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Determinants of Takaful Demand: Evidence from Pakistan

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Abstract: *Pakistan's Takaful (Islamic insurance) is growing. Despite the fact that the Takaful business is still expanding, it is expected to rise 20% to 25% in the next 10 years, reaching USD$ 13.5 billion in 2019. This study examines Takaful demand and Pakistani economic conditions. The study targets Pakistani Takaful enterprises from 2009-2020. The study sample includes 5 Takaful companies: 3 generals and 2 families. The dependent variable (Takaful demand) is obtained from Takaful companies' annual reports, whereas the independent variables (macroeconomic factors) are from the global bank database. Stata software is used to examine the data for autocorrelation, multicollinearity, and panel quantile regression. The result of the study ravelled that the selected macroeconomic factors have significant and positively connected with the Takaful demand.*

Key Words: Takaful Demand, Economic Determinants, Pakistan

Introduction

Humans are weak and at risk and guarding opposition to dangers has continued as the primary objective of humans since the commencement. The standard of Hammurabi(The lord) recorded in Babylonian times is taken into account as the first essential insurance policy in hard written type for the transportation trade of this point. It had been the kind of insurance through that traders paid loans so as to cover the safe entrance of their merchandise through caravan that then featured a variety of different types of risks as well as stormy weather, theft and numerous breakdowns (The History of Net, 2015).

Overview and History of Insurance

Risk transfer is a technique to manage risk which transfers risk from one party to another. Risk is the main cause of economic and psychological hassle in all different countries but conventional (or Islamic) insurance is a means to transfer (or share) risk. Insurance is one of the risk transfer mechanisms that transfer (or share) risk from a policyholder to the insurance operator. Insurance policies are written on the basis of indemnification in which the insurer compensates the policyholder at the time of any loss in the form of claims or benefits. As a result, insurance provides peace of mind, a better sense of protection, and a source of stress anxiety reduction (Din, Mughal and Farooq, 2013).

To be indemnified by an insurer, the insured party must not only incur a loss but also bear the cost of that loss; in other words, for one party to assume financial responsibility for the liabilities of another party, hold harmless agreements are often used to enforce this transfer of risk. No doubt the wish for security is as older as mankind itself and it is a straight result of living and

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bearing risks and the need for dependency on the help of others and protection.

Fischer (2009) & Life Quote (2014) stated that the Romans have been alert to the numerous risks in their own society. Some historians have derived the origin of insurance to the burial clubs within antique Rome. The members paid most weekly expenses to these clubs to create certain observance costs of their burial. Correspondingly, the government of Rome was necessary to guard the armed forces provides against the multiplicity of risks such as expected and synthetic disasters and other countries or area enemy attacks.

In a free economy, the economist believes that the demand and supply forces determine a commodity price. If this scrutiny is true, then the question arises, what are the factors which may impact such behaviour of demand and supply? One answer to this is price, but that is not true all the time as there are a few more factors that may cause this behaviour. If most people start selling then prices go down and if start buying then prices move up. In the primary as well as secondary securities market, demand for a commodity is impacted significantly by many variables like liquidity ratio, efficiency ratio, profitability ratio, a company's price-earnings ratio, earnings per share and book value (Gompers, Ishii &Metrick, 2003).

Other macro-economic variables include such as economic conditions, political stability, government regulatory framework, the socioeconomic situation in the economy and the nature of competition in the industry.

Insurance is playing a significant role in risk management all over the world. A number of studies found that the insurance industry is related to economic growth. Insurance plays a vital role to manage income and life risks for Individuals as well as their families. As conventional insurance is totally based on ideologies that are totally against the teachings of Islam, for that reason, Takaful (Islamic insurance) is the most important instrument of risk management among Muslim-majority countries. An Islamic alternative to conventional insurance is known as Takaful. Takaful reimburses damages /losses and protects human wealth

and life. The takaful system follows the rules of Shariah (Islamic) rules.

The main difference between the practice and services of Islamic and conventional insurance is that Takaful practices depend on the Shariah rules and regulations.

Overview of the History of Takaful

Takaful is used to switch or hedge human risk-averse behaviour. Risk aversion at the expense of others is widespread.

Such risk-aversion activities are doubtful if religion, notably Islam, is involved. Muslims believe everything that happens is Allah's will (qada' and qadar') (S.W.T). Buying life insurance to secure payout upon death is a bet against Allah, say most Muslim thinkers (S.W.T). Life insurance is not generally understood and is associated with tragedy and bad aspects of life, according to Karich (2004). Islam encourages its followers to take precautions to reduce risk without oppressing others. Ahadith advise Muslims should avoid adverse events and leave the results to God.

Prophet Muhammad (peace be upon him) once saw a Bedouin leave his camel untied, according to Anas ibn Malik (R.A.). "Why don't you tie your camel?" he asked the Bedouin. Bedouin: "I trust Allah." Prophet said, "First tie your camel, then believe Allah."

