).

Gross domestic product (GDP) is the sum of private consumption, business investment, government spending, and net exports. Gross domestic product per capita can be obtained by dividing GDP by the population. The GDP variable used for the study was logged due to the large spread between the minimum and maximum values.

Inflation (GDP Deflator).

The rate of price change in an economy can be shown by inflation measured by the annual rate of growth of the GDP deflator. This is calculated by dividing nominal GDP by real GDP and then multiplying by 100. The inflation a factor has proved to be a recurring factor in determining the positive relationship between insurance market development and economic growth as evidenced by Curak et al. (2009) and Han et al. (2010). Researchers such as Feyen et al. (2011) and Rosseau et al. (2002) also found a positive trend between insurance demand and the financial sector.

Population Density.

Population density measures the number of individuals per unit of the area within a specified area. It is determined by dividing the population by the square mile/kilometer of an area. Prior literature, such as Feyen et al. (2011), used population density in addition to GDP and premiums to test not only the causal relationship but also the impact between economic and insurance market development.

Gender (% female).

Percentage of the female population to the total population. Prior studies, such as Outreville (2014), analyze the socio-demographic variables that affect an individual's risk aversion. Evidence from the research was done by Nelson (2012) shows that women are more risk averse than men which I believe could impact non-life insurance market development.

Population Growth (annual %).

Annual population growth is the increase in the number of people each year for a specified area, calculated as a percentage change. All residents of a specified area regardless of legal status or citizenship are included in the population count. Although the prior literature does not explicitly name population growth as directly impacting insurance market development, there is evidence of a correlation between population growth and other financial market factors, as discussed by Barlow (2014).

Population.

All residents of a specified area, regardless of citizenship or legal status, are between the ages of 15-64 years as a percentage of the overall population.

Legal System (Common Law).

Legal rulings in common law countries are based on past legal precedents or judicial rulings rather than statutes. Common law courts review similar past cases to apply the principles of those cases to make decisions in current cases. Judges can revisit these past court outcomes to respond to future cases. In contrast, civil law rulings are determined by existing statutes and ordinances. Brown et al. (2000) analyzed the legal system in their comparison of property-liability and motor vehicle coverage demands. Their findings revealed a strong statistical relationship between the two lines of business they study, indicating that there could be greater demand for insurance in common law countries versus countries with civil law.

Fuel Exports.

Fuel consists of materials such as coal, oil, or gas that when burned are utilized to produce heat or power. According to the 2022 World Economic Situation and Prospects report, an economy with a share of fuel exports over 20 percent of its total merchandise exports and at least 20 percent above its fuel imports is classified as a fuel exporter. I include fuel exports in this study due to the important role fuel exports can play in a national economy. More specifically, fuel exports can not only benefit a country by boosting economic power but also generate revenue for government expenditures.

Summary Statistics

A discussion of the summary statistics for the dependent and independent variables used in this study can be found below and in Table 2.

A total of eleven variables, three dependent and eight independent variables, were used throughout the study. The dependent variables were used as proxies for insurance market development while the independent variables represented the country-specific characteristics. The full sample consists of 449 observations. The dataset was additionally further split into developing and developed categories, resulting in 87 and 362 observations respectively. Due to the large spread between values for insurance density, penetration, total premiums, GDP, population density, and fuel exports, I use the natural logarithm for each of these specific variables. Total premiums consistently had the highest mean followed by density and penetration. The standard deviation for insurance penetration was also consistently the smallest of the three dependent values. This means penetration rates were similar between both developed and developing countries. In contrast, insurance density has the largest standard deviation across each dataset aside from developed countries where a premium was the largest. The mean value for insurance penetration in developed countries of 1.79 was higher than the average of 1.45 for developing countries. The mean of total non-life premiums was also found to be higher for developing countries. This was not a surprise as developed countries tend to have more access to insurance products. Although the mean GDP for developed countries (10.35) was higher than that observed for developing countries (9.394), the standard deviation of developed countries was lower. The 10.98 standard deviations of inflation in developing countries were also shown to be almost four times that of developed countries.

Four variables relating to the population were used in this study. Population between the ages of 15-64 was revealed to have the greatest standard of deviation out of each of the population variables for both developed and developing countries. The mean of the gender variable, calculated as the percentage of females in the overall population, was shown to be above 50 percent. This is consistent with the idea that women live longer than men. Although this implies that there are proportionately more women in the sample countries relative to men, these findings are not consistent with recent census data reporting that men slightly outnumber women.

Inflation, population growth, and fuel exports each have negative minimum values which show that some countries had deflation, population loss, and fuel importation over the last 30 years. Furthermore, the common law had a mean value of approximately 20 percent in developing countries versus 35 percent in developed countries. This indicates that common law is more prevalent in developed countries.

Table 2. Summary Statistics

Full Sample (n = 449)

Variable	Mean	Std. Dev.	Min	Max
Insurance Density*	6.98251	1.6091	2.12954	9.20774
Insurance Penetration*	1.7212	0.60302	0.07232	2.98412
Insurance Total Premiums*	10.2267	1.51519	6.74524	14.4182
GDP (per Capita)	10.1682	0.7187	7.86864	11.5416
Inflation (GDP deflator)	3.24497	5.91262	-5.2139	50.9215
Population Density	4.2106	1.46878	0.81084	6.13031
Gender (% female)	50.8194	0.57436	47.9771	51.683
Population Growth	0.73427	0.59161	-1.153	2.3902
Population (between 15-64)	66.421	2.70538	57.3883	73.4136
Common Law	0.3296	0.4706	0.0000	1.0000
Fuel Export	1.55309	1.32518	-3.0813	4.24586

Developing Countries (n = 87)

Variable	Mean	Std. Dev.	Min	Max
Insurance Density*	4.74044	1.83525	2.12954	7.66622
Insurance Penetration*	1.45303	0.81428	0.20049	2.67374
Insurance Total Premiums*	9.415	0.85865	7.86864	11.4112
GDP (per Capita)	9.3940	0.7618	7.2849	10.6908
Inflation (GDP deflator)	8.1126	10.9814	-1.2298	50.9215
Population Density	4.66712	0.99979	2.72455	6.13031
Gender (% female)	50.4505	0.74585	47.9771	51.3142
Population Growth	1.21154	0.49597	0.212	2.3902
Population (between 15-64)	65.912	4.85889	57.3883	73.4136
Common Law	0.2069	0.04074	0.0000	0.0001
Fuel Export	1.62356	1.10111	-3.0813	2.93165

Developed Countries (n = 362)

Variable	Mean	Std. Dev.	Min	Max
Insurance Density*	7.52135	0.95299	3.7612	9.20774
Insurance Penetration*	1.78565	0.52136	0.07232	2.98412
Insurance Total Premiums*	10.4218	1.57368	6.74524	14.4182
GDP (per Capita)	10.3542	0.5689	8.2125	11.5416
Inflation (GDP deflator)	2.07513	2.75201	-5.2139	27.9376
Population Density	4.10088	1.54169	0.81084	5.86181
Gender (% female)	50.908	0.486	49.4909	51.683
Population Growth	0.61957	0.55467	-1.153	2.246
Population (between 15-64)	66.5433	1.83883	59.4249	71.3101
Common Law	0.35911	0.4804	0.0000	1.0000
Fuel Export	1.53616	1.37441	-2.3006	4.24586

* Dependent variable

Results

Comparison of Means

As the focus of this study is to compare the differences between insurance market drivers in both developed and developing countries, a comparison of means was first conducted across developed and developing countries for the three dependent variables. The results of the analysis are provided in Table 3. The results reveal that the dependent variables, insurance density, penetration, and total premium, have higher means in developed countries and that these differences are statistically significant. These findings are consistent with what would be expected and what is shown in past research.

Table 3. Comparison of Means

Insurance Market Variable	Developed	Developing	Difference
Insurance Density	7.52	4.74	2.78***
Insurance Penetration	1.79	1.45	0.33***
Insurance Total Premium	10.42	9.42	1.01***

*, **, *** denote statistical significance at the 10, 5, and 1% levels.

The greatest difference in the means between developed and developing countries was for insurance density. Insurance density is the ratio of total premiums written to population. Population rates are influenced by a variety of factors including social structure, religious beliefs, and economic factors. According to an article published by the National Library of Medicine, developed countries tend to have lower fertility rates due to lifestyle choices associated with economic affluence. Access to better healthcare, education, and increasing costs of living has encouraged people to put off starting families early. Developing countries, in contrast, tend to have higher rates of fertility due to limited access to education and family planning resources. Moreover, past articles such as Davies et al.

(2003) have mentioned the rapid growth of the insurance markets in developed markets. These assumptions that developed countries have higher non-life premiums written and lower populations thus increasing the insurance density rate are consistent with the findings in Table 3.

The means for the insurance penetration variable were also significantly different across developed and developing countries. Despite the continued growth of insurance markets over the past several years, research by Beck and Webb (2003) concluded that more educated people were likely to understand the benefits of insurance thus driving the demand and premiums. On the other hand, Ward and Zurbruegg (2000) indicated that lower GDP countries tend to have lower penetration rates. The results were consistently based on the premise that developing countries have lower premiums written and GDP than that developed countries.

As mentioned previously, total premiums written are defined as the amount of non-life premium written within a specified country or time. As the insurance market continues to grow at a rapid pace, Zheng et al. (2009) find that the level of insurance growth in developing countries is greater than that observed in developed countries. One plausible reason for this is that there are more opportunities for growth potential within an emerging market. Although the growth in developing markets continues to rapidly increase, the growth level of insurance in developed countries has continued to remain higher thus maintaining a higher total premium means.

Regression Analysis

In addition to comparing the means for the dependent variables, a regression analysis was conducted to identify relationships between the country-specific independent variables to the insurance market dependent variables. This allows me to consider the relationships when accounting for multiple variables in the same models. A binary variable equal to one if the country is a developing country is used to account for differences between developed and developing countries. The regression analysis was estimated twice – once including GDP as a control variable and once without. This was done because it is expected that GDP may play a major role in classification as a developed or developing country but the extent of its role in the classification scheme is unknown. The results of the analysis with logged GDP values are shown in Table 4. When the analyses included the GDP variable, the GDP variable was positive and significantly related to all of the insurance market variables. In other words, greater GDP is related to greater penetration, density, and total premiums. Despite showing significance between the dependent variables and GDP, no significance was shown between the developing variable and the total premium variables

One possible explanation for the result on the GDP variable is that GDP may be a major consideration in the United Nation's distinction between developing versus developed countries. Although the UN does not formally define developed and developing countries, the organization recognizes low-income, weak infrastructure countries as least developed countries (LDC). Criteria to be classified as an LDC is based on per capita gross national income (GNI), human asset index (HAI), and economic and vulnerability index (EVI).

Gross national income is the total amount of money earned by individuals and businesses within a country. The GNI indicator is created by accounting for GDP and the difference between the outflow and inflow of money to foreign countries. Therefore, a lower GDP can lead to a lower GNI which in turn could imply that a country is classified as an LDC given that HAI and EVI indexes are also low. In contrast, a higher GNI can indicate a developed country. These results were not a surprise given that the level of wealth likely stimulates insurance market demand.

Table 4. Models Including GDP

INDEPENDENT VARIABLES	DEPENDENT VARIABLES		
	Penetration	Density	Total Premiums
Developing (relative to developed)	0.2366** (0.0971)	-2.3438*** (0.1628)	0.2878 (0.2814)
Gross Domestic Product (per capita)	0.5408*** (0.0437)	0.8825*** (0.0733)	1.1035*** (0.1267)
Inflation (GDP deflator)	-0.0023 (0.0046)	0.0058 (0.0077)	0.0288** (0.0132)
Population Density	0.1822*** (0.0253)	0.0547 (0.0425)	0.3293*** (0.0734)
Gender (% female)	-0.0401 (0.0560)	0.1654* (0.0940)	0.2215 (0.1624)
Population Growth (annual %)	-0.0484 (0.0609)	0.4515*** (0.1022)	-0.4136** (0.1766)
Population (between 15-64 years)	0.0607*** (0.0099)	-0.1786*** (0.0166)	0.0954*** (0.0287)
Common Law	0.3169*** (0.0575)	0.1474 (0.0964)	1.1539*** (0.1666)
Fuel Exports	0.0445* (0.0257)	-0.1418*** (0.0431)	0.0062 (0.0746)
Constant	-6.6247* (3.3953)	1.2957 (5.6942)	-20.1209** (9.8402)
Observations	449	449	449
R-squared	0.5189	0.8100	0.3600

Standard errors in parentheses. Unreported year fixed effects are included in all models.

*** p<0.01, ** p<0.05, * p<0.1

The economic and environmental vulnerability index is comprised of eight indicators separated into two groups, economic and environmental. Each indicator accounts for 1/8 weight of the EVI contribution to GNI. Two of the indicators, population size and fuel exports as a percentage of merchandise exports, were included as independent variables in this study. The population (between 15-64) variable was statistically significant with all three dependent variables. Since penetration and density ratios factor population into their calculations, the results suggest greater population correlates with a greater amount of insurance penetration but a lower density rate. Insurance density shows to have a negative significant relationship with the population size. A possible explanation is that due to poor infrastructure and low income in emerging countries, insurance development and total premium tend to be lower in those markets.

The EVI indicator of merchandise exports was broken down further to fuel exports as a percentage of exports for this study. Although prior research has not examined the relationship between fuel exports and insurance market development, the variable was selected as fuel is essential to every economy. A fuel-rich country can benefit from its oil exports through boosted economic power. Fuel exports can also generate surplus revenue that can be spent to improve infrastructure such as insurance markets. Although results indicated that higher fuel exports were significantly related to lower density, the relationship is only significant at the 10 percent level for the insurance penetration model and no significant relationship exists in the model which uses total premiums. These findings suggest that not only do most developing countries have low income and market demand but may also not be big fuel producers either. Another perspective is that fuel exports could be the majority of a developing country's exports.

Other independent variables included in the study are the annual percentage of population growth and population density. There are a variety of economic, social, and cultural factors that can influence a population change. While death, fertility, and immigration rates impact population growth, physical factors such as climate, natural resources, water supply, and geography can impact population density. The analysis results show that greater population growth in developing countries is significantly related to both insurance total premiums and density, corresponding positively with the latter variable. A possible reason for the negative relationship between population growth and total premiums is the law of large numbers. As more insureds enter the risk pool, the more likely the losses will be around the expected losses. Population density is significantly related to insurance penetration and total premiums and the coefficient on the density variable indicates that greater density leads to greater penetration and premiums. One explanation for this result is that developing countries tend to have higher fertility rates due to a lack of education and family planning resources. Another possible explanation is that higher rates of low life expectancy due to lower standards of living, encourage people in developing countries to have more children. These assumptions are consistent with the idea that population growth leads to higher population density. In other words, greater population growth and density can lead to greater insurance demand.

Another variable analyzed throughout the study is females as a percentage of the total population. Studies done by researchers such as Outreville (2012) have examined the socio-economic factors that influence an individual's decision to obtain insurance. Gender, age, race, and religion were used in prior studies as variables to measure risk aversion. Nelson (2012) found women to be more risk averse than men and thus more likely to obtain

insurance. The results from the analysis only showed significance at the 10% level for insurance density which indicates that populations with a greater proportion of females were related to higher insurance density. These results can be seen in Table 4 but are not consistent with results from the prior literature. One potential reason is that women in developing countries may not understand the need or benefits of insurance. It may be difficult for women to weigh the opportunity cost of insurance when they have a family to provide for.

The last independent variable examined in this study is the GDP deflator as a measure of inflation. GDP deflator measures the changes in prices of an economy for a particular year and is then compared to the base year. This allows researchers to better evaluate price change from one year to another. Although consumer price index (CPI) is commonly used to measure inflation, the GDP deflator was selected as it is not based on fixed basket of goods, which represents price of goods and services that are routinely evaluated. This means that the GDP deflator can not only reflect the changes in price but also quantity from year to year. Several researchers, including Rosseau et al. (2002), found a correlation between inflation and the demand for insurance. However, the results as seen in Table 4 were not consistent with prior studies. A possible reason for the inconsistency is that prior researchers used other measures of inflation in their studies.

As I do not know the weight of each criterion as considered by the UN when classifying LDCs, this limits the opportunity to see the actual relationship between GDP and the country classification. As such, I re-estimate the models after excluding the GDP variables and the results of these alternative models are presented in Table 5 below. The table shows more significance relationships between insurance market development and a

number of the independent variables as compared to when GDP was included in the models. The most notable difference is that models that do not include GDP show a clear relationship between country classification and insurance market development. In particular, the developing country variable (relative to developed) was revealed to be negative and significant at the 1% level for all three models in contrast to the results in Table 4. In other words, developing countries tend to have lower insurance penetration, density, and total premiums. This was not a surprise as it was already expected that developing countries had less insurance market development than developed countries.

Although the gender variable showed little relation with the dependent variables in Table 4, a negative significance at the 1% level with insurance penetration was revealed when the GDP variable was removed. This suggests that women do not influence insurance market development. This finding contrasts Nelson (2012) conclusion that women tend to be more risk averse, and thus are more likely to purchase insurance coverage.

Other population-related variables used in this study, such as population (between 14-64 years), population density, and population growth, were found to have similar results to Table 4 where GDP was included as a variable. This implies that GDP did not have a significant impact on the population-related variables that were analyzed in this study.

Table 5. Models Excluding GDP

INDEPENDENT VARIABLES	DEPENDENT VARIABLES		
	Penetration	Density	Total Premiums
Developing (relative to developed)	-0.4632*** (0.0923)	-3.4858*** (0.1537)	-1.1402*** (0.2486)
Inflation (GDP deflator)	-0.0126** (0.0053)	-0.0112 (0.0087)	0.0076 (0.0141)
Population Density	0.1789*** (0.0296)	0.0493 (0.0493)	0.3226*** (0.0798)
Gender (% female)	-0.2219*** (0.0633)	-0.1313 (0.1054)	-0.1494 (0.1704)
Population Growth (annual %)	0.1092 (0.0697)	0.7087*** (0.1161)	-0.0920 (0.1877)
Population (between 15-64 years)	0.0475*** (0.0115)	-0.2000*** (0.0192)	0.0686** (0.0310)
Common Law	0.2171*** (0.0666)	-0.0154 (0.1109)	0.9503*** (0.1793)
Fuel Exports	-0.0254 (0.0294)	-0.2558*** (0.0489)	-0.1364* (0.0791)
Constant	9.0347** (3.6862)	26.8480*** (6.1373)	11.8315 (9.9256)
Observations	449	449	449
R-squared	0.3398	0.7430	0.2419

Standard errors in parentheses. Unreported year fixed effects are included in all models.

*** p<0.01, ** p<0.05, * p<0.1

A final set of regression models were estimated in which I separated developing and developed countries to examine how the results might differ when breaking these countries out based on economic development. Since I do not include the country classification variable in the models, I added the GDP variable back into the models. The results from these analyses can be seen in Table 6. Similar to the results of Table 4, the GDP variable was shown to be significant with each of the dependent variables for both developed and developing countries. Although the results show a positive correlation

between most of the dependent variables and GDP, there is a significantly negative relationship between GDP and insurance density in developing countries. A plausible explanation for this is that premiums are driven by income, population, and density. Developing countries tend to be low-income meaning that less money is spent on insurance premiums.

In the analysis in Table 4 which only considers developing countries, no significance was found between the dependent variables and inflation. In the new models, inflation is revealed to only have a significant relationship with insurance density for both developed and developing countries. However, the results show a negative relationship meaning countries with higher inflation are associated with lower measures of insurance market development. One possible explanation for this is that higher inflation can lead to an increase in the cost of insurance claims and operations expenses.

Fuel exports as a percentage of overall merchandise exports was found to only have significance with insurance penetration and density in developed countries. The positive relationships with both variables suggest that developed countries with higher levels of fuel exports also have higher insurance density and penetration rates.

As mentioned previously, the models in this study contain multiple variables related to the population. Population growth has a positive and significant relationship (at the 1% level) with insurance density and penetration for the sample of developing countries and a negative and significant relationship with total premiums in both the developed and developing models. This means that population growth is related to higher levels of insurance penetration and density but lower amounts of total premiums in developing countries. A possible explanation is that as the population increases, premiums decrease

because there are more people added to the risk pool. This relates to the law of large numbers in that the more insureds there are the more likely losses will be around the expected value.

Prior literature by researchers such as Outreville (2014) evaluated individuals' levels of risk aversion. Nelson (2012) found women to be more risk averse than men. Results from the analysis shown in Table 6 show a significant relationship between gender and each of the dependent variables for both developed and developing countries. The gender variable used in the study was the percentage of females in the overall population. Therefore, the findings are consistent with the prior literature that women tend to have higher levels of risk aversion. The results suggest that gender plays a key role in insurance market development. Alternatively, a negative relation between gender and both insurance penetration and density was found for the sample of developing countries. A possible reason for this finding is that women tend to have more rights in developed countries than in developing countries. This implies that men are more likely to make the decisions about purchasing insurance coverage in developing countries. Finally, the common law system was shown to be positively related to each of the dependent variables except insurance penetration in developing countries. In other words, countries with common law legal systems are more likely to have more developed insurance markets relative to countries with a civil law system. These findings are consistent with the results of Brown et al. (2000). Taken together, the results across Tables 5 and 6 suggest that there are important country-specific factors associated with population, inflation, economic development, gender, and legal system which relate to insurance market development and that these factors differ across developed and developing countries.

Table 6. Models Separating Developed and Developing Countries

INDEPENDENT VARIABLES	DEPENDENT VARIABLES					
	Penetration		Density		Total Premiums	
	Developing	Developed	Developing	Developed	Developing	Developed
Gross Domestic Product (per capita)	0.4196*** (0.1090)	0.7048*** (0.0580)	-0.2247* (0.1270)	1.6883*** (0.0602)	0.5755*** (0.0730)	1.7936*** (0.1971)
Inflation (GDP deflator)	-0.0049 (0.0108)	-0.0135 (0.0087)	-0.0271** (0.0125)	-0.0166* (0.0090)	-0.0085 (0.0072)	0.0094 (0.0294)
Population Density	-0.4824* (0.2452)	0.1575*** (0.0262)	-1.2829*** (0.2857)	0.1513*** (0.0272)	-0.1525 (0.1643)	0.3348*** (0.0890)
Gender (% female)	-0.6700*** (0.2246)	0.2185*** (0.0769)	1.4057*** (0.2618)	0.2187*** (0.0798)	-0.9900*** (0.1505)	0.5821** (0.2613)
Population Growth (annual %)	1.7137*** (0.3448)	-0.0152 (0.0590)	2.0409*** (0.4018)	-0.0046 (0.0612)	-0.6119** (0.2311)	-0.5751*** (0.2004)
Population (between 15-64)	0.2507*** (0.0591)	0.0123 (0.0136)	0.2426*** (0.0688)	0.0078 (0.0141)	-0.0501 (0.0396)	0.0948** (0.0461)
Common Law	0.1495 (0.8441)	0.3879*** (0.0533)	5.1371*** (0.9837)	0.3612*** (0.0553)	-1.4481** (0.5657)	1.7293*** (0.1812)
Fuel Exports	-0.0650 (0.1354)	0.0484* (0.0255)	0.1414 (0.1578)	0.0495* (0.0265)	-0.0290 (0.0907)	-0.0997 (0.0867)
Constant	15.3310 (14.2951)	-18.1251*** (4.6660)	-78.0150*** (16.6601)	-22.3161*** (4.8401)	58.2410*** (9.5796)	-45.3238*** (15.8546)
Observations	87	362	87	362	87	362
R-squared	0.8595	0.5643	0.9624	0.8597	0.9432	0.4478

Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Conclusion

The purpose of this study was to analyze the factors that impact non-life insurance market development and the differences in the factors across developed and developing countries. Although prior literature has examined causal relationships between insurance market development and economic growth, researchers such as Wanat et al. (2016) concluded that further research should be done with country-specific variables to better examine differences in the relation between the factors and insurance market development in developed and developing economies.

To study the drivers of insurance market development, a group of twenty-one countries, seven developing and fourteen developed, were selected from the 2022 UN World Economic Situation and Prospects country classification list. Eleven variables, three dependent and eight independent, were used throughout the study in addition to a variable that captures country classification of developing or developed. The dependent variables of non-life insurance penetration, density, and total premium were used as proxies for insurance market development while the independent variables represented the country-specific characteristics that may drive the development of the insurance market.

In the first part of the analysis, I use a comparison of means in which I compared the dependent variables across developing and developed countries. The results revealed a significant difference across all three dependent variables. Unsurprisingly, the means were higher for developed countries than the developing countries. This implies that insurance markets are more developed in those countries classified as more economically developed.

In addition to the comparison of means, I also used regression analyses to study the relationships between the country-specific factors and insurance market development. It

was expected that GDP may play a major role in the classification as a developed or developing country; as such, the initial analysis was conducted twice, using models which both included and excluded GDP. The analysis including the GDP variable showed a significant relationship between GDP and all three of the insurance market variables. However, there was mixed evidence as to the relationship between country classification (developed versus developing) and insurance market development. In contrast, the second analysis, which excluded the GDP variable, revealed more significance between the independent variables and the insurance market variables than the analysis that included GDP. The most noteworthy difference was that the exclusion of the GDP variable resulted in a consistent negative relationship between the country classification variables and the dependent variables, meaning status as a developing country is associated with less insurance market development. Moreover, inflation and fuel exports had a negative relationship across all three insurance market variables while the population-related variables tended to have a positive relationship with each of the dependent variables.

Lastly, another regression analysis was conducted in which separate models for developed and developing countries were estimated. The GDP variable findings were consistent with the first analysis in that significance was shown across all the variables. Gender as a percentage of population was significant across all three variables in both developed and developing countries. This result contrasted with the little to no significance that was shown between the gender variable and dependent variables in Tables 4 and 5. Fuel exports was found to only have significance with insurance penetration and density in developed countries. Moreover, the common law variable was shown to be positive and statistically significant with each of the dependent variables aside from insurance

penetration. This result suggests that countries with a common law legal system have higher levels of insurance market development than developed countries. Overall, the results of this study suggest that important differences exist between developing and developed countries when it comes to non-life insurance market development and that these differences should continue to be explored.

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