

How can China Become a Real Insurance Power?

**——Findings from the study on the impacts of social development
on insurance**

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Abstract

As insurance is a social product and serve for the whole society, we want to know whether or not and how the social development can influence the insurance sector. In this study, we select 48 economies in period of 2000-2012 and set panel data models from educational, medical, demographic, employment and economic aspects. And the measures of an economy's insurance sector are insurance density and insurance penetration. The results show that education and employment appear to have no robust association with insurance sector, while highlight the impacts of medical, demographic and economic factors on the insurance measures, especially on insurance density. Meanwhile, economies have different reactions to social development factors for the various development stages they are at. As China is a “big insurance market” with insufficient coverage and depth, we can draw some useful things from the analysis and promote the transformation of China insurance from a big one to a real power.

Key words

Social development, Insurance density, Insurance penetration, Cross-country analysis, Impacts

Introduction

The recently published report showed that the gross insurance premiums in China increased to about 329 billion US dollars, with a year-on-year growth of 17.49% in 2014, which won China a ranking seat in the global market. However, the insurance penetration and insurance density in China were just 3.0% and 201 US dollars, respectively ranked 49th and 60th in the world in 2013. The huge contrast reflects the real situation of China insurance industry—scale is sizable, while extents of coverage and depth are insufficient.

Insurance is born as safeguard of social and economic stability and the product of social development. So it shall change along with the social advance. Good growth environment will promote the prosperity of insurance market. In another word, advanced insurance sector is a typical character of highly developed society. Therefore, society is insurance market's growing bed. Many factors in the social development may significantly affect the insurance sector.

In 2014, Chinese government introduced a guidance document to promote the insurance sector. In the new plan, there were expected to see a modern insurance service system in 2020, which would perfectly meet the demands of economic and social development. And China should make efforts to transform from a “big insurance market” to a really powerful one. The

specific goal was to reach an insurance penetration of 5% and insurance density of around 570 US dollars in 2020. Then here, insurance was tightly connected with the whole social development, and its nature of protection was emphasized. Meanwhile, insurance density and insurance penetration were identified as two important measures of a country's insurance industry.

Currently, how does insurance promote economic growth has been the focus of related topic, such as the study carried by Outreville in 1990 and another by Kok, Mori and Fumitaka in 2010. In a paper published in 2003, Beck and Webb discussed the economic, demographic and institutional determinants of life insurance consumption. While in China, scholars mainly put their eyes on qualitative analysis of relationship between social development and social insurance (Jia Hongbo, Li Guozhu, 2006; Kang Caixia, Wang Hong, 2010). A study by Xiao Hongwei in 2012 discussed the impacts of social development on China's basic medical insurance using a panel analysis. For the relationship between a country's social development situation and its insurance sector has not been deeply explored, we'll talk about it in this paper.

To make the results more helpful as a reference for China, after the overall consideration of the gross insurance premiums, insurance penetration, insurance density, we selected 48 economies from the list of top30 on the three indicators in 2013 and the economies that were close to China in insurance density in the same year. The reason why we take insurance density rather than insurance penetration as the key point is that the figures of insurance penetration are usually not big in economies with diverse industrial structure, such as USA and Germany. And the world top10 on insurance penetration are all small and medium-sized economies with comparatively simplex industrial structure. The period of data is 2000~2012.

Based on the 10 indicators of social modernization put forward by American sociologist Alex Ingalis, the current social development evaluation system in China and the previous related researches, we select 5 sets of indicators. They are: education—literacy rate, public spending on education , labor force with tertiary education; and health—health expenditure per capita , public health expenditure, hospital beds per 1,000 people, physicians per 1,000 people; and population—life expectancy at birth , old dependency ratio, young dependency ratio, urbanization, total population; and employment—labor force participation rate, unemployment rate; and economic indicators—GDP per capita , national income per capita and GINI index.

In this study, we do quantitative analysis across economies on the association between social development and insurance sector from several aspects, and compare their insurance markets' different reactions to the social development indicators. We really hope that there can be practical significance for China insurance market's all-round development and innovation.

Correlations between social development and insurance

Theoretically, a country's insurance consumption should be positively correlated to its education level. With the improvement of education condition, the citizens will deal with potential risks in a more rational way and their insurance awareness will increase; as to

medical aspect, when the medical and sanitary conditions are improved, expenditures on healthcare will increase. Out of economical and protective reasons, people may buy more medical insurance products; and if the average life expectancy become longer, a country is stepping into an aging society. Then people may purchase more on insurance as preparation for life in retirement; with the speedy urbanization, the population structure in a country may markedly change, and insurance is prone to be paid more attention; while if a country's in regression with high unemployment rate, to stabilize their normal life, insurance may become necessities, or luxuries in less developed areas where exist even subsistence problem; when output and income per capita increase, the demands for insurance may simultaneously increase.

Though there can be some intuitive apprehension, the reality needs data and analysis to prove. Before analyzing social development's influence on insurance sector, we firstly discuss the correlations among these social development factors and insurance measures to screen out those really highly related ones.

1. Correlations between educational factors and insurance

Select literacy rate, labor force with tertiary education and public spending on education to represent a country's education condition, their correlations with insurance density and insurance penetration are in TABLE1. From the chart we can see that the correlation coefficients between literacy rate and insurance density, labor force with tertiary education and insurance density, public spending on education and insurance penetration are significant at the 1 percent level, but all these correlations are low. And the other 3 coefficients are not statistically significant.

TABLE1. Correlations between educational factors and insurance

Factors	With Insurance density		With Insurance penetration	
	Correlation	P	Correlation	P
Literacy rate	0.458	0.001	0.238	0.099
Labor force with tertiary education	0.504	0.000	0.437	0.207
Public spending on education	0.502	0.139	0.405	0.004

Data Source: World Bank's database "World development indicators", Sigma's World Insurance Report from 2004-2012 and Xenophon data.

2. Correlations between medical factors and insurance

Select health expenditure per capita, public health expenditure, hospital beds per 1,000 people and physicians per 1,000 people as medical factors, the correlation analysis results are in TABLE2. Here, all these indicators are significantly correlated with insurance density and insurance penetration. Among these, health expenditure per capita, public health expenditure and physicians per 1,000 people have high relationship with insurance density, while hospital beds per 1,000 people relates lowly with both of the insurance measures.

TABLE2. Correlations between medical factors and insurance

Factors	With Insurance density		With Insurance penetration	
	Correlation	P	Correlation	P
Health expenditure per capita	0.855	0.000	0.507	0.000

Public health expenditure	0.711	0.000	0.570	0.000
Hospital beds per 1,000 people	0.216	0.000	0.316	0.000
Physicians per 1,000 people	0.715	0.020	0.290	0.000

Data Source: World Bank’s database “World development indicators, Sigma’s World Insurance Report from 2004-2012 and Xenophon data.

3. Correlations between demographic factors and insurance

Here we select five demographic indicators to discuss. They are life expectancy at birth, old and young dependency ratio, urbanization and total population. Their correlations with insurance measures are in TABLE3. All the coefficients are significant. Life expectancy at birth is highly related to insurance density; old dependency ratio correlates relatively high with insurance density. But urbanization and total population seem not have obvious impacts on insurance measures. It’s remarkable that the coefficients of young dependency ratio are both negative though low, which means insurance measures may change reversely of it. Actually, this can be understood intuitively. Take China for instance, there’s a deep-rooted concept to bring up children for help in old age. The higher the young dependency ratio is, the less people will prepare for life after retirement by purchasing insurance.

TABLE3. Correlations between demographic factors and insurance

Factors	With Insurance density		With Insurance penetration	
	Correlations	P	Correlations	P
Life expectancy at birth	0.907	0.000	0.255	0.000
Old dependency ratio	0.769	0.009	0.520	0.000
Young dependency ratio	-0.516	0.000	-0.431	0.000
Urbanization	0.415	0.000	0.236	0.000
Total population	-0.175	0.000	-0.102	0.013

Data Source: World Bank’s database “World development indicators”, Sigma’s World Insurance Report from 2004-2012 and Xenophon data.

4. Correlations between employment factors and insurance

Select labor force participation rate and unemployment rate to represent a country’s employment situation. Their correlations with insurance density and insurance penetration are as the following TABLE4. The unemployment rate almost has no influence on insurance sector. Both of the coefficients are very small, even with an insignificant one. Labor force participation rate has some but low correlation with insurance density and insurance penetration, which cannot be deemed effective.

TABLE4. Correlations between employment factors and insurance

Factors	With Insurance density		With Insurance penetration	
	Correlation	P	Correlation	P
Labor force participation rate	0.477	0.000	0.340	0.000
Unemployment rate	-0.220	0.000	0.061	0.140

Data Source: World Bank’s database “World development indicators”, Sigma’s World Insurance Report

from 2004-2012 and Xenophon data.

5. Correlations between economic factors and insurance

Here the selected economic factors include GDP per capita, on behalf a country's economic condition; national income per capita, representing citizens' consumption ability; and GINI index, measuring the gap between rich and poor. Their correlations with insurance sector can be seen in TABLE5. From the results, we can see that GDP per capita and national income per capita are both highly related to insurance density, and relatively highly correlated with insurance penetration. While the correlations between GINI index and the two insurance measures are both negative, meaning a country's insurance market tends to be more perfect when its income distribution more equal. But the problem is that the coefficients of GINI index are comparatively small.

TABLE5. Correlations between economic factors and insurance

Factors	With Insurance density		With Insurance penetration	
	Correlation	P	Correlation	P
GDP per capita	0.922	0.000	0.723	0.000
National income per capita	0.928	0.000	0.739	0.000
GINI index	-0.460	0.000	-0.304	0.000

Data Source: World Bank's database "World development indicators" and IMF's statistics.

Through the above analysis, all the educational indicators don't significantly affect insurance density and insurance penetration, which might be caused by data deficiencies. But currently, we cannot say for sure whether or not a country's insurance sector correlates with its education conditions. In the medical part, health expenditure per capita and public health expenditure both highly correlate with insurance density, meaning the increase of medical and health expenditure will definitely promote the raise in insurance premium per capita. Meanwhile, the relationship between life expectancy at birth, old dependency ratio and insurance density prove that the two factors have positive impacts on a country's insurance development. Besides, both GDP per capita and national income per capita have markedly positive correlations with insurance density and insurance penetration. That means a country and its citizens' level of wealth determines the insurance demands to a great extent, and of course significantly influences the perfection of their insurance market.

Therefore, we will set cross-country panels from medical, demographic and economic perspectives to explore the impacts of these significant factors that we get above on insurance measures.

Cross-country analysis of social factors' influence on insurance

Because different economies are at different social development stages and the living conditions of their insurance sectors are various, the impact extents of social factors on insurance density and insurance penetration there may be not the same. So we set panels using the data from 2000 to 2012 of the selected 48 economies to analyze the relationships between

the social development factors and insurance, meanwhile compare their insurance markets' elasticity discrepancies to these factors.

The influence of medical factors on insurance sector

1. According to the correlation analysis, we select health expenditure per capita, public health expenditure to reflect an economy's medical and health condition, and measure its insurance sector with insurance density. We set panel using the data from 2000 to 2012 of the 48 economies. The result is shown in TABLE 6.

TABLE6: Medical expenditure's influence on Insurance density

Economies	Health expenditure per capita				Public health expenditure			
	coefficients	t	p	Fixed effects	coefficients	t	p	Fixed effects
Constant	230.7889	5.96	0.00	-	4.1286	23.25	0.00	-
AUS	0.5164	17.60	0.00	643.94	0.9229	5.62	0.00	-1.61
AUT	0.4456	10.29	0.00	161.70	0.4415	3.18	0.00	0.01
BEL	0.6796	6.58	0.00	539.25	0.3347	4.28	0.00	1.47
BGR	0.3407	11.72	0.00	-241.23	-0.6828	-0.96	0.34	3.16
BHS	0.2132	3.49	0.00	-353.56	0.7546	6.75	0.00	-1.23
BRA	0.3654	25.91	0.00	-240.87	1.3896	9.16	0.00	-3.98
CAN	0.5872	24.26	0.00	92.74	0.4814	5.03	0.00	0.24
CHE	0.6003	18.70	0.00	1987.44	0.3228	7.03	0.00	2.45
CHN	0.6240	17.65	0.00	-233.36	1.5063	7.77	0.00	-3.28
COL	0.3423	15.54	0.00	-236.20	1.0375	2.67	0.01	-4.66
CRI	0.1632	18.08	0.00	-200.65	0.3284	6.67	0.00	-1.48
DEU	0.5815	28.55	0.00	-78.21	0.2431	0.99	0.33	1.56
DNK	0.9011	33.83	0.00	-549.60	0.4301	5.79	0.00	0.47
ECU	0.2512	14.94	0.00	-233.63	1.0156	13.17	0.00	-2.38
ESP	0.4093	15.10	0.00	287.22	0.2714	5.20	0.00	1.45
FIN	1.0061	18.68	0.00	52.65	0.4915	7.56	0.00	0.98
FRA	0.8346	9.22	0.00	-47.85	0.6311	3.23	0.00	-1.45
GBR	1.1289	3.56	0.00	1135.88	0.0948	1.25	0.21	3.67
IND	1.2341	8.55	0.00	-241.72	1.5717	0.93	0.35	-2.41
IRL	0.8415	4.19	0.00	877.69	0.2572	2.53	0.01	2.67
IRN	0.2636	4.70	0.00	-250.32	2.0903	4.42	0.00	-5.59
ITA	0.7424	8.67	0.00	-103.25	0.5355	6.81	0.00	-0.12
JAM	0.5671	3.86	0.00	-164.58	0.2680	2.08	0.04	0.43
JOR	0.2286	9.21	0.00	-224.40	0.2749	3.89	0.00	-1.32
JPN	0.7134	9.17	0.00	1424.17	0.1558	5.49	0.00	3.07
KAZ	0.1041	2.51	0.01	-202.77	-0.6361	-1.52	0.13	1.45
KOR	1.5236	11.90	0.00	22.18	0.4778	6.46	0.00	1.78
KWT	0.1838	4.63	0.00	-195.06	-0.2429	-1.33	0.18	1.71
LUX	0.7545	5.58	0.00	-1538.63	-0.3793	-1.34	0.18	6.36

MEX	0.3172	9.99	0.00	-242.86	0.6847	4.81	0.00	-1.05
NLD	1.1430	11.22	0.00	-600.03	0.2144	8.44	0.00	2.59
NOR	0.4455	14.61	0.00	-127.25	-0.1216	-0.49	0.63	4.85
NZL	0.5582	10.33	0.00	-50.09	0.2930	5.77	0.00	1.03
OMN	0.5515	25.41	0.00	-296.68	-0.9984	-2.65	0.01	3.07
PAN	0.4535	21.10	0.00	-239.37	0.1953	0.90	0.37	0.02
PER	0.2985	10.74	0.00	-236.24	0.6165	1.17	0.24	-2.12
PRT	0.9785	10.62	0.00	-626.41	0.7441	2.98	0.00	-1.89
ROM	0.3119	16.54	0.00	-239.23	1.7770	3.95	0.00	-7.42
RUS	0.2966	5.27	0.00	-182.99	1.3497	2.38	0.02	-3.86
SAU	0.4064	10.72	0.00	-349.33	-1.3248	-3.79	0.00	3.81
SGP	1.2415	7.35	0.00	307.94	0.8602	1.83	0.07	2.40
SRB	0.1722	13.04	0.00	-224.90	1.1584	4.01	0.00	-6.96
SVN	0.7441	27.77	0.00	-395.20	0.2918	0.64	0.52	0.91
SWE	0.8252	14.05	0.00	-337.37	0.5436	2.06	0.04	-0.20
THA	1.1789	15.02	0.00	-251.91	1.1316	8.55	0.00	-2.30
TUR	0.1910	16.72	0.00	-226.56	0.7141	4.12	0.00	-2.73
USA	0.1826	4.67	0.00	2237.28	0.0643	3.03	0.00	3.63
ZAF	1.3247	9.91	0.00	-52.26	0.5396	2.53	0.01	0.50

Data Source: World Bank's database "World development indicators", Sigma's World Insurance Report from 2004-2012 and Xenophon data.

According to the above results, we can learn that:

The impacts of health expenditure per capita on insurance density are all significant in all the economies and the coefficients are all positive. The higher a country's health expenditure per capita, the more risks of loss there will be if not buying medical insurance. People will purchase more insurance to avoid the risk and stabilize their personal finance situation when they get this point. So the premium per capita will increase subsequently. Among these economies, the impacts of health expenditure per capita on insurance density in Finland, the UK, South Korea, India, Singapore, Thailand, and South Africa are greater, while in Costa Rica, Kazakhstan, Kuwait, Serbia, Turkey and US are lighter.

Except Bulgaria, Germany, the UK, India, Kuwait, Luxembourg, Norway, Panama, Peru and Slovenia, the factor of public health expenditure has significant impacts on insurance density in all other economies. In these economies, the insurance density increased with the increasing public health expenditure in the period. The improvement of public medical conditions can provide better health service to the citizens, and this also improves the people's healthcare consciousness. People will pay more attention to personal medical care, and will purchase more medical health insurance. By comparison, this factor has more significant influence on insurance markets in Brazil, China, India, Iran, Romania and Russia than in the US, Panama, Japan and the UK. In addition, in Saudi Arabia, Oman, Norway, Luxembourg, Kuwait, Kazakhstan and Bulgaria, the insurance density tends to decrease while the public health expenditure increases.

As for the impacts from health expenditure per capita and public health expenditure on economies' insurance density, the insurance density in the developing economies such as

Brazil, China, India and Iran turned to be most affected by the public health expenditure, and the developed economies such as Germany, Denmark, Swiss, the UK, Finland and so on are most affected by the health expenditure per capita. This shows that medical factors in economies may have different influence on the insurance density because of their different social development stages.

2. Because the data of physicians per 1,000 people are inadequate, we can't get a satisfied result about its influence on insurance density by setting up equations for each economy. So we just regress all the available data, the result is shown in TABLE 7.

TABLE7: Physicians per 1,000 people's influence on Insurance density

Insurance density, fixed effects			
	coefficient	t	p
Constants	4.91	23.46	0.00
Physicians per 1,000 people	0.60	7.26	0.00
F-test time dummies	109.2895	Observations	250
Economies	48	Period	2000-2012
R-squared	0.951568	Adjusted R-squared	0.942861
Hausman test(p-value)	0.017		

Data Source: World Bank's database "World development indicators", Sigma's World Insurance Report from 2004-2012 and Xenophon data.

We can draw a conclusion from the above model: the factor of physicians per 1,000 people has a significant positive influence on insurance density. More physicians per 1,000 people mean better medical service and higher medical costs. So people's healthcare and risk transfer consciousness will enhance, which may increase the insurance consumption.

The influence of demographic factors on insurance sector

According to the correlation analysis, we select life expectancy at birth and old dependency ratio as the factors reflecting a country's population situation, and measure it insurance sector by insurance density. We set panels using the data from 2000 to 2012 of 48 economies. The result is shown in TABLE8.

TABLE8: Demographic factors' influence on Insurance density

Economies	Life expectancy at birth				Old dependency ratio			
	coefficients	t	p	Fixed effects	coefficients	t	p	Fixed effects
Constants	-21.5055	-35.72	0.00	-	1.4236	3.93	0.00	-
AUS	0.3623	12.64	0.00	0.05	0.4137	6.16	0.00	-1.57
AUT	0.2637	6.28	0.00	8.19	0.1376	3.88	0.00	2.87
BEL	0.2506	4.55	0.00	9.70	0.1953	0.64	0.52	1.51
BGR	0.6792	4.97	0.00	-23.51	0.5133	4.30	0.00	-10.24
BHS	0.3767	7.23	0.00	-1.09	0.4945	8.44	0.00	-0.82
BRA	0.6110	17.92	0.00	-17.40	0.9220	18.50	0.00	-5.12

CAN	0.5108	12.03	0.00	-11.71	0.2833	5.48	0.00	0.87
CHE	0.1879	10.16	0.00	14.88	0.1774	7.23	0.00	3.01
CHN	0.8360	14.06	0.00	-36.28	1.5588	12.49	0.00	-14.27
COL	0.5554	12.03	0.00	-14.38	1.1152	19.37	0.00	-6.12
CRI	0.4542	8.13	0.00	-9.52	0.7375	13.13	0.00	-3.43
DEU	0.2350	5.89	0.00	10.62	0.0879	12.79	0.00	3.79
DNK	0.3054	6.43	0.00	5.92	0.1915	4.39	0.00	2.27
ECU	0.6425	24.25	0.00	-22.73	1.0248	21.12	0.00	-7.09
ESP	0.1755	5.03	0.00	14.60	0.1219	0.85	0.39	2.80
FIN	0.3019	10.70	0.00	5.76	0.1582	6.10	0.00	2.85
FRA	0.2076	4.78	0.00	12.86	0.2441	2.23	0.03	0.45
GBR	0.0682	1.20	0.23	24.55	0.0087	0.09	0.93	6.82
IND	0.4893	13.97	0.00	-6.61	2.3368	12.48	0.00	-15.67
IRL	0.1426	2.99	0.00	18.51	-0.1759	-0.85	0.40	9.78
IRN	0.6626	26.23	0.00	-22.44	5.9121	34.69	0.00	-39.89
ITA	0.2176	3.93	0.00	11.44	0.1831	5.90	0.00	0.75
JAM	0.2051	5.05	0.00	11.96	-1.5044	-5.95	0.00	22.61
JOR	0.5741	28.44	0.00	-16.17	3.3692	11.53	0.00	-15.56
JPN	0.1168	2.03	0.04	20.18	0.0232	3.59	0.00	6.13
KAZ	0.1404	1.88	0.06	16.10	-0.3260	-2.22	0.03	6.02
KOR	0.1843	9.62	0.00	14.47	0.1752	9.80	0.00	3.73
KWT	1.0019	7.40	0.00	-47.17	-0.3497	-3.95	0.00	5.26
LUX	0.3328	8.18	0.00	3.12	-0.7816	-3.19	0.00	23.07
MEX	0.2346	9.73	0.00	8.69	0.4092	9.92	0.00	-0.06
NLD	0.3551	9.58	0.00	1.58	0.2204	4.27	0.00	2.17
NOR	0.3663	12.40	0.00	0.14	-0.3034	-1.26	0.21	13.47
NZL	0.3932	9.35	0.00	-2.68	0.3116	5.02	0.00	0.02
OMN	0.3749	21.62	0.00	-1.52	-2.6237	-4.60	0.00	13.56
PAN	0.4714	10.17	0.00	-9.24	0.4915	11.65	0.00	-1.09
PER	0.3985	15.48	0.00	-3.69	0.8879	22.23	0.00	-5.46
PRT	0.2254	3.00	0.00	11.05	0.2649	3.65	0.00	-1.08
ROM	0.5577	3.94	0.00	-14.74	1.5821	9.14	0.00	-30.33
RUS	0.2749	4.48	0.00	8.04	0.0907	0.25	0.80	1.85
SAU	0.6445	11.48	0.00	-21.89	-0.9647	-6.83	0.00	7.78
SGP	0.3145	8.79	0.00	3.89	0.4748	5.98	0.00	0.69
SRB	0.2913	2.58	0.01	4.50	-1.0270	-3.70	0.00	23.74
SVN	0.2632	9.49	0.00	7.87	0.2686	7.68	0.00	-0.60
SWE	0.4114	9.93	0.00	-3.70	0.2031	2.39	0.02	1.07
THA	0.4610	23.07	0.00	-7.24	0.4734	59.45	0.00	-2.03
TUR	0.3300	10.45	0.00	1.87	1.1492	9.17	0.00	-8.80
USA	0.0810	3.48	0.00	23.44	0.0421	1.19	0.23	6.00
ZAF	0.0378	0.62	0.54	26.10	0.2915	7.72	0.00	3.12

Data Source: World Bank's database "World development indicators", Sigma's World Insurance Report

from 2004-2012 and Xenophon data.

According to the above results, we can learn that:

The Life expectancy at birth has significantly positive impacts on insurance density in all economies except for the UK, Kazakhstan and South Africa. The longer Life expectancy at birth will bring more demands for the old-age security. Meanwhile the insurance consumption will increase. On average, the impacts of life expectancy at birth on insurance density in Kuwait, Iran, China and Brazil are more significant, and lighter in US, UK, Japan, and Switzerland.

Except for Belgium, Spain, the UK, Ireland, Norway, Russia and US, the impacts of old dependency ratio on insurance density in all other economies are significant and positive. With the aging of population, people will attach more importance to the source of income after retirement. So they may solve this problem by spending more on insurance. By comparison, old dependency ratio has more significant and positive influence on insurance consumption in China, India, Iran and Jordan and so on than in the US, Japan and the UK. In addition, subject to the data deficiency, local social system or environment, in Ireland, Jamaica and Kazakhstan, the insurance density will decrease while the old dependency ratio increases.

Overall, life expectancy and the aging of population influence more significantly on insurance density in developing economies than in developed ones. This may be because that the social security systems and commercial pension insurance in developed economies and high welfare states are comparatively perfect, people don't need to worry much about their pensions. While the pension systems in developing economies are just at beginning and can't satisfy the demand, so their elasticity of insurance consumption to aging factors is relatively high.

The influence of economic factors on insurance sector

1. According to the correlation analysis, we select GDP per capita and national income per capita to reflect the economic situation and measure the insurance sector in particular economy with insurance density. We set panels using the data from 2000 to 2012 of 48 economies. The results are in TABLE 9.

TABLE9: Economic factors' influence on Insurance density

Economies	GDP per capita				NI per capita			
	coefficients	t	p	Fixed effects	coefficients	t	p	Fixed effects
Constants	-96.8468	-2.26	0.02	-	-3.6068	-13.31	0.00	-
AUS	0.0497	18.66	0.00	920.98	0.7416	7.40	0.00	3.91
AUT	0.0546	16.43	0.00	164.49	1.0068	7.37	0.00	0.87
BEL	0.0839	7.62	0.00	181.10	1.1302	7.75	0.00	0.00
BGR	0.0238	15.14	0.00	85.91	1.3071	18.39	0.00	-2.59
BHS	-0.0077	-0.36	0.72	458.78	-2.0332	-2.67	0.01	28.97
BRA	0.0353	20.50	0.00	57.71	1.2138	17.55	0.00	-1.59
CAN	0.0733	37.05	0.00	-102.39	1.1186	8.75	0.00	-0.10

CHE	0.0656	12.92	0.00	2055.72	0.6710	4.89	0.00	5.05
CHN	0.0330	21.98	0.00	86.43	1.2784	21.42	0.00	-1.97
COL	0.0250	15.12	0.00	78.08	1.2340	13.54	0.00	-1.94
CRI	0.0200	18.73	0.00	95.15	0.9406	7.78	0.00	0.28
DEU	0.0665	22.27	0.00	68.54	0.9810	6.76	0.00	1.26
DNK	0.1125	22.10	0.00	-1335.061	1.3571	10.06	0.00	-2.46
ECU	0.0205	27.00	0.00	78.87	1.3285	14.59	0.00	-2.83
ESP	0.0457	21.61	0.00	339.82	0.8342	6.29	0.00	2.57
FIN	0.0949	10.78	0.00	-139.47	1.0803	7.83	0.00	0.55
FRA	0.1053	10.17	0.00	-241.47	1.1776	7.81	0.00	-0.43
GBR	0.1438	5.28	0.00	-442.18	0.9847	5.31	0.00	1.88
IND	0.0470	11.19	0.00	88.76	1.4700	17.14	0.00	-2.69
IRL	0.1005	6.33	0.00	-385.65	1.0531	7.66	0.00	0.97
IRN	0.0207	8.07	0.00	71.22	1.6923	19.82	0.00	-5.64
ITA	0.0705	7.35	0.00	-37.65	1.2182	7.60	0.00	-1.11
JAM	0.0530	3.94	0.00	45.11	0.9714	2.67	0.01	0.80
JOR	0.0179	16.58	0.00	108.71	0.8398	5.34	0.00	1.15
JPN	0.1135	10.21	0.00	-182.57	1.0390	3.47	0.00	1.16
KAZ	0.0053	3.51	0.00	116.38	0.5947	5.55	0.00	2.82
KOR	0.1354	9.26	0.00	-497.02	1.2308	9.09	0.00	-0.77
KWT	0.0052	13.84	0.00	123.29	0.8843	7.92	0.00	0.02
LUX	0.0558	6.68	0.00	-1127.55	1.3005	9.39	0.00	-2.47
MEX	0.0252	8.90	0.00	37.76	1.6210	5.79	0.00	-5.73
NLD	0.1636	12.64	0.00	-2293.61	1.5596	10.85	0.00	-4.26
NOR	0.0417	18.32	0.00	306.66	0.9373	9.31	0.00	1.48
NZL	0.0623	11.77	0.00	-90.84	1.1023	8.42	0.00	-0.09
OMN	0.0130	11.69	0.00	60.79	1.2012	13.04	0.00	-2.19
PAN	0.0330	23.83	0.00	92.02	0.9097	9.17	0.00	1.02
PER	0.0170	20.05	0.00	85.33	1.2930	13.44	0.00	-2.85
PRT	0.1029	9.31	0.00	-439.12	1.6772	10.81	0.00	-5.27
ROM	0.0168	17.40	0.00	84.52	1.2880	23.51	0.00	-2.83
RUS	0.0186	5.75	0.00	133.17	0.7777	16.35	0.00	2.08
SAU	0.0095	8.70	0.00	49.64	1.6185	16.10	0.00	-6.74
SGP	0.0680	8.01	0.00	-132.32	1.2212	10.76	0.00	-1.29
SRB	0.0221	11.11	0.00	72.90	1.1374	0.46	0.64	-1.53
SVN	0.0650	31.68	0.00	-112.46	1.2939	11.60	0.00	-1.95
SWE	0.0805	15.36	0.00	-358.00	1.1013	8.26	0.00	0.05
THA	0.0511	15.83	0.00	53.12	1.3506	13.82	0.00	-2.19
TUR	0.0139	21.43	0.00	81.13	1.1703	14.20	0.00	-2.28
USA	0.0506	6.05	0.00	1590.62	0.6433	1.90	0.06	5.03
ZAF	0.1173	13.96	0.00	247.55	0.8101	7.45	0.00	3.49

Data Source: World Bank's database "World development indicators", IMF's statistics and Xenophon data.

According to the above results, we can learn that:

Among all the social factors we selected, economic factors exert the greatest influence on insurance density. GDP is an important measure of an economy's strength. GDP per capita then better reflect its productivity and can be a symbol of wealth. When GDP per capita in a country increases, people's income increases, then their consuming capacity increase. From the results we can see that, except for Bahamas, all the economies GDP per capita have significantly positive impacts on their insurance density. In many developed countries like Denmark, Japan, South Korea and Netherland, the insurance density reacts more obviously to GDP per capita. While in developing countries like China, Brazil and Iran, the influence is not that great.

In all economies, national income per capita has significantly impacts on insurance density. National income per capita can clearly reflect residents' wealth in particular economy. When it rises up, residents purchasing capacity will increase subsequently, and there can be more needs for insurance. In most economies, the growths of national income per capita promote the insurance density in various degrees. In countries like Iran, India, Mexico and Portugal, the promotions are great, while smaller in Switzerland, Kazakhstan and US. Only in Bahamas, the influence of national per capita to insurance density is negative.

2. According to the correlation analysis, hardly a social factor correlated highly with insurance penetration, except for economic ones. But when we attempted to set equations for each economy, we didn't get satisfied results. So we just regress all the available data, the result is shown in TABLE 10.

TABLE10: Economic factors' influence on Insurance penetration

Insurance penetration				Insurance penetration			
	coefficient	t	p		coefficient	t	p
Constants	0.55	3.48	0.00	Constants	0.62	3.95	0.00
GDP per capita	0.09	5.37	0.00	NI per capita	0.09	5.11	0.00
Economies	Fixed effects	Economies	Fixed effects	Economies	Fixed effects	Economies	Fixed effects
AUS	0.45	JPN	0.86	AUS	0.44	JPN	0.85
AUT	0.27	KAZ	-1.53	AUT	0.25	KAZ	-1.51
BEL	0.69	KOR	1.01	BEL	0.67	KOR	0.98
BGR	-0.53	KWT	-1.88	BGR	-0.55	KWT	-1.85
BHS	0.76	LUX	-0.17	BHS	0.73	LUX	-0.16
BRA	-0.27	MEX	-0.74	BRA	-0.29	MEX	-0.76
CAN	0.44	NLD	0.91	CAN	0.43	NLD	0.90
CHE	0.87	NOR	-0.03	CHE	0.86	NOR	-0.03
CHN	-0.18	NZL	0.28	CHN	-0.21	NZL	0.27
COL	-0.43	OMN	-1.32	COL	-0.45	OMN	-1.30
CRI	-0.65	PAN	-0.12	CRI	-0.69	PAN	-0.15
DEU	0.43	PER	-1.04	DEU	0.41	PER	-1.07
DNK	0.60	PRT	0.60	DNK	0.59	PRT	0.59

ECU	-0.75	ROM	-0.97	ECU	-0.76	ROM	-0.98
ESP	0.28	RUS	-0.44	ESP	0.26	RUS	-0.45
FIN	0.72	SAU	-1.91	FIN	0.71	SAU	-1.90
FRA	0.78	SGP	0.35	FRA	0.76	SGP	0.33
GBR	1.13	SRB	-0.68	GBR	1.11	SRB	-0.50
IND	0.15	SVN	0.27	IND	0.12	SVN	0.26
IRL	0.71	SWE	0.51	IRL	0.71	SWE	0.49
IRN	-1.07	THA	0.00	IRN	-1.10	THA	-0.02
ITA	0.46	TUR	-1.01	ITA	0.45	TUR	-1.04
JAM	0.19	USA	0.66	JAM	0.16	USA	0.64
JOR	-0.43	ZAF	1.39	JOR	-0.46	ZAF	1.37

Data Source: World Bank's database "World development indicators", IMF's statistics and Xenophon data.

From the above regression, we can infer that:

The results are significant and the coefficients of GDP per capita and national income per capita are both positive. It means that the increase of these indicators indeed have promotive impacts on insurance penetration. The more developed the economy, the greater proportion the insurance will take in it. As it referred above, the results were unsatisfied in time series model, which can indicate that economic factors may have great links with insurance penetration in angle of cross section. As we can see that economies with higher GDP per capita and national income per capita are generally with higher insurance penetration. But for particular economies, their insurance penetration reacted quite differently to the changes of economic factors in the period. These may be because of their different insurance policies and social development conditions.

Conclusion

1. Along with the advance of society, private and public medical expenditure keep increasing, residents' lives are gradually extending and their income levels are daily improving. Many factors in social development can promote the consumption of insurance. So the development of a country's insurance industry relies on the improvement and stability of the society.

2. This study verified the impacts of several typical social factors on insurance sector. Both private and public medical expenditure can stimulate insurance consumption, and make great impacts on insurance density. For another, insurance density can change in the same direction with life expectancy at birth and old dependency ratio. As for economic aspect, the raise of GDP per capita and national income per capita can significantly promote the insurance advance. In another word, wealthier people may buy more. However, there still are some factors including education level, labor force participation rate, unemployment rate, hospital beds per 1,000 people, young dependency ratio, urbanization, total population and GINI index didn't be verified, though tenable in theory.

3. Because economies are at different social development stages, there exist great gaps of

medical and sanative conditions, population structures and economic levels among them. And their policies and attitudes to insurance industry are various. So the degrees of impact from the social factors on insurance can be different. Compared to health expenditure per capita, public health expenditure have greater influence on developing economies' insurance measures, while developed ones react more obviously to the former. And the developing economies are more easily affected by life expectancy at birth and old dependency ratio. GDP per capita have greater impact on developed economies' insurance markets.

4. Except for economic factors, insurance penetration is almost not affected by all the selected social factors. We can see that insurance penetrations in many economies with big premiums scale, high premium per capita and complicated industrial structure are not that high, such as the United States, Germany and France. Instead, in areas with small population and simplex industrial structure like Taiwan and Bahamas, the insurance penetrations are usually very high. So maybe it's not suitable to be used to measure the development degree of the insurance market in an economy. And that is why we attached importance to insurance density, but not insurance penetration in sample selection.

After the above analysis, we know that many social development factors are exerting influence on the insurance sector, and works at different extents in different economies. We are sure their still be great space for China insurance to grow. To transform from "a big insurance market" to a real powerful one and to make the market comprehensively safeguard the whole society, we have some suggestions:

Firstly, everything in the changing society are related and linked. China insurance industry should broaden their thoughts and coordinate with the steps of social development. Practitioners should pay attention to the movements of social development indicators, so that they can timely find the emerging needs, and then develop new products and new markets.

Secondly, the government can expand the public medical inputs; introduce related preferential policies to improve the public medical conditions; strengthen people's awareness of healthcare. When customers concern more about their health, the demands for medical insurance will probably increase.

Thirdly, in China, the longer life expectancy and the aging process will very likely to promote the insurance consumption. The insurance industry must do sufficient preparation for this by positively developing the aged care market.

With the steady progress of China's economy, people's consuming capacity is improving. When the subsistence problem has been solved, the needs for protection and investment will increase. The insurance industry should seize the opportunity by expanding the market and elevate service quality.

Finally, the policy maker should recognize that the "insurance penetration" may not reflect the real development situation of the market. "Insurance density" should be given priority when measure the strength of the insurance sector.

APPENDIX TABLE1. Definitions of Variables

Variable	Definition
Literacy rate	The percentage of people ages 15 and above who can, with understanding, read and writes a short, simple statement on their everyday life.
Public spending on education	Public expenditure on education consists of current and capital government spending on educational institutions (both public and private), education administration as well as subsidies for private entities (students/households and other privates entities).
Urbanization	Urban population refers to people living in urban areas as defined by national statistical offices. It is calculated using World Bank population estimates and urban ratios from the United Nations World Urbanization Prospects.
Health expenditure per capita	Total health expenditure is the sum of public and private health expenditures as a ratio of total population. It covers the provision of health services (preventive and curative), family planning activities, nutrition activities, and emergency aid designated for health but does not include provision of water and sanitation. Data are in current U.S. dollars.
Public health expenditure	Public health expenditure consists of recurrent and capital spending from government (central and local) budgets, external borrowings and grants (including donations from international agencies and nongovernmental organizations), and social (or compulsory) health insurance funds.
Physicians per 1,000 people	Physicians include generalist and specialist medical practitioners.
Life expectancy at birth	Life expectancy at birth indicates the number of years a newborn infant would live if prevailing patterns of mortality at the time of its birth were to stay the same throughout its life.
Old dependency ratio	Age dependency ratio, old, is the ratio of older dependents--people older than 64--to the working-age population--those ages 15-64. Data are shown as the proportion of dependents per 100 working-age population.
Young dependency ratio	Age dependency ratio, young, is the ratio of younger dependents--people younger than 15--to the working-age population--those ages 15-64. Data are shown as the proportion of dependents per 100 working-age population.
Total population	Total population is based on the de facto definition of population, which counts all residents regardless of legal status or citizenship--except for refugees not permanently settled in the country of asylum, who are generally considered part of the population of their country of origin. The values shown are midyear estimates.
Labor force participation rate	Labor force participation rate is the proportion of the population ages 15-64 that is economically active: all people who supply labor for the production of goods and services during a specified period.
Labor force with tertiary	Labor force with tertiary education is the proportion of labor force that

education	has a tertiary education, as a percentage of the total labor force.
Unemployment rate	Unemployment refers to the share of the labor force that is without work but available for and seeking employment.
GINI index	GINI index measures the extent to which the distribution of income (or, in some cases, consumption expenditure) among individuals or households within an economy deviates from a perfectly equal distribution. A Lorenz curve plots the cumulative percentages of total income received against the cumulative number of recipients, starting with the poorest individual or household. The GINI index measures the area between the Lorenz curve and a hypothetical line of absolute equality, expressed as a percentage of the maximum area under the line. Thus a GINI index of 0 represents perfect equality, while an index of 100 implies perfect inequality.
GDP per capita	GDP per capita in current US dollars
National income per capita	Adjusted net national income is GNI minus consumption of fixed capital and natural resources depletion.

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