Risk is traditionally transferred to a willing party. Risk-averse humans provide insurance to swap or hedge risk. Risk aversion at the expense of others is widespread. Mustawali (2012) studied that in the modern mainstream conventional insurance system Interest (Riba) is involved. Riba is categorized into two types: "RibaAnNasiyah" Direct or primary Riba (excess that a lender receives) and "Riba Al Fadl" indirect or Secondary Riba (excess on invested money). Such as, the company invests the client's cash in fixed premium exercises, fixed store and T-bills and so forth. All these kinds of practices in insurance agencies advance Riba/intrigue that is completely denied in Islam. Besides, Gharar (vulnerability) which is precluded in Islam is also found in customary insurance agencies. Maysir (complete benefit to one gathering at cost of complete misfortune to

other gatherings) is likewise disallowed in Islam.

Obaidullah (2005) studied that Takaful is totally different to regular protection recognition in the investigation of the three principal factors referenced over, a larger part of Islamic researchers accepts that Takaful is adequate in Islamic Shariah if the premium is gathered on the basis of similarly participate help known as Tabarru Even though the majority of Muslims have confidence in Qadha-O-Qadar (the desire of Allah) in the point of view of engineered and cataclysmic events, happenings and unforeseen occasions. Islam necessitates that individuals need to discover approaches to make themselves safe against such exposures and events (Hussain and Pasha, 2012). In this way, it was just when the main Islamic insurance agency (Takaful) was propelled in Sudan (in 1979). After Sudan, Islamic protection (Takaful) was begun in 1984 (Ali, 2006) in Malaysia. Presently Islamic protection (Takaful) organizations are working in the rest of Islamic nations also in addition to in Europe (Napier and Alsalih, 2012).

Islamic protection (Takaful) depends on the group's shared well-being and cooperative effort (Shariah). According to Bakar (2009), Takaful is the Arabic word "Kafala," which implies assuming someone's liability. Takaful covers risks. A group gathers a common store to aid each other in emergencies (Wahab, Lewis & Hassan, 2007). Risk can be transferred to a willing person. Many Muslims believe in "Qadah" and "Qadar" (luck and destiny) and that everything that happens is Allah's will. Muslim scholars think buying life insurance for terrible times is betting against Allah. In Muslim countries, life insurance is unpopular due to a lack of Islamic knowledge (Karich, 2004). Islam advises adherents to be prepared for any risk without oppressing others. Hadiths advise Muslims to avoid important situations and leave the results to Allah. Anas ibn Malik (R.A.) said this in a hadith.

Prophet Muhammad (P.B.U.H.) watched a Bedouin untie his camel. "Why don't you secure your camel?" he asked the Bedouin. Bedouin: "I believe in Allah." First, bind your camel, then trust in Allah, said the Prophet By

and large, the possibility of Islamic protection (Takaful) is similar to regular protection when it is made for giving security to members. The only thing which makes them separate is their root of them. Islamic insurance doesn't contain impermissible (Haram) elements such as Maysir (Gambling), Riba (Interest), and Gharar (uncertainty), these things are totally forbidden in Islamic insurance and these things are practised in conventional insurance.

Furthermore, it is destined for members by helping them in their bad times (Hussain & Pasha, 2011). When you make a contract in Islamic insurance (Takaful) it should be clear that there is no Gharar, Riba prohibited things etc. The terms and conditions should be clear for the Takaful organizations and their clients and these things must be practised in the light of the laws of Islam as well as according to Takaful company's Shariah boards. There is no hidden element in the contract of Takaful with uncertainty (Gharar) which consider prohibited in Islam and cannot be practised in Takaful contracts. The sharia board has made rules and regulations according to Quran and Hadith and these laws should be practised in Takaful companies and leave the consequences to God.

In 2014, the Takaful business was still strong in the market of Saudi Arabia, UAE (United Arab Emirates), and Malaysia. Overall, the Takaful industries are growing well but the asset base of the Islamic insurance sector is small, unlike the Islamic banking sector. In 2017 the global Takaful market has touched 19 billion US$. Up to 2023, the further project will be exceeded around 40 billion US$, and (CAGR) Compound annual growth rate at 13% during 2017-2023. (Pr Newswire, 2017)

Takaful Industry from Pakistan

Pakistan is the world's seventh most populated country with a Muslim majority. The predictable population of Pakistan is 203,216,893(2.3) million as of 2018 of which 97% are Muslims (Wiki, 2018). So, because the majority of Muslims, it is very favourable for the Takaful industry. However, the Takaful market is still in the developmental stage and is expected that it will grow by 15-20% in the next ten to fifteen years.

The slow growth of the Takaful in Pakistan is due to inflation, the low income of the citizens, and unstable macroeconomic determinants. Moreover, other factors like terrorism, and gas and electricity shortages are those which disturb the social dependability and economic growth of Pakistan (Khan, 2014).

After joining the U.S. –led "War on Terrorism" between 2013-2014 Pakistan lost around 80 billion US$ with estimated 50,000 innocent Pakistanis killed during terrorist attacks (5 December 2014, The News).

Now, just 5 full fledge Takaful companies are operating in Pakistan namely Pak-Kuwait Takaful Company, Pak Qatar General Takaful, Salam Takaful Ltd. Dawood Family Takaful, and Pak Qatar Family Takaful. 3 companies are general Takaful corporations and the remaining are family Takaful companies. By the annalists, Pakistan needs more companies for the development of Takaful (Dawood Family Takaful, 2014). Some people have the mindset that insurance is Haram, they do not clear the difference between the Key features of Islamic Insurance and insurance which leads to the slow growth of insurance. Despite the fact, the Indian Muslim population is similar to Pakistan's population but the total collected premium for Takaful in India was US $38 billion and the total collected premium in Pakistan was only US $9 (Dawood Takaful, 2014).

In Pakistan, Takaful companies which are listed with the SECP (Securities and Exchange Commission of Pakistan) are working as limited companies' insurance divisions. These companies have a permit to start Takaful products and offer financial security according to the Shari'ah as guided by Shari'ah boards. In 2005, Pak Kuwait Takaful Company is the first Takaful Company started in Pakistan.

Currently, globally two kinds of Takaful companies are working:

1. As General Takaful Company
2. As Family or Life Takaful Company

In some countries, Takaful organizations are working amazingly such as Malaysia having 32% growth, Saudi Arabia having 68%, UAE having 21%, Bahrain having 9.1%, and Qatar having 52% compared with Pakistan's 21.4%. From when Takaful has been started no progress in Takaful has been seen because of unstable regulations and a lack of central government support. Moreover, since 2006, Islamic Insurance (Takaful) in Pakistan is growing gradually.

Statement of the Problem

In some countries, Takaful Companies are working amazingly as Malaysia has 32% growth, Saudi Arabia has 68%, UAE has 21%, Bahrain has 9.1%, and Qatar has 52% compared with Pakistan's 12%. This research is different from the past because in past most researchers working on family Takaful demand. In my notice, no one worked on the overall Pakistan Takaful demand for the last 10 years. Used independent variables are chosen which will show their effect on Takaful demand.

Objectives of the Study

The objectives of the study are:

1. To examine the effect of GDP on Demand for Takaful.
2. To examine the effect of Population Density on Demand for Takaful.
3. To examine the effect of Education on Demand for Takaful.
4. To examine the effect of Political Stability on Demand for Takaful.
5. To examine the effect of Health Vulnerability on Demand for Takaful.

Questions of the Study

The research questions are:

1. What effect GDP has on demand for Takaful?
2. What effect Population Density has on the demand for Takaful?
3. What effect Education has on the demand for Takaful?
4. What effect Political Stability has on demand for Takaful?
5. What effect Health Vulnerability has on the demand for Takaful?

Significance of the Study

A large portion of the modern research on Takaful had been done in Malaysia and in some GCC countries. There is a stopped absence of instructive research on the Takaful in Pakistan. This may be expected to Takaful companies are still in immaturity in Pakistan. Although reviewing the related literature, it has been seen that the majority of the current research on Pakistan is centred on the examination of the traditional insurance and Islamic insurance frameworks which is the reason the individuals just think about insurance as disallowed. The current research has the relationship between the Takaful demand and determinants for the last current 12 years. It would be useful for Takaful companies by checking this research they can find the factors which affect their Takaful demand. This research is different from the past because in past most researchers working on family Takaful demand. In my notice, no one worked on the overall Pakistan Takaful demand.

Literature Review

The life insurance demand was reliant on the venue situations of a state. At the point when the income will be high then the interest will be higher for insurance approaches different components, for example, value level, loan fee, the development of business banks, riches utilization proportion, and the development of the insurance industry can likewise influence the interest of the extra security. (Yaari, 1965)

The monthly income of people is the main subject of insurance premiums as well as financial development, economic development, and the production of any country's insurance companies. These indicators have a parallel relationship with consumer premiums if these are high then the premium will also go higher. With these references, it is noticed that the demand for life insurance is inversely correlated to inflation, insurance premium and interest rate but has a parallel correlated relation with income. (Outreville, 1990).

Yamori (1999) stated that the business division's interest was absolutely reliant on the administrative development of insurance agencies in any nation. So, if the current guidelines and guidelines stayed adaptable, the interest in business protection will be increment. On the other hand, if the impact of regulations and rules is negative or uncompromising then it would be negatively influenced the commercial insurance demand of a country. Concerning this study, 504 different corporate sectors were included in the data. He begins that every single corporate part was totally intrigued by their property protection plus workers' protection. So flexible behaviour leads to positivity of demand and an inflexible attitude leads to a negative effect on demand.

Many depositors think that political stability is the best component to grow any country's insurance and political risk is the main key which affects the country's insurance. In political stability potential losses are limited. (Hannah Mayer, 2017).

The utilization of disaster protection relied upon political stability, financial enhancements, peace circumstance, and social improvement in a country's insurance. In insurance Income significantly affected the life coverage utilization and request in the general public. Numerous different components may likewise influence disaster protection utilization and extra security request, which were inconsistent dispersion of riches, future, political conditions, lawful structures for the protection segment, training, and strict connection in society. (Browne and Khan, 2000).

In Takaful, it is compulsory for both parties they must make a shared agreement with the uplifting disposition by the following of Shariah. Islamic insurance systems should lower poverty in Islamic countries by developing Takaful growth. The policyholder should make indicators which address them. (Chua, 2000)

Another researcher asserted that the size of a business, the pace of significant expense, and the assessed pace of default were significant factors of benefits protection. (Daniel and Paul, 2003).

Rendering to Redzuan (2007), since quite a while ago run designs some different elements happen, that exaggerated the consumption of family Takaful, like inflation,

the interest rate in markets, savings and stock exchange performances. In the insurance industry's progress, macroeconomic variables are very important. Macroeconomic variables that create the effect on the Takaful business are employment inflation and income. In Malaysia Takaful was one of the economic development factors.

Reham et al (2008) studied 1984 and 1998 are the years when the founding of Takaful Malaysia and Takaful National happened. Socioeconomic circumstances besides the Macroeconomics variables (T-bills, CPI and GDP) were developed in Malaysia.

According to Redzuan, 2007 Takaful consumption on a large scale in Takaful companies is depend on the GDP per capita income. Quoting their discoveries dependent on the information together from various insurance agencies and banks in Malaysia.

Rahim and Amin (2011) talked about the buying strategies of Islamic extra security relying upon the disposition of the arrangements power of an Islamic insurance agency. They stressed the requirement for increasingly taught and proficient agents in Takaful organizations who can expound to others well about Shariah and individual correspondence.

Ayinde and Echchabi (2012) asserted that Malaysian clients were set up to use and put their capital in the Islamic protection system.

Masud (2011) verified that the Islamic protection (Takaful) framework is preferable in budgetary terms over traditional protection in Malaysia.

Ayshaet al., (2012) tolerably watched client inclinations towards Islamic protection (Takaful) and regular protection frameworks in the UK and Saudi Arabia. Her investigation discovered that clients were pulled in towards the Takafulthan regular protection.

In Brunei good Islamic insurance achievements were due to the clarity of this thing that the conventional insurance system is Haram and totally prohibited on the other side Takaful is being used in the light of Shariah (Mastawaliet al. 2012).

Research Gap

The research gap which we have found after revising the study (which is on Takaful) related to literature that many Muslim countries such as Malaysia, UAE, Brunei, Saudi Arabia etc. focus of the research which may affect their demand for Islamic insurance, it is also observed in existing literature, that other theses countries are more developed than Pakistan in banking sectors, income, stock market and political stability.

In history, most studies were focused on Islamic and insurance comparison but they ignored Islamic Insurance (Takaful) demand-related factors in any country. This investigation is planned to full filling this examination break. In this study, five macro-economic determinants GDP, Population Density, Education, Political Stability, and Health Vulnerability are used which affect the demand for Takaful in Pakistan. Also, the purpose of this research is to be responsible for guidelines and suggestions related to those values which target the Takaful demand in Pakistan.

Research Framework

This section explains the research empirical framework. This study explains the connections between the demand for Takaful in Pakistan as a group and five economic determinants the GDP, population Density, Education, Political Stability and Health Vulnerability.
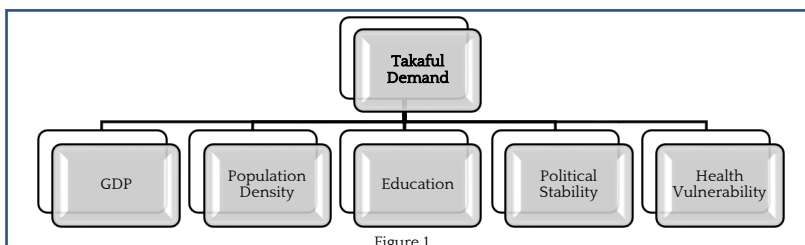

Figure 1

Research Hypothesis

This study mainly focused to mention below hypothesis:

H1: There is a significant relationship between GDP and demand for Takaful.

H1o: There is no relationship between GDP and demand for Takaful.

H2: There is a significant relationship between population density and demand for Takaful.

H2o: There is no relationship between population density and demand for Takaful.

H3: There is a significant relationship between education and demand for Takaful.

H3o: There is no relationship between education and demand for Takaful.

H4: There is a significant relationship between political stability and demand for Takaful.

H4o: There is no relationship between political stability and demand for Takaful.

H5: There is a significant relationship between health vulnerability and demand for Takaful.

H5o: There is no relationship between health vulnerability and demand for Takaful.

Research Methodology

In this section, research design, population, sample size, sampling, data collection procedure, data analysis techniques, variables and their calculations are discussed.

Research Design

The secondary data source is used in this study. Data is collected from companies' annual reports and World Bank from 2009 to 2020.

Population

All of the Takaful companies including public, private, listed, non-listed and other Takaful windows operate in Pakistan.

Sample Size

A total of five Takaful companies are listed for data analysis and 60 observations.

Sampling

All the Takaful companies in Pakistan are selected for data analysis for 12 years. These are five companies, of which two are general Takaful and three are family Takaful companies.

Table 1. Takaful Companies of Pakistan

Pakistan Takaful Companies			
No.	Title	Company Name	Year
General Takaful			
1	PKTCL	Pak–Kuwait Takaful Company Ltd.	2005
2	PQGTL	Pak–Qatar General Takaful Ltd.	2006
3	STL	Salaam Takaful Ltd.	2006
Family Takaful			
4	PQFTL	Pak–Qatar Family Takaful Ltd.	2006
5	DFTL	Dawood Family Takaful	2007

Data Collection Procedures

The relevant data (total number of purchased policies by the customers) were collected from the annual financial reports of each Takaful company in Pakistan. Data is collected for five Takaful companies from 2009 to 2020 and a total of 60 observations. The data of other variables GDP, Population Density Education, Political Stability, and Health Vulnerability) were calculated yearly through the World Bank reports from 2009 to 2020.

Data Analysis Techniques

Descriptive statistics are used by using Microsoft Excel 2019 to check the under-dispersed and over-dispersed data.

Correlation is checked in data analysis in excel 2019 for checking the relationship of variables. Data is panel data so Panel Quantile Regression is done in STATA for checking the significance of economic determinates. To check the basic econometric issues which are happening or not in the data, heteroscedasticity and auto-correlation tests are applied. For heteroscedasticity white test is used and for checking auto-correlation Durbin Watson test is used in this study. To check the Multi Co-linearity the Variance Inflation Factor (VIF) is used to check whether it is in limit or not.

Empirical Model

For the investigation and examine the relationship between of dependent variable demand for Takaful and independent variables GDP, Population Density Education, Political Stability, and Health Vulnerability in this study Panel Quantile Regression is applied as a log-linear equation. There is not the same unit applied to the selected variables. A log-linear model is used in this study which converts the data into the same units by applying the natural log (Daniel & Paul, 2003).

The model of log-linear regression is described below.

TC: $\mu 0 + \mu 1GDP+ + \mu 2PD + \mu 3EDU + \mu 4PS+ \mu 5HV + \varepsilon t$

$\triangle$DEMAND= Total Contribution of Takaful companies

$\triangle$GPD= GDP of Pakistan (calculated in 1000)

$\triangle$PD= Population Density from Pakistan (calculated in % age)

$\triangle$EDU= Education from Pakistan (calculated in 1000)

$\triangle$PS= Political Stability from Pakistan (calculated in % age)

$\triangle$HV=Health Vulnerability (calculated in % age) ε_t= Error

The partial regression coefficients $\mu 1$, $\mu 2$, $\mu 3$, $\mu 4$ and $\mu 5$ and $\mu 0$ are intercepted are unknown parameters.

Variables: Definitions& Interpretations

An analysis of several of the presented literature showed that the Takaful demand is influenced by different aspects. The takaful plan's demand may be explicated through the return rate on capital, population Density, and the economic price level (Truett & Truett, 1990).In this research, the demand for Takaful and hypothesized determinant's relationship is defined through the basic type of hypothetical scenario as follows.

Dependent Variable

In the model of study demand for Takaful is shown by the Takaful company's contribution achieve in an indicated time slot. The author took 5companies'data for the period of 2009-2020, which are used as a substitution for demand as a dependent variable. (Hoyt and Khang, 2000) he nal number of companies are 68 companies for the period of 2002 – 2006. We use an unbalanced rm-level panel data set of 68 publicly listed companies at Bursa Malaysia in which

their properties are insured using Islamic insurance.

Independent Variables

GDP (Per Capital)

The GDP is the sum of the all value added created in an economy. The value added means the value of goods and services that have been produced minus the value of the goods and services needed to produce them, the so-called intermediate consumption. (K. Hema Divya, Dr. V. Rama Devi, 2014)

Education

Knowledge can be passed on to others through the process of education, but it can also be gained through the act of learning from another person. In addition, education can refer to the knowledge that is gained via the process of attending classes or receiving instruction, as well as the educational system as a whole. (Croatian Medical Journal, 2008).

Political Stability

Political Stability and Absence of Violence/Terrorism evaluate the likelihood that the government would be destabilised or toppled by unconstitutional or violent means, including terrorism. (2015) and (Browne and Khan, 2000).

Health Vulnerability

The state of being open to the possibility of being attacked or damaged, either physically or psychologically, in some way. (Dearbhail Bracken-Roche, Eric Racine 2017)

Table 2. Variables & Measurement

Variables Measurement			
S. No	Notation	Variable	Indicator
Dependent Variable			
1	GT	General Takaful Contribution	Total contributions of all general Takaful companies.
2	FT	Family Takaful Contribution	Total contributions of all family Takaful companies.
Independent Variable			
1	GDP	GDP	Per Capital (Constant 2015 US$).
2	PD	Population Density	People per sq. km of land area
3	EDU	Education	Enrolment in primary education, both gender.
4	PS	Political Stability	No Violence.
5	HV	Health Vulnerability	Health Vulnerability.

Data Results and Discussion

In this chapter, all main results and their analysis is interpreted. These main results are Panel Quantile Regression, Correlation, heteroscedasticity, auto-correlation and VIP.

Panel Quantile Regression

On STATA Panel Quantile Regression data analysis is run. Details are mentioned below.

Table 3. Multiple Linear Regressions

	Coeff.	Std. Err.	T-test	P Test	Lower [95% Conf. Interval]	Upper [95% Conf. Interval]
Intercept	42.58593	33.55594	0.71	0.0092	76.6897	92.48216
GDP	10.22647	0.073619	3.08	0.002	–0.37076	0.08218
PD	0.086818	0.103514	0.84	0.032	–0.11607	0.289701
EDU	2.704057	0.028413	2.61	0.009	0.018368	0.129747
PS	0.04857	0.02282	2.13	0.039	0.09329	0.00384
HV	0.873842	0.308529	0.89	0.041	–0.33086	0.878547

Significance level α = 5%

P –Test Results and Significance

Table 4. P-Test and Significance

Variables	Coeff.	P Test	Results	Hypothesis Test
GDP	10.22647	0.002	Significance	H1 Accepted
PD	0.086818	0.032	Significance	H1 Accepted
EDU	2.704057	0.009	Significance	H1 Accepted
PS	0.04857	0.039	Significance	H1 Accepted
HV	0.873842	0.041	Significance	H1 Accepted

Significance level α = 5%

Based on the table result it is shown that the P values of all selected factors are below than significance level of 5% or 0.05. It means that there is a significant relationship between Takaful demand and independent variables in

Pakistan. So, here null hypothesis H0 is rejected and hypothesis H1 is accepted.

Interpretation

GDP (Per Capital)

Since the P value of GDP0.002 is below than significant level of 5%. So, in this case, the independent variable GDP is significant. This means that GDP has a significant impact on the dependent variable Takaful Demand. While the value of the coefficient is 10.22647and it's positive. It shows that the independent variable GDP has a positive relationship with the dependent variable Takaful demand. It indicates that if the value of GDP increased by 1 unit, then the value of Takaful demand increased by 10.22647units. With other independent variables held constant.

Population Density (PD)

Since the P value of Population Density0.032 is below than significant level of 5%. So, in this case, the independent variable Population Density is significant. This means that Population Density has a significant impact on the dependent variable Takaful Demand. While the value of the coefficient is 0.086818and it's positive. It shows that the independent variable Population Density has a positive relationship with the dependent variable Takaful demand. It indicates that if the value of Population Density increased by 1 unit, then the value of Takaful demand increased by 0.086818 units. With other independent variables held constant.

Education (EDU)

Since the P value of Education0.009 is below than significant level of 5%. So, in this case, the independent variable of Education is significant. This means that Education has a significant impact on the dependent variable Takaful Demand. While the value of the coefficient is 2.704057and it's positive. It shows that the independent variable Education has a positive relationship with the dependent variable Takaful demand. It indicates that if the value of Education increased by 1 unit, then the value of Takaful

demand increased by 2.704057 units. With other independent variables held constant.

Political Stability (PS)

Since the P value of Political Stability0.039 is below a significant level of 5%. So, in this case, the independent variable Political Stability is significant. This means that Political Stability has a significant impact on the dependent variable Takaful Demand. While the value of the coefficient is 0.04857and it's positive. It shows that the independent variable Political Stability has a positive relationship with the dependent variable Takaful demand. It indicates that if the value of Political Stability increased by 1 unit, then the value of Takaful demand will increase by 0.04857 units. With other independent variables held constant.

Health Vulnerability (HV)

Since the P value of Health Vulnerability0.041 is below than significant level of 5%. So, in this case, the independent variable Health Vulnerability is significant. This means that Health Vulnerability has a significant impact on the dependent variable Takaful Demand. While the value of the coefficient is 0.873842 and it's positive. It shows that the independent variable Health Vulnerability has a positive relationship with the dependent variable Takaful demand. It indicates that if the value of Health Vulnerability increased by 1 unit, then the value of Takaful demand increased by 0.873842units. With other independent variables held constant.

TC: $\mu_0 + \mu_1 GDP + + \mu_2 PD + \mu_3 EDU + \mu_4 PS + \mu_5 HV + \varepsilon_t$

TC: 42.58593+ 10.22647GDP+ 0.086818PD + 2.704057EDU+0.04857PS+0.873842HV + ε_t

Relationship between Variables

A perfect negative correlation indicates –1 and a perfect positive correlation indicates +1. If the value of the correlation coefficient is greater than zero then there is a positive relationship. Same as it is if the value of correlation is less than zero then it shows a negative relationship between variables.

Table 5

	TC	GDP	PD	EDU	PS	HV
TC	1					
GDP	0.905278197	1				
PD	0.858330398	0.907990755	1			
EDU	0.903127148	0.88817253	0.90116283	1		
PS	0.88192051	0.914786558	0.910529764	0.87921869	1	
HV	0.89011916	0.843208771	0.871930367	0.83997524	0.880070246	1

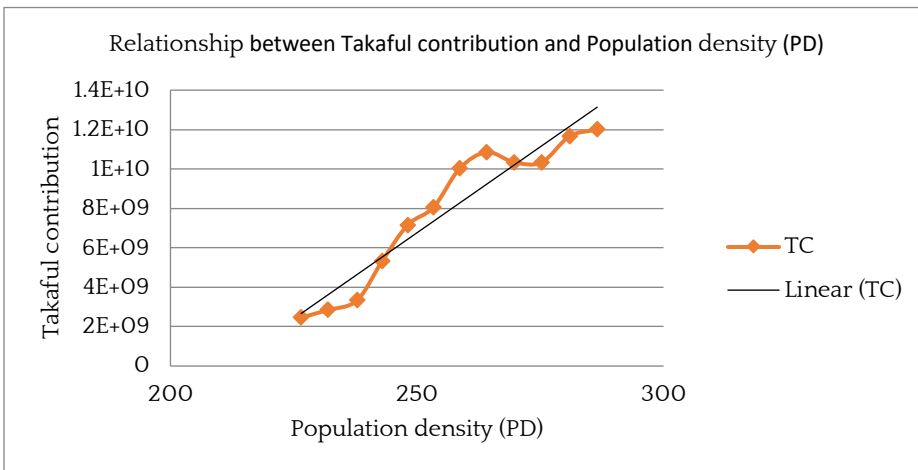## Relationship between Takaful Contribution and GDP
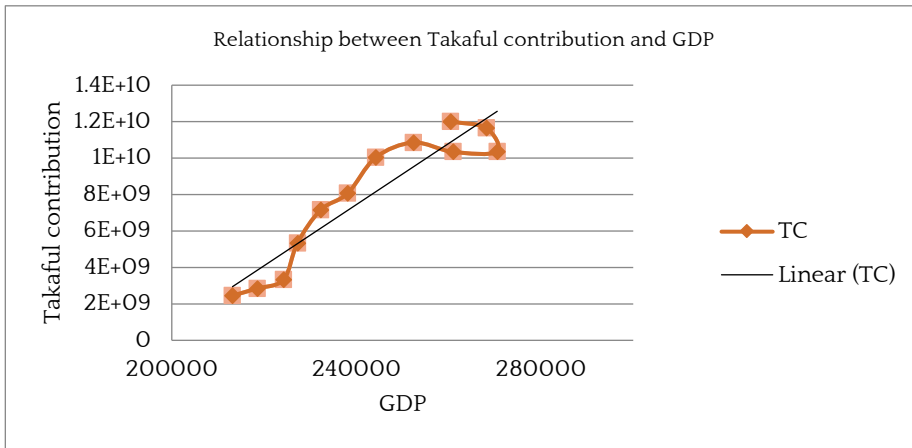
Graph 1

In above table 05, it is clear that Takaful contribution and GDP have positive relationships with a coefficient of 0.905278197 which is near +1, which means that they are significant and positive. If the value of GDP increases then the value of Takaful contribution will increase as well. Positive relationships make an upward slope on a scatter plot.

Relationship between Takaful Contribution and Population Density (PD)
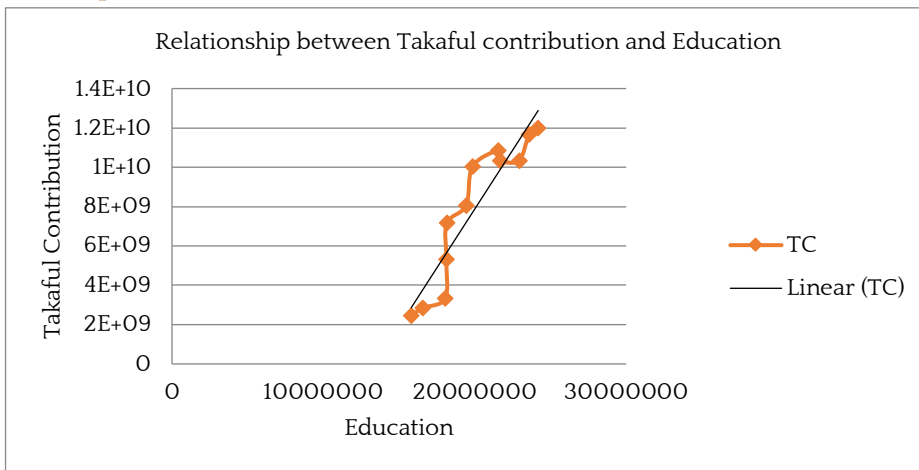

Graph 2

In above table 06, you can see that the Takaful contribution and Population Density (PD) have positive relationships with a coefficient of 0.858330398 which is near +1, which means that they are significant and positive. If the value of Population Density (PD) increases then the value of Takaful contribution will increase as well. Positive relationships make an upward slope on a scatter plot.

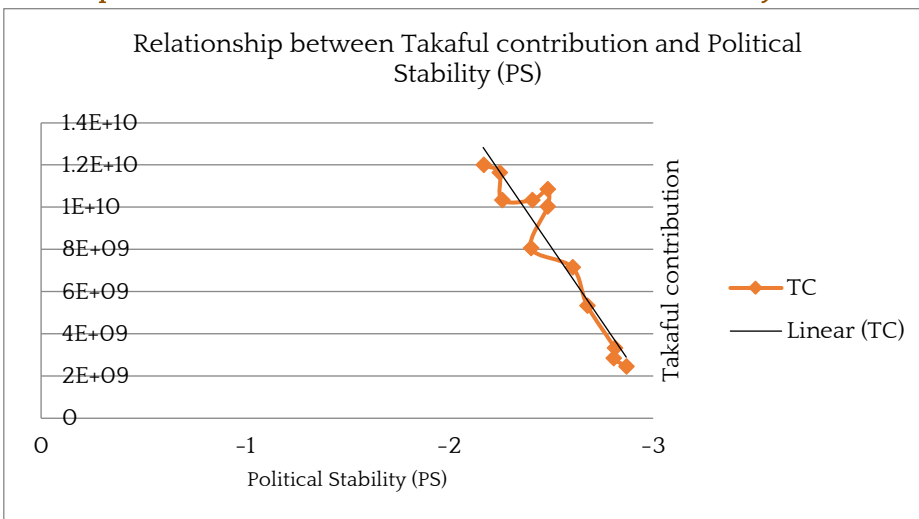## Relationship between Takaful Contribution and Education

Graph 3

In above table 07, you can see that Takaful contribution and Education have positive relationships with a coefficient of 0.903127148 which is near +1, which means that they are significant and positive. If the value of Education increases then the value of Takaful contribution will increase as well. Positive relationships make an upward slope on a scatter plot.

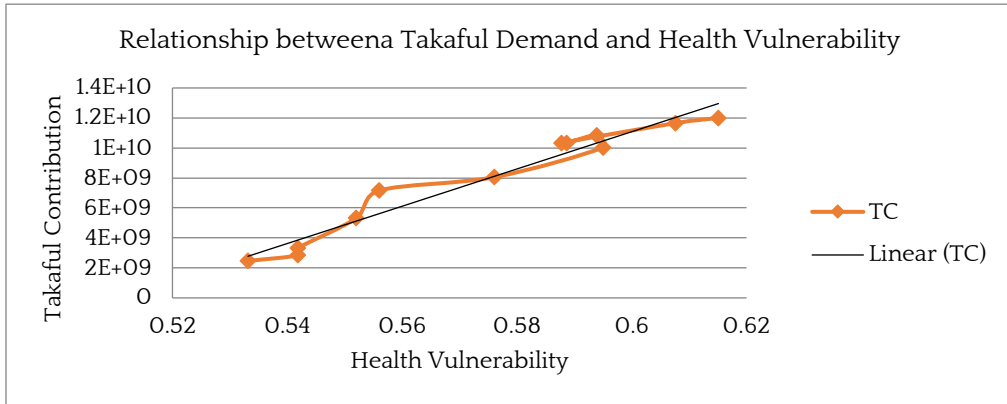## Relationship between Takaful Contribution and Political Stability (PS)

Graph 4

In above table 08, you can see that Takaful contribution and Political Stability (PS)have a positive relationship with a coefficient of 0.89192051that is near +1, which means that they are significant and positive. If the value of Political Stability (PS)increases then the value of Takaful contribution will increase as well. Positive relationships make an upward slope on a scatter plot.

Relationship between Takaful Contribution and Health Vulnerability (HV)

Relationship betweena Takaful Demand and Health Vulnerability

Graph 5

In above table 09, you can see that Takaful contribution and Health Vulnerability have negative relationships with coefficient0.89011916that is near +1, which means that they are significant and positive. If the value of Health Vulnerability increases then the value of Takaful contribution will increase. Positive relationships make an upward slope on a scatter plot.

Testing of Hypothesis

H1: There is a significant relationship between GDP and demand for Takaful.

H2: There is a significant relationship between population density and demand for Takaful.

H3: There is a significant relationship between education and demand for Takaful.

H4: There is a significant relationship between political stability and demand for Takaful.

H5: There is a significant relationship between health vulnerability and demand for Takaful.

Combine

H0 Null hypothesis of the study is rejected because of the significant relationship between independent variables and Demand for Takaful.

HI, the hypothesis is accepted because of the significant relationship between independent variables and Demand for Takaful.

Conclusion

Based on Panel Quantile Regression Analysis it is observed that the P values of all selected factors are below than significance level of 5% or 0.05. It means that there is a significant relationship between Takaful demand and independent variables GDP, Population Density, Education, Political Stability, and Health Vulnerability in Pakistan. So, here null hypothesis H0 is rejected and hypothesis H1 is accepted. It is observed that if a country's GDP will increase then in country's Takaful will also increase. GDP is the main source to increase Takaful demand.

If a country's political situation is stable then people will trust on government and they will buy more policies and trust the

Takaful companies that's why the country's political stability should remain positive so it will increase Takaful demand in Pakistan.

Health issues are increasing in the country and because of its people, Pakistan is more intends to purchase Takaful policies because it will indicate them toward good health facilities.

Same as it is education is the main indicator of to increase in Takaful demand in Pakistan. If people are liberated towards it then they will go for more policies.

Based on Correlation analysis it is observed that independent variables GDP, Population Density, Education, Political Stability and Health Vulnerability have a positive relationship with Takaful. All values are below 10 VPA that's why there is no multicollinearity but a positive correlation between independent variables and Takaful. There is no Heteroscedasticity because data is not scattered.

Recommendations for Takaful Companies

- Pakistan's Takaful companies should focus to liberate people regarding Takaful so people may have options to select these plans.
- Takaful policies regarding health issues should be wider and more open for all so many people can have them
- Takaful companies should open more branches so people in rural areas can also be aware of it.

Suggestions for Future Research

- In this study ten years of data ranging from 2009 to 2020 is used. Future researchers can use the latest data available in financial statements on Takaful companies' websites.
- They can also change variables.
- The number of Takaful companies can also be increased.
- They can also compare the Takaful sector with the insurance sector.
- Different data analysis approaches can be used like Panel Data regression analysis, Z-Score analysis and super efficiency analysis.
- They can also increase the number of countries where the Takaful industry exists like Indonesia, Malaysia etc.

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