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EMPIRICAL ANALYSIS OF RELIGIOUS ACTIVITIES IN MAINLAND CHINA AND TAIWAN¹

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ABSTRACT. In this study, we applied the database from the 2010 Chinese General Social Survey(CGSS) and the 2009 Taiwan Social Change Survey(TSCS) to investigate and compare the similarities and differences of cross-strait religious activities and contributions. The empirical results show that religious belief instilled since childhood, religious believers, and people's attitude towards religion have significant impact on participation frequency of religious activities. The results also show that personal income and household economic situation have significant impacts on religious contributions. Sample grouping estimates indicate that Taiwanese men with unemployment experiences have higher participation rate in religious activities than men without such experience. As age increases, Taiwanese women's participation rate in religious activities becomes higher but the age impact on participation rate in Mainland is not significant. In addition, the empirical data collected in Taiwan show that there is a trade-off relationship between people's income and their participation in religious activities as well as their contributions made. That is, the higher the personal income of an individual, the lower his/her participation in religious activities, but this correlation is not significant in the Chinese society.

KEYWORDS: religious participation, religious contributions, tradeoff relationship, China, Taiwan.

JEL classification: M14, M19, P2.

Introduction

Discussion between religion and economic activity has long been in economists' attention because the interaction between social values and religion will affect people's economic activities and the pattern in production behaviour. Besides, there is a correlation among religion, economic activities, and social changes (Weber, 1904; Anderson, 1988; McCleary, Barro, 2006; Amin, Alam, 2008). Since the partition of the two sides in 1949, the patterns in political and economic development have been different. As a result, there are also significant differences in economic activities, social atmosphere, and changes in trends. According to the World Values Survey, people in Mainland China have been showing gradual increase in their belief and participation in religious activities since 2000. Liu (2001a), and Ruan et al. (2013) indicate a rapid increase in the proportion of Chinese people with religious belief but a gradual year-to-year decrease in the percentage of people without religious belief. Development of the religious market is booming in Mainland China in the recent years. This is partially related to the relaxation of government regulatory policies (Liu, 2001b). Factors such asocial and cultural mechanisms and economic performance may also affect the public's demand for religion (Tu et al., 2011). In contrary to the regulatory situation in the early days of Mainland China, there is far more freedom in the religious development in Taiwan. Any religion is free to preach in Taiwan.⁴

When considering the development in western economics, Azzi and Ehrenberg (1975) is considered the very first in analysing such research topic in Europe and the United States before other related discussion flourished. In the Chinese world, the main topics of economics of religion primarily focus on social trust, evolution of religious sects, or qualitative analysis of the public's religious behaviour using field survey method (Tan, Vogel, 2008; Berggren, Bjørnskov, 2011). Very few researches have been devoted to empirical discussion about the impact on participation in religious activities or religious contributions from factors such as personal characteristics, household economic situations, and age. As indicated from the collection of literature, religious studies in China have primarily been focused on in the areas of philosophy, history, and study of religion. Ruan *et al.* (2013) indicate that there is still very little discussion on the topic of religion in Mainland China. On the other hand, most of the religion related literatures in Taiwan have focused on interviews and surveys of church-state

²For example, Adam Smiths pointed out in the Wealth of Nations that human religion not only will enhance one's own sense of morality but also will affect one's future compensation. Therefore, an individual who is in pursuit of great compensation will have an economic incentive to participate in religious activities. Marx's theory states that religion is an external force that dominates people's daily life and is a reflection of people's fantasy. Religious activities also reflect the production relations in reality.

³For aggregate and assortment of related literature, readers can refer to Iannccone (1998), and McCleary and Barro (2006).

⁴For recent religion development and changes in Taiwan, see details on Cheng (2011)

relations and folk belief studies (Kuo, 2009). Liu (2001a) is the only one who conducted an empirical research using social changes to investigate people's religious belief behaviour in Taiwan. Kuo (2009) compared the cross-strait differences in religion and political attitude. As for the researches that discuss people's religious activities in Mainland China, though in the recent years, Zheng *et al.* (2010) and Tu *et al.* (2011) have discussed the correlation between religious belief and economic performance in Henan rural areas and among residents in Tibet, respectively, research of this type is mostly limited to a certain region which might not be applicable to larger regions or even nationally. Simply speaking, empirical models were seldom used in the literature to discuss people's participation in religious activities or the correlation of religious contribution behaviour to education level, marital status, age, economic situation, and faith level.

Given the fact that there is lack of such research, how to fill the gap in the research literature has therefore become one of the motives of this study. A recent study of Amin and Alam (2008) further states that the faith level will affect the daily norms and habits of the believers during various stages in life. The changes in personal income can also impact participation in religious activities and their frequencies. Therefore, given the fact that there has been over 60 years of being separate rule, significant differences in people's religious belief and other activities as impacted by their acceptance level in and development situation of religion in the two cross-strait societies is the focus of this study. In addition, since after the study of Azzi and Ehrenberg (1975), research in the related economics field indicates that there is trade-off relationship between people's income level and their religious activities participation and frequency. Whether Chinese and Taiwanese participation behaviours' in religious activities are consistent with the conclusion of these related literatures is another focus of discussion in this study. In this study, using the database include the 2010 Chinese General Social Survey(CGSS) and the 2009 Taiwan Social Changes Survey (TSCS), we conducted an empirical analysis to discuss and find out the impact factors to Chinese and Taiwanese participation in religious activities and the peoples' religious contributions.

Empirical analysis results indicate that contrary to Taiwan society, educational level, gender, and family economic situation of the Chinese public do not show significant impacts on participation in religious activities, which is vastly different than the situations in Europe and the United States as discussed in literature. However, the impact is significant if the individual has adopted the religion since a young age and if the individual is a believer of a certain religion. In addition, personal income level and household economic situation of Taiwan people have very significant impact on religious contributions but insignificant to Chinese people's participation in religious activities. Some empirical analyses from Europe, the United States, and Taiwan indicate that there is a trade-off relationship between people's personal income and their participation and contributions in religious activities. But it was not conclusive with the Chinese people according to the empirical results in this study. If we divide the study samples by gender, Taiwanese males with unemployment experiences show higher participation rate in religious activities than males who were never unemployed before. As age goes up, the participation rate of Taiwan females is higher than that of males. But this correlation is not significant among the Chinese people. In addition, empirical data in Taiwan indicate a trade-off relationship between people's income and their participation and contributions in religious activities. That is, the higher the income, the lower the participation rate in religious activities, but this trend is not significant among the Chinese people.

Other sections of this paper are organized as follows. The next section is an introduction and assortment of economic analyses on related religious activities. The third

section is a brief description of the research information used in this study. The fourth section is a description of the empirical analysis results. The final section is the conclusion.

1. Literature Review

The earliest use of economic analysis in human religious activities dated back to the research done by Azzi and Ehrenberg (1975) (hereinafter the A-E model). In this model, afterlife consumption is regarded as the purpose of household in religious activities participation. The expected value of afterlife consumption depends on the time involved in religious activities for a certain time frame. After taking the inter-temporal utility function of household, an equation between consumer income and time is then considered to calculate the maximum inter-temporal utility. The A-E model indicates a positive relationship between age and religious activities, that is, the older people get, the higher their participation rate in religious activities. In addition, the effect of age is impacted by income. Age effect is more significant in females than in males. Moreover, there is a U-shape relationship between age and religious activities among the males indicating that working males are impacted by income more hence showing a greater extent in minimizing religious activities participation. A trade-off relationship is also found between time spent in religious activities and contributions, that is, households or individuals with lower time costs will spend more time to participate in religious activities in lieu of making contributions and vice versa. Followed is the study of Neuman (1986) that supports the conclusion in A-E model and a U-shape distribution in age is also obtained. However, the research of Ulbrich and Wallace (1983; 1984) suggests an opposite result and does not support a positive relationship between age and religious activities when expected value in afterlife consumption is considered. Besides, no relationship can be found between the age impact in senior females and the relatively lower wage range in females.

According to some religious human capital theories, the participation of households or individuals in religious activities (including time and money spent) accumulated is considered as special training and experiences of that particular religion, and is highly related to the income factor of households and individuals. Ewing (2000) conducted a study on the American catholic youths between the age range of 14 and 21 using the database of the National Longitudinal Survey of Youth(NLSY) as foundation. Ewing (2000) reveals that belief in Catholicism can possibly increase the human capital storage in an individual and release to the labour market some signals, such as discipline, honesty, and trustworthiness, which help explain the wage premiums in households or individuals. Besides, the analysis done by Steen (1996) suggests that male Jews or male Protestants have higher income level than males of other religious beliefs. Moreover, with respect to extent of religious participation, Lipford and Tollison (2003) used the per capita income of all the states in America to estimate the relationship between religious activities participation and income. The results indicate that participation in religious activities lowers the participant's income level while higher income level lowers the extent of participation in religious activities.

Some studies focus on the impact of religion to the supply of female labour. Lehrer (1995) suggests two channels where religion can impact the supply behaviour of female labour. First, different religious attitudes towards gender roles affect the division of labour model in households. Second, when women are married to men of different religion, they may possibly feel a stronger motivation in and linkage to the labour market. But the linkage is not stable when marrying to men with same religion. Heineck (2004) used the German Socio-

Economic Panel (GSOEP) database to analyse whether religion will impact married women's decision in working. The results indicate that women frequently participating in religious activities show a weaker tendency in joining the workplace. In addition, spouses with strong religious beliefs also have a negative impact on the supply of female labour. On the other hand, Bayanpourtehran and Sylwester (2013) used cross-sectional data in their empirical research. They initially found a lower labour force participation of women in Muslim countries. However, after including some controlled variables into the regression, the relationship between Islam and women's labour force participation was greatly reduced. This result agrees with some particular literatures. Besides, after considering these controlled variables, the relationship between Islam and women's participation in labour forces is similar to that between Catholicism and the women's labour force participation. In Protestant countries or countries without religion, female labour force participation tends to be higher. Research also shows that that the relationship between religion and female labour participation weakens over time. In addition, when considering the impact of religion on the employment decision of women living in cities and rural areas, Amin and Alam (2008) conducted an analysis on Malaysian family life survey. Result shows that the impact of religion on employment decision is smaller to women living in cities than to those in the rural areas.

Other religious activities related studies also include impact of religion to choice of education. Cohen-Zada and Sander (2008) analysed the factors that impact household choices among public schools, Catholic schools, Protestant schools, and non-religious private schools. Research results suggest that there is a stronger impact from religion and faith level to the choice of different kinds of schools. Participation in church activities shows a great impact on the chance of choosing a Catholic school. When Catholic parents send their children to public schools, the children are then sent to church activities at least once a week; the effect is the same as sending the children to a Catholic school. This result implies that the impact of Catholic schools might have been overestimated if the faith level is not controlled in research on the impact of Catholic schools to students. In addition, many researches also pointed out that religion and faith level impact economic outcomes greatly (e.g., Lehrer, 1999; 2004; Gruber, 2005; McCleary, Barro, 2006).

There has not been much research discussion on the economics of religion in both Mainland China and Taiwan. The following is a discussion on the research related to this paper. Liu (2001a) conducted an analysis on data received from a survey to people in the Taiwan region. Liu (2001a) indicates that Buddhists and Taoists visit their temples less as their income goes up while the amount of contributions goes up significantly. This observation is consistent with the result of Azzi and Ehrenberg (1975). Liu (2001b) used historical and policy research to study the religion development situation in Mainland China since the reform and opening up. The author pointed out that China has been under the influence of religion suppression from the Soviet Union since the regime established by the Chinese Communist Party through the early opening period. China has since then strengthened its control towards religions. But since the 1990s, the government has given up using violent and legal restrictions to suppress religious developments. Instead, the government has become more lenient in dealing with the religious groups. Due to this trend, overseas religions are able to return to the mainland for deeper penetration and development. Liu (2001b) suggests that when preaching, evangelists should cooperate with the existing churches in the mainland so as to avoid the risk of being banned and expelled.

Kuo (2009) used the World Values Survey to investigate both China and Taiwan, and compare their differences in religious and political attitudes. Comparisons among different religious believers reveal that the degree of acceptance to democracy is not simply confined to a particular religion. The degree of acceptance to democracy in Buddhists is not necessarily lower than that of Protestants. Discussion on co-existence between religion and democracy acceptance should be adjusted appropriately under different time environments. Zheng *et al.* (2010) investigated the relationship between social security in the rural areas of China and its rural religion. The authors used survey samples from the farmers in Song County of Henan Province for analysis. Results indicate that choices of religious beliefs and participation are impacted by risk aversion. Since religious beliefs can bring a certain degree of social security and risk aversion, religious beliefs or participation of rural people should be considered a risk-averse behaviour and manner.

Tu et al. (2011) used the household survey done in the Qinghai Lake region in Mainland China as the research sample to analyze the economic situation and religious beliefs of the local residents in Tibet. Empirical results indicate that there is a positive relationship between household income and religious beliefs. Besides, there is a U-shape relationship between people's religious participation and amount of contributions. This result is contrary to that of the empirical literature on traditional religious participation. The authors indicate that such phenomenon may possibly be related to pursuit in social status. According to the history of Tibet, religion has always been very important and well respected. Therefore, households of senior status may show stronger participation in religious activities and donate more in their pursuit of even higher social status.⁵ Lin (2014) used the religious market theory to analyze the development and current situation of the Chinese Christian organization members, theological position, religious market, and local government attitudes. Lin (2014) used case studies to discuss why there are gray areas in religious behavior in church. Lin's research (2014) suggests that, as the organization structure of the church becomes younger and more educated, open theological thinking is an important factor contributing to the development of gray areas in the church. The more important factors are indeed the slowdown of religion control in the overall government environment, and the increasing social value of the church and its autonomy. Implementation of policies to ensure separation of church and state is recommended in resolving the long-term conflicts between the church and the state in China.

Looking at the related empirical research in religious activities in China, most of the existing literatures are regional in nature. Samples are restricted to household surveys in a specific area. The results may explain the social phenomena in that specific area but not necessarily reflect the national situation. In this study, we will conduct a national sample survey in China and perform an empirical analysis. Religion participation, contributions with respect to personal characteristics, and impact factors of household economic situation will be discussed. Such empirical results will then be compared to those obtained in Taiwan accordingly.

2. Database

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⁵For related literature on economics of religion, Ruan *et al.* (2013) have aggregated a series of western literatures on the economics of religion in relation to the topic of religious beliefs.

The purpose of this study is to investigate the impact factors of religious activities participation and donation behaviour of people in China and Taiwan. Below is a description of the information obtained in China and Taiwan.

For China, we use sample surveys from the social networks in China taken in different regions of China and the 2010 CGSS database for evaluation. CGSS is an annual survey since 2003 that studies individuals of 125 counties (districts), 500 streets (townships, towns), 1,000 residents' (villagers') committees, and 10,000 families throughout China. CGSS is a large social database that is national, comprehensive, and continuous. CGSS is also the first completely open social survey project in China. By collecting information from the general public and various social aspects in China regularly and systematically, the goal of this project is to summarize the long-term trends of social changes and related social topics to provide information for government decision-making and international comparison. The survey is primarily done via the social survey networks in China with surveyors deployed from members in various locations, such as universities and research organizations, to local families in particular province for investigation and data aggregation. The nature of the database is similar to that of the Current Population Survey (CPS) in the United States, which includes respondents' personal information, income, family background, consumption expense situation, political attitude, and religious behaviour.

For Taiwan, we use the information from 2009 TSCS to compare the data used in China. TSCS is done by the Institute of Sociology, Academia Sinica. Using sampling to collect data, TSCS provides the academia with research analysis on related social changes in Taiwan. Since the definitions of the related religious variables in both surveys are similar and the survey periods reclose, ⁶ both empirical databases are aggregated in this study for discussion of various religion topics. Definitions of related variables are shown in *Table 1*.

Table 1. Definition of variables

Name of Variables	Definition
Religious activities participation	Frequency of religious activities participation, defined into 4 levels, 0: never participated before; 1. Participated in the past year; 2. Participated in the past month; 3. Participated in the past week.
Religious contribution	Study sample of total contribution amount in 2009. (Unit: NT\$)
Education level	Study sample of total learning time from elementary to highest education received. (Unit: years)
Marital status	Dummy variable, married=1, others=0.
Gender	Dummy variable, male=1, others=0.
Age	Age of study sample. (Unit: years)
Personal monthly income	Unit: NT\$.
Religious belief since young age	Dummy variable · religious belief since young=1, others=0.
Unemployment experience	Dummy variable with unemployment experience =1, others=0.
Believe in god	Sequence of variables: Do not believe in god=1; Not sure if there is god who cares about individuals=2; Do not believe there is god who care about individuals=3; sometimes believe but sometimes do not believe=4; Although not sure but still believe in god=5; Believe in god=6.
Household monthly income	Unit: NT\$

⁶In fact, both the Chinese General Social Survey and Taiwan Social Change Survey are members of the International Social Survey Program (ISSP) and East Asia Social Survey (EASS). Therefore, they share common topic modules that enable cross-database comparison.

Buddhist	Dummy variable · Buddhist=1, others=0.
Catholic, Christian	Dummy variable · Catholic, Christian=1, others=0.

Source: CGSS and TSCS, as sorted by this study.

The explained variables used in this empirical analysis are the frequency of participation in religious activities and amount of contributions respectively. Four levels are defined for the former variable: 0 represents that the sample never participated in religious activities; 1 represents that the sample has participated in religious activities in the past year; 2 represents that the sample has participated in religious activities in the past month; 3 represents that the sample has participated in activities in the past week.

Other variables are defined as follows: religious contribution amounts (logarithm is taken with unit in NT\$), education level (years), marital status (marital variable), gender, age, personal monthly income, with religious belief since young age, unemployment experience, religious attitude (belief in gods and faith level), family monthly income, 8 and Buddhist/Catholic/Christian. The reason we chose these variables is that we wanted to find out if participation in religious activities and contributions would be impacted by an individual's human capital accumulation (education level), religious attitude and faith level, personal or family economic situation, and unemployment experiences. There are 1,319 samples in Taiwan and 2,973 samples in Mainland China. Among these sample data, there are 738 samples which disclosures the religious contributions in Taiwan and 582 in Mainland China. Table 2 is a description of the data collected and arranged. The top and bottom of the table list the variables' average, standard deviation, maximum and minimum values, for people in Taiwan and Mainland China respectively. As we can see, most of the people in China have either not participated in religious activities before or within the past year, relatively lower than the enthusiasm of religious participation in Taiwan. In addition, variables such as religious contributions, education level, religious attitude (beliefs in gods), religious beliefs since young age, and income, are all relatively higher among people in Taiwan than in Mainland China. 26% of the samples drawn in Taiwan are Buddhists, Catholics, and Christians versus 8% in Mainland China. This phenomenon indicates that the smaller population of religious believers in Mainland China is possibly related to its late opening up to religions as compared to Taiwan.

Table 2. Description of statistics

Variable	Mean	Std. Dev.	Min	Max
Taiwan				
Religious activities participation	1.322	0.863	0	3
Religious contribution	6019.475	13811.990	100	120000
Education	12.505	3.818	1	25
Marital Status	0.651	0.477	0	1
Gender	0.565	0.496	0	1
Age	44.473	15.111	20	89
Personal monthly income	35369.810	33226.750	5000	350000

⁷Both samples from Taiwan and Mainland Chinese are converted to NT\$ (unit: dollar) and logarithm is taken for each.

⁸Definition of such variable is similar to personal monthly income with unit in NT\$ (unit: dollar) and logarithm is taken.

Religious belief since young age	0.855	0.352	0	1
Unemployment experience	0.112	0.316	0	1
Believe in God	2.293	1.526	1	4
Household monthly income	71864.150	66596.960	5000	1000000
Buddhist	0.204	0.403	0	1
Catholic, Christian	0.058	0.234	0	1
Mainland China				
Religious activities participation	0.170	0.532	0	3
Religious contribution	449.475	9539.350	0	500000
Education	8.824	4.576	0	18
Marital Status	0.849	0.358	0	1
Gender	0.544	0.498	0	1
Age	47.007	14.471	17	93
Personal monthly income	9939.004	22833.140	5000	550000
Religious belief since young age	0.173	0.378	0	1
Unemployment experience	0.249	0.432	0	1
Believe in God	1.532	0.935	1	4
Household monthly income	18935.400	17888.830	5000	1000000
Buddhist	0.055	0.228	0	1
Catholic, Christian	0.024	0.153	0	1

Source: CGSS and TSCS, as sorted by this study.

3. Empirical Estimation Results

In the estimation, we primarily used participation frequency in religious activities and religious contribution amount (logarithm) as the dependent variables, and adopted the Ordinary Least Square (OLS) method to study the possible impact due to all other explanatory variables. In addition, since the data of participation frequency in religious activities were of ordered data nature, which was a type of censored data; in order to facilitate literature comparison and investigation, Iannaccone (1990; 1998), Liu (2001a), Lipford and Tollison (2003) were referenced in the estimation besides using OLS in the regression analysis.

Table 3 shows the empirical analysis of all samples. To facilitate ease of comparison across literatures, we defined participation frequency in religious activities as dependent variable and all others as explanatory variables, all of which were studied respectively. According to the table, the coefficient estimate or impact direction calculated using OLS and Order Probit were consistent among different samples; and there is only a slight difference in the individual properties of the Taiwanese and Chinese people towards the impact of religious participation. Below is a further investigation on the participation frequency in religious activities based on the estimation results.

Table 3. Religious activities participation and empirical analysis (all samples)

	Taiwan		Mainland China	
	OLS	Ordered Probit	OLS	Ordered Probit
Education (years)	-0.021**	-0.028***	-0.005**	-0.019**
	(0.008)	(0.010)	(0.002)	(0.009)
Dummy variable, married=1, others=0	0.111*	0.170**	0.018	0.033
	(0.060)	(0.077)	(0.025)	(0.099)
Gender (male=1)	0.120**	0.137**	-0.017	-0.099
	(0.050)	(0.064)	(0.017)	(0.070)
Age (years)	0.016*	0.024*	-0.002	-0.005
	(0.010)	(0.013)	(0.003)	(0.014)
Age square (years))	-2.125E-04**	-3.273E-04**	2.060E-05	4.260E-05
	(9.750E-05)	(1.273E-04)	(3.560E-05)	(1.424E-04)
Personal monthly income (logarithm)	-0.104**	-0.122**	0.029*	0.088
,	(0.043)	(0.055)	(0.016)	(0.064)
Religious belief since young=1, others=0	-0.211***	-0.211**	0.309***	0.931***
,	(0.072)	(0.092)	(0.023)	(0.075)
Dummy variable, with unemployment experience=1, others=0	0.023	0.045	0.008	0.034
	(0.084)	(0.107)	(0.023)	(0.092)
Believe in god or not,	0.191***	0.257***	0.068***	0.192***
1=not really believe; 6=really believe	(0.016)	(0.022)	(0.006)	(0.020)
Dummy variable, Buddhist=1, others=0	0.080	0.123	0.349***	0.771***
,	(0.061)	(0.078)	(0.038)	(0.104)
Catholic, Christian	0.341***	0.331**	1.528***	1.991***
Dummy variable=1, others=0	(0.108)	(0.136)	(0.057)	(0.156)
Constant term	1.394***	·/	-0.120	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
	(0.381)		(0.155)	
Sample size	1319	1319	2973	2973
R-square	0.163		0.400	
log-likelihood		-1851.648		-1023.199

Notes: standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01.

Source: CGSS and TSCS, as sorted by this study and own calculations.

In the regression analysis, we found that education has a significantly negative impact on participation in religious activities. The education variable has a greater impact for the people in Taiwan than in China (Coefficient estimates were -0.021 and -0.005 respectively), which were different than those in Europe and the United States. Liu (2001a) indicates that research done in America and Britain shows a significantly positive relationship between education level and religious participation. But the database 1994 TSCS that was used in Liu's research shows no significant correlation between people's education level and religious participation. Our results also differ from Liu (2001a) according to our estimation. The difference could possibly be related to cultural difference or different religious characteristics hence causing differences between Chinese and westerners. Another possible reason for the difference could be due to changes in religious activities participation, but yet to be confirmed in subsequent research and verification.

When studying the variable of marital status, Iannaccone (1990) indicated that economies of scale will be generated from religious participation due to savings from sharing of related resources when the couple has the same religious belief. Data of the United States Catholic Survey from 1963 to 1974 were used in the research, which indicates that the religious participation frequency of couples with same religion belief was 30-40% higher than couples with different beliefs. Our empirical analysis indicates that the impact relationship among the dummy variables of married, gender, and the age variable was found insignificant to the people in China in the regression equation. But there was a positive impact for the people in Taiwan, perhaps relating to whether couples have same religious belief.

As inferred from the economics of religion model in Azzi and Ehrenberg (1975), the increase in religious participation time due to increase in age is offset by increase in wage until reaching middle age or near retirement that the participation time will increase again when the wage effect wears off. This phenomenon is especially significant for women. That is, the relationship between an individual's religious participation and age is in a U-shape trend. On the contrary, religious contributions show an opposite pattern. Contributions increase as wage increases with age; but when approaching or after retirement, contributions gradually decrease. The age variable estimation shows that the people in Taiwan have a higher participation frequency in religious activities as they age (although is slightly significant). But in terms of marginal diminishing effect, there is no significant impact in mainland China.

From all the variable estimations, we found that the impact of individual's monthly income (take logarithm) to religious participation is significantly negative in the Taiwan sample. The conclusion is similar to Azzi and Ehrenberg (1975), Sawkins *et al.* (1997), Liu (2001a), Lipford and Tollison (2003). But estimation results differ in Mainland China. According to the conclusion in Azzi and Ehrenberg (1975), there is a trade-off relationship between people's participation in religious activities and contributions. For individuals who have lower time cost (lower income), they are more willing to spend time participating in religious activities. But for those who are more sensitive to time cost (higher income), they will make contributions in lieu of participating in religious activities. However, Sullivan (1985) believes that people participate in religious activities primarily for the current effect that they can get, which is different to the model hypothesis in Azzi and Ehrenