

Determinants of the Demand for Life Insurance Evidence from Jordan

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Abstract This study investigates the relationship between the demand for life insurance measured by annual life insurance premiums and insurance density and some economic and demographic variables in Jordan during 1970 and 2012, using Ordinary Least Square (OLS) estimation. We find evidence that the demand for life insurance products is influenced by increase in income level and urbanization, suggesting that the life insurance industry can be well developed in lower-middle income country. In addition, the demand for life insurance in Jordan increases during inflationary period because, the average economic growth rates was higher than the average level of inflation rates during the period under study. However, the study found no evidence of young dependency on the demand for life insurance in Jordan, suggesting increasing the attention on products to protect against morality risk. Future research is recommended in this area for Jordan including other economic and demographic variables and investigating the supply side of life insurance in Jordan.

Keywords Jordan - Life Insurance demand - Insurance Density - and Time Series.

JEL Classification C32 - G22 - N25

Introduction

A growing body of work indicated the major role of a well development financial system in enhancing, and predicting the future economic growth, such as the extended work made by King and Levine(1993), Levine(1996), Levine and Zervos(1998),and Levine *et. al.* (2000), More recently Zeits(2003) and Hussels *et.al.*(2005), confirm the influence of well development financial system on the economic growth.

Therefore, a great development was noticed in the financial system sector. One of these sectors is the insurance industry, which is motivated by liberalization of the financial system and globalization (Outreville 2011). The availability of a well-developed insurance industry is very important for the stability and development of the economy, transferring of risk and enhancing the social welfare of any country (CEA 2006).

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However, as it is indicated by Outreville (2011), the share of total insurance premiums of developing countries is very low even though these countries have more than 80 percent of world population. In Jordan, total premiums in 2010 was USD 576 million, where life business was USD 54 million, presenting .00 percent of the world market. On the other hand, Non-life business was USD 522 million, presenting .03 percent of the world market (Swiss Re, sigma No 2/2011, updated January 2012).

The role of insurance market development on economic growth took serious attention by researchers such as Outreville (1990), Soo (1996), Ward and Zubruegg (2000), and Boon (2005). Researchers attention have moved on determining factors that affect the demand for insurance, either life or non-life insurance. Major studies have been performed trying to explain it in theoretical and empirical dimension. While there has been extensive literature examining the determinant of life insurance demand for developed countries, such as Truett and Truett (1990), Browne and Kim (1993), Beck and Webb (2003) and Feyan *et. al.* (2011). The empirical work on developing countries is still lacking a part from few studies, such as Outreville (1996), Ward and Zubruegg (2002), Hwang and Gao (2003) and Elango and Johnes (2002).

The objective of this study is to highlight Jordan evidence on this issue, by determining the factors driving the demand for life insurance in Jordan during the period from 1970 to 2012, using Ordinary Least Square estimation (OLS).

The study consists of five sections, beside this introduction. Section Two, provides a documentary of the Insurance Industry in Jordan. Section Three, reviews empirical literature and determinants of life insurance. Section Four; discuss the data and methodology used in the study. Follows up by the analysis of section four. Conclusions and Recommendations are stated in section Six.

The Insurance Industry in Jordan:

This section presents an analysis of the insurance industry in Jordan.

Institutional Structure

There are 27 companies operating insurance in Jordan at the end of 2013, one of which is an agency for a foreign company and three of which are Islamic insurance companies (Takaful). These companies practice General insurance {Motor, Marine, Fire risk, General accident and Credit insurance}, Medical insurance and Life insurance.

Sixteen of the twenty-seven companies practice life and non-life business, nine of the twenty-seven practice non-life business only, where there is only one company specialized in life-business. One company specialized in General insurance and taking into account there is no reinsurance company in Jordan and no state controlled companies.

At the end of 2011, the number of employees in the insurance industry reached 2918 employee. In which 2602 of them were working in the insurance companies, 1988 of 2602 employee were in the management and technical staff and the rest 614 employees were in the production staff. In addition, there were 904 employees working as supplementary and support services provider. (Jordan Insurance Federation, 2013).

As indicated in Table (1), insurance premiums continue to increase over the period from 2003 to 2012, where total premium grew by 6.67 percent in 2012 to reach JD 466,606,995 (Life premium grew by 8.75 percent to reach JD 44,373,498 and Non-life grew by 6.45 per-

cent to reach JD 422,233,497). It is also indicated that life business represent a low share of total business not more than 12% over the period from 2003-2012 and unfortunately it continued to decrease for the last four years.

Table (1) Evaluation of Insurance Premiims, 2003-2012

Table	2011	2010	2009	2008	2007	2006	2005	2004	2003	
Volume of Premiums(10 6 JD)										
44.37	40.80	38.04	34.88	35.87	29.18	25.15	22.90	21.52	19.63	Life
422.23	396.63	370.59	330.28	297.15	262.47	233.58	196.3	169.42	151.5	Non-Life
466.61	437.43	408.63	365.15	333.02	291.65	258.74	219.3	191.42	171.5	Total
Share in Total Premiums (%)										
9.51	9.33	9.31	9.55	10.77	10.01	9.72	10.45	11.24	11.51	Life
90.49	90.67	90.69	90.45	89.23	89.99	90.28	89.55	88.76	88.49	Non-Life
Growth Rate(%)										
8.75	7.26	9.06	-2.76	22.92	16.01	9.81	6.42	9.05	-	Life
6.45	7.03	12.21	11.15	13.22	12.37	18.95	15.58	11.93	-	Non-Life
6.67	7.05	11.91	9.65	14.19	12.72	18.00	14.55	11.60	-	Total

Source: Jordan Insurance Federation, different years.

Comparative development:

Jordan insurance markets continue to develop with a penetration of 2.18 percent(penetration of 0.20 percent and 1.98 percent for life and non-life business, respectively), a penetration of over 2 percent of GDP would present a well development industry, compared with a penetration of 6.86 percent for the global world insurance (penetration of 2.88 percent and 3.98 percent for life and non-life business, respectively). Indicating a significant and further growth potential if it faces a number of challenges that affected its performance especially in the life insurance sector.

Recent analysis has highlighted that total premiums in 2010 was USD 576 million, where life business was USD 54 million, presenting .00 percent of the world market. On the other hand, Non-life business was USD 522 million, presenting .03 percent of the world market. (Table 2) Jordan ranked 85, 87 and 80 out of 88 countries { from North America, Latin America and Caribbean, Europe, Asia, Africa, Oceania} in total business, life business and non-life business, respectively.

Table (2) Premium Volume in Jordan.

Jordan	Premium Volume (in million of USD)		Nominal (in USD %)	Changes (in%) inflation- adjusted	Premiums in % of GDP	Share of the world market 2010 (in %)	Share of total Business 2010 (in %)
	2010	2009	2010	2010	2010	2010	2010
Total Business	576	514	11.9	6.6	2.18	.01	-
Life Business	54	49	9.1	3.8	0.20	0.00	9.3
None-Life Business	522	465	12.2	6.8	1.98	.03	90.7

Source: Swiss Re, sigma No 2/2011, updated January 2012.

Comparing Jordan to its partner from the Arab world as indicated in Table 3, Jordan has a much higher total business insurance penetration than United Arab Emirates, Saudi Arabia, Tunisia, Egypt, Qatar, Kuwait and Oman but lower than Lebanon, Bahrain and Morocco. For non-life business penetrations are high relative to the other Arab countries, were Jordan ranked the second after Lebanon. On the other hand, Life insurance has an insurance penetration of only 0.20 and represents only 9.3 percent of total business, where Jordan has a lower penetration than all Arab countries under the study except Saudi Arabia and Qatar. Indicating the underdevelopment of the sector compared to its partner from other Arab countries, which can be due to several factors such as economic, demographic, social or culture, institutional or market structure and political factors, which promote us to explore the determinant of the demand for life insurance in Jordan in this study. On the other hand, Lebanon, Morocco and Egypt show good examples that Islamic countries may have a well-developed life insurance business (Vittas 2004) also while Bahrain is a small island economy but has a well-developed life insurance sector.

Table(3) Insurance Penetration in 2010.

Country	Ratio of Premiums to GDP (%)			
	Total	Life	Non-life	% life of total business
Jordan	2.18	0.20	1.98	9.3
Lebanon	2.97	0.91	2.06	30.6
Bahrain	2.55	0.62	1.93	24.4
United Arab Emirates	2.01	0.36	1.64	18.0
Saudi Arabia	0.98	0.06	0.92	5.9
Morocco	2.84	0.91	1.93	31.9
Tunisia	1.75	0.26	1.50	14.6
Egypt	0.72	0.30	0.43	40.8
Qatar	0.73	0.05	.68	6.4
Kuwait	0.58	0.12	.46	20.8
Oman	1.31	0.22	1.09	17

Source: Swiss Re, sigma No 2/2011, updated January 2012.

Literature Reviews

Most of the previous studies such as, Soo (1996), Ward and Zurbrugg (2000), Boon (2005) found evidence that insurance sectors plays a crucial role in promoting the development and growth of the economy. Researchers attention have moved on determining factors that affect the demand for insurance, either life or non-life insurance. Moreover, the bulk of the existing studies focus on developing countries.

Primarily, studies used the utility function to investigate the life-cycle model. Almost all previous studies took Yaari (1965), as a starting point, he was the first to introduce the issue of uncertainty to life-cycle. Using the utility function of to examine the life cycle model, named the uncertainty of life span of consumption, where he found that individuals utility increase as he purchase insurance. Following Yaari (1965), studies try to examine the behavior of individual (purchasing the life insurance product) demand for life insurance.

Hammond *et.al.* (1967), examined the consumption of life insurance in USA using a cross-sectional data for the year 1953 and 1962. They found that income, net worth, life cycle state and of the age, race, occupation and education determine and influence the individual consumption of life insurance.

On the other hand, Lewis (1989), investigate the behavior of the beneficiaries (spouse and children), he found that life insurance consumption increase as risk aversion and probability of death increase and it decreases as the policy charges and family wealth increases.

Then studies try to examine the determinant of life insurance in supply and demand function either at country level or at cross-country level. Studies that examine both supply and demand side for cross-country level Such as Beenstock *et.al* (1986), use data for 10 developed countries during the period from 1970-1980. Outreville (1996), use data for 48 developing countries for 1986.

On the other hand, recent studies investigate the determinant of demand for life insurance such as, Truett and Truett (1990); they compare the demand for life insurance between US covering the period from 1960 to 1982 and Mexico covering the period from 1964 to 1979.

At cross-country level, Browne and Kim (1993), Use data for 45 developed and developing countries (the Arab countries included were Egypt, Morocco and Tunisia) for the year 1980 and 1987. Ward and Zurbuegg (2002), compare the determinant of demand for life insurance between Asian(including Jordan) and OECD countries during the period from 1987 to 1998. A larger dataset of 68 developed (the Arab countries included were Egypt, Algeria and Tunisia) and developing countries during the period from 1961 to 2000 was conducted by Beck and Webb (2003). Similarly, Feyen *et.al.* (2011) and Park *et.al.* (2002), studied 90 developed and developing countries during the period from 2000 to 2008 and 37 countries across the globe, respectively. For emerging countries Elango and Jones (2011), focused on the determinants of the demand for life insurance for 35 countries (the Arab countries included were Bahrain, Egypt, Jordan, Kuwait, Morocco, Oman, Qatar and United Arab Emirates) during the period from 1998 to 2008.)

At a single country level, Hawang and Gao (2003) examined the determinant for demand for life insurance in China during the period from 1986 to 1996. For Malaysia, Mahdzon and Victorian (2013), examine the determinant of life insurance demand of policyholder using a survey collected from 259 policyholders from the largest 5 life insurance companies in Malaysia, they found that demand for life insurance is derived by demographic and saving motives and not derived by financial literacy.

The determinant of demand for life insurance and Hypotheses.

Based on the previous studies we can group our explanatory variables into two groups.

First, the Economic Variables, which deals with the overall economic situation of a country (Income level, and Inflation).

Income Level it is the most important factor affecting the demand of life insurance. Higher income level will increase the demand for life insurance because as the income level increase, the ability to afford the life insurance product will increase (Feyen *et. al.* 2011). To maintain income and observe the excess income because life policy can be described as a saving instrument also as the presence of dependent member in the family for high level income family, the more the demand for life insurance product to hedge against the premature death(mortality risk), to maintain the same living standards(Hwang and Gao 2003).

Most studies found a positive and significant effect of the income level on the demand of life insurance, such as Browne and Kim (1993), Outreville (1996), Ward and Zurbuegg(2002), Beck and Webb(2003), Hwang and Gao (2003), Donghwi *et. al.* (2007), Feyen *et. al.* (2011), Elango and Jones (2011). Most studies measured it by Gross Domestic Product (GDP) as its

growth rate or per capita basis. Therefore, the following alternative hypothesis is proposed,

H1, There is a statistically significant relationship between the level of income and the demand for life insurance in Jordan.

Inflation Rate as it is known that inflation rate has a great effect on the economy as general and most studies found a negative effect on life insurance demand such as Browne and Kim (1993), Outreville(1996), Li et.al.(2007), Beck and Webb(2003), and Feyan *et. al.* (2011). It can be explained as inflation rate increases, the individuals saving decrease and life insurance policies as a saving instruments become less attractive.

Cargill and Troxel(1979), where they studies the effect of anticipated inflation in detailed on demand for life insurance they found negative but not significant effect.

Some studies used the average inflation rate such as Browne and Kim (1993), Outreville(1996) and Li *et.al.*(2007). On the other hand, other studies used the current annual inflation, such as, Feyan *et. al.* (2011), Elango and Jones (2011), Therefore, the following alternative hypothesis is proposed,

H2, There is a statistically significant relationship between the level of inflation and the demand for life insurance in Jordan

Second, **The Demographic variables**, which deals with the distribution of individuals that influence the demand of life insurance (Urbanization and age dependency ratio).

Urbanization measured as share of urban population in the total population, where Feyen *et. al.* (2011) used population density as a proxy for urbanization indicating that it is not a perfect proxy in some economies. Many researches imply a positive and significant effect such as, Hwang and Gao (2003), Hwang and Greenford (2005), Feyan *et. al.* (2011) and Elango and Johnes(2011). Because higher urbanization indicating more customer concentration and reduction in the cost of marketing and distribution of life insurance products (Beck and Webb 2003).

On the other hand, Outreville (1996) who used the agricultural status of the country (the rural population as a percentage of total population) as a proxy of urbanization and Beck and Web (2003), found insignificant effect on demand for insurance. Therefore, the following alternative hypothesis is proposed,

H3, There is a statistically significant relationship between the level of urbanization and the demand for life insurance in Jordan

Young Dependency, measured as the ratio of younger dependent (people younger than 15) to working age population (those ages 15-64). Beck and Webb(2003) argued that higher ratio means there are more younger population than older which means increase demand to hedge against morality risk(premature death), on the other hand, because most of the population is young which means they are not interesting in life policy as a saving and retirement instrument. Were they do not find a significant effect, their results is consistent with the results of Outreville(1996). Truett and Truett(1990), Browne and Kim (1993) and Feyan *et. al.* (2011), found a positive significant effect. Ward and Zurbruegg(2002) found a positive and significant effect for OECD countries but not significant effect for Asia countries. On the other hand, Li *et.al.*(2007) and Sen (2008) found negative and significant effect. Therefore, the following alternative hypothesis is proposed,

H4, There is a statistically significant relationship between young dependency and the demand for life insurance in Jordan

Variables and Measurements

We conduct an empirical analysis to find out the determinant of life insurance demand in Jordan, where total life insurance premium, and life density will measure life insurance demand. The independent variables will be classified into two groups Economic Variables, Income Level measured by GDP per capita at constant JD and Inflation Level, measured as annual percentage change in Consumer Price Index(CPI). Demographic Variables, Urbanization measured as Share of urban population in the total population and Young Dependency measured as the ratio of younger dependent (people younger than 15) to working age population (those ages 15-64). Using regression model with time series data between 1970 and 2012. The insurance variables were taken from the Jordan Insurance Federation (JOIF). The independent variables were obtained from the World Development Indicators (World Bank). Table 4 shows the summary of variables {definition, sources and expected relation with life insurance demand}

Table 4 Summary of the study Variables.

Variable	Proxies	Definition	Expected relation with demand for life insurance	Sources of Data
Dependent Variable				
Life Insurance Premium	Premium	Annual life insurance premiums	-	Jordan Insurance Federation (JOIF).
Insurance Density	Density	Annual life insurance premiums divided by Population	-	Jordan Insurance Federation (JOIF).
Economic Variables				
Income level	GDP	GDP per capita at constant JD	+ve	World Bank, World Development Indicators (WDI)
Inflation Rate	INF	Annual percentage change in CPI (%)	-ve	WDI
Demographic Variables				
Urbanization	URB	Share of urban population in the total population (%)	+ve	WDI
Young Dependency Ratio	Young	The ratio of younger dependent (people younger than 15) to working age population (those ages 15-64). (%)	-ve	WDI

Research Methods

To explore the relationship between these variables and the demand for life insurance Ordinary Least Square estimation (OLS) is applied, which is expressed in logarithmic value (Truett and Truett, 1990; Browne and Kim, 1993, and Hwang and Gao, 2003), where they argued that logarithmic linear equation is mostly applied for demand model, where estimated coefficient are described as elasticities.

In order to check whether the time series are stationary or non-stationary (having unit root), the unit root test for all time series are applied. The Dickey-Fuller test shows that for all the variables, except the dependent variables, the existence of unit root cannot be rejected at 5%

level of significance. Therefore, all the explanatory variables are non-stationary and have unit root. However, the unit roots test and visual inspection (graph) show that the first differences are stationary. It is clear that if each variable has unit root, then the regression analysis based on the non-stationary variables can be spurious regression. Thus, we need to check if there is a co-integration relation among variables. If they are co-integrated, then the regression analysis makes sense. If there is no co-integrating relation, then the regression result does not make sense. However, the result of the Engle-Granger (tau) co-integration tests show that the time series are co-integrated.

A Variance Inflation Factor (VIF) test was applied to test for Multicollinearity; the mean VIF for the three models was under 10 meaning that the estimation of Multicollinearity is not violated. The heteroscedasticity test (Brusch-Pagan test) associated with estimation of the models present can accept the null hypothesis of homoscedasticity and can use the OLS estimation.

To test our hypothesis,

The following two models, which relate life insurance demand and the economic and demographic variables, are applied;

$$Lpremuims_t \equiv \beta_0 + \beta_1 \Delta LGDP_t + \beta_2 \Delta LINF_t + \beta_3 \Delta LURB_t + \beta_4 \Delta LYoung_t + \Sigma_t \quad t=1970, \dots, 2012 \text{ (OLS-1)}$$

$$LDensity_t \equiv \beta_0 + \beta_1 \Delta LGDP_t + \beta_2 \Delta LINF_t + \beta_3 \Delta LURB_t + \beta_4 \Delta LYoung_t + \Sigma_t \quad t=1970, \dots, 2012 \text{ (OLS-2)}$$

Where: premiums represent annual life insurance premiums; Density represents insurance density; GDP represents GDP per capita; INF represents inflation level; URB represents the urban population; Young represents young dependency ration; and t represents the year. The parameter β_0 is an intercept. The coefficient $\beta_1, \beta_2, \beta_3, \beta_4, ,$ are unknown parameters. L represents logarithms; Δ represents first difference; and Σ represents random error term.

Epirical Results

Summary statistics on the explanatory variables are reported in Table (5); the gross life insurance premium in Jordan has been successful in achieving rapid economic growth between 1970 and 2012, where it has been grown from JD 495000 in 1970 to JD 44,373,498 in 2012.

Table (5) Descriptive Statistics.

Variable	Mean	SD	Minimum	Maximum	Observation
life insurance premium(JD)	10.585	12.122	495000	4	43
Insurance Density (%)	2.714	1.922	0.328	7.021	43
Income level (JD)	1223.05	231.30	716.22	1664	38
Inflation Rate (%)	6.56	5.60	-0.20	25.71	43
Urbanization (%)	71.10	9.83	56.00	83.00	43
Young Dependency Ratio (%)	81.49	15.88	55.00	102.00	43

The penetration ratio has increased between 1970 and 2012. Even though the penetration ratio is still very low (under 2 percent), where the mean was 0.236 percent and the maximum penetration was 0.4219 percent in 2012.

The direct insurance premiums value per capita in Jordan shows an increasing trend between 1970 and 2012, this value rose from JD 0.33 in 1970 to JD 7.02 in 2102.

Although the insurance density and penetration in Jordan is still low, the life insurance industry has grown rapidly since 1970, implying the possibility of more success if we determine the factors that affect the demand for life insurance in Jordan.

The independent variables, the income level measured by GDP per capita shows an increasing trend between 1970 and 2012, with an average of JD 1233.05 indicating that

Jordan is a lower middle-income country. The average inflation rate is around 6.56 percent during 1970 and 2012, where this rate is considered high. In addition, there is high level of urbanization in Jordan with a mean of 71.1 percent meaning that most of the population is in cities.

Jordan population reach 6,318,000 at the end of 2012, where total population between ages 0-14 represent 34 percent of total population, total population between ages 15-64 represent 62 percent of total population and total population over 65 represent 3 percent of total population. Indicating that most of the Jordanian are young. Average young dependency ratio was 81.5 percent between 1970 and 2012, the higher this ration, the higher the demand for premature death products by income (Ward and Zurbruegg 2002).

The OLS estimation of the models gives us the following results (Table 6), for Economic Variables; for income level there is a statistical positive relation at 5 percent confidence between GDP per capita and demand for life insurance in Jordan. Measured by either gross life insurance premiums or insurance density. Consequently we accept hypothesis one. Indicating as the income is enhanced for Jordanian people, there demand will increase because life insurance products will become more affordable.

Table (6) Determinants of Life Insurance Demand in Jordan.

Variable	OLS-1	OLS-2
Constant	.0076 (.737)	-.0036 (0.872)
GDP	1.135 (0.024) **	1.152 (0.020)**
INF	.0893 (0.082)***	0.0963 (0.057)***
URB	7.777 (0.056)***	7.1082 (0.073)***
Young	-.3633 (.820)	-.2004 (0.898)
Observation	32	32
R-squared	0.35	0.36

Note: p-values in parentheses.

***, **, * represent significance at 1%, 5% and 10% level, respectively.

Our results is consistent with the results of most previous studies such as Truett and Truett (1990), Browne and Kim (1993), Outreville(1996), Ward and Zurbruegg (2002), Beck and Webb(2003), Hwang and Gao (2003), Donghwi *et. al.*(2007), Feyen *et. al.* (2011), Elango and Jones (2011).

Since logarithmic values are applied, the estimated coefficients are measures of elasticity. Implying that an increase in 10 percent of GDP per capita, the life insurance demand will increase by 13.13 percent indicating that demand is income elastic, this results is considered with the result of Ward and Zurbruegg (2002) for the Asian-sub sample.

In addition, it was argued that for a better understanding the demand for life insurance we need a measure that interact between the level of income and the distribution of income such as income inequality such as Gini Index that was used by Beck and Webb (2003) were they found no significant effect on demand for life insurance. or the share held by richest quintile used by Feyen *et. al.* (2011), were they found negative effect on demand for life insurance demand, their results are consistent with the results of Beenstock *et. al.* (1986). However, because of unavailability of data the whole period between 1970 and 2012. Income share held by highest 20% in Jordan was 43.8%, 50%, 44.4%, 46.1%, 45.5%, 42.3% and 43.6%, for the years 1987, 1992, 1997, 2003, 2006 and 2010, respectively. And the Gini Index was 36.1%, 43.4%, 36.4%, 38.9%, 37.7%, 33.8% and 35% for the years in the years 1987, 1992, 1997, 2003, 2006 and 2010, respectively¹.

For inflation level, it was found that there is a statistical positive relation at 10 percent confidence between inflation level and demand for life insurance, measured by gross life insurance premiums and insurance density. Consequently, we accept hypothesis two.

Indicating that demand for life insurance in Jordan is increasing although there is a high level of inflation. This surprising result can be explained as Hwang and Gao (2003) explained there results for china . In Jordan, the average economic growth rates (it was around 2.50 percent measured by growth in GDP per capita) was higher than the average level of inflation rates (it was around 6.56 percent) during the period under study. Indicating that the negative impact of inflation in Jordan did not affect the living standard for Jordanian people and consequently their demand for life insurance products.

Our results regarding the sign of the relation is consistent with the previous studies for developing countries such as Ward and Zurbruegg (2002) for their sample for Asia tiger and Elango and Johnes (2011), where they found positive but insignificant results.

In addition, we try alternative measures for inflation such as inflation GDP deflator (annual %) following Elango and Johnes (2011) and current and past inflation rates following Hwang and Gao(2003). In order to check that our results are not spurious because of our choice of variables but we also found the same results.

For demographic variables, there is a statistical positive relation at 10-confidence level between urbanization and demand for life insurance, measured by gross life insurance premiums and insurance density. Consequently, we accept hypothesis three. Our results are consistent with the results of Hwang and Gao (2003), Hwang and Greenford (2005), Feyan *et. al.* (2011) and Elango and Johnes (2011).

Implying that as the urbanization ratio increase, the demand for life insurance will increase in Jordan in sense of decreasing the cost of marketing and distribution of life insurance products.

Also as Hwang and Gao (2003) argued that as urbanization ratio increases, the percentage of population in cities increases, changing the social and demographic structure of the society enhancing people to relay more on themselves and their families and consequently increase the demand for life insurance.

For age dependency, we found no statistical significant relation between young dependency and the demand for life insurance in Jordan, measured by gross life insurance premiums and insurance density. Consequently, we reject hypothesis four, and accept the null hypothesis. Our results are consistent with the results of Outreville (1996), Ward and Zurbruegg (2002) for Asia countries, and Beck and Webb (2003).

¹ Data for Income inequality was take from the World Development Indicators (World Bank).

Implying that the demand for life insurance in Jordan is not motivated by young dependency, although most of the working people in Jordan are young. In 2012, the young dependency ratio was 55 percent and the old dependency ratio was 6 percent.

Indicating that most of the Jordanian are young to consider saving for retirement and thus decrease the demand for life insurance products. Consequently, we recommend increasing the attention on products to protect against morality risk (products bought by income-earner to protect against premature death) (Beck and Webb 2003).

Recommendation and Conclusion

The demand for life insurance in Jordan has grown rapidly between 1970 and 2012, where total life insurance premium was JD 495,000 in 1970 and reached 44,373,498 in 2012. In this study, we investigated the determinants of demand for life insurance measured by total life premiums and insurance density in Jordan during 1970 and 2012.

The study found that the demand for life insurance products is influenced by increase in income level and urbanization, suggesting that the life insurance industry can be well developed in lower-middle income country. In addition, the demand for life insurance in Jordan increases during inflationary period because, the average economic growth rates was higher than the average level of inflation rates during the period under study. However, the study found no evidence of young dependency on the demand for life insurance in Jordan, suggesting increasing the attention on products to protect against morality risk.

Future research is recommended in this area for Jordan (most of the previous study takes Jordan as in aggregate sample for developing countries, such as Ward and Zurbruegg 2002, Elango and Johnes, 2011), including other economic and demographic variables, as well as adding institutional, social and political variables.

Although the current study focused on the demand side for life insurance, future research is recommended to investigate the supply side of life insurance in Jordan, as advocated by Browne and Kim (1993) focusing on government regulation, trade barriers, capital technical expertise and infrastructure for marketing and serving of life insurance products.

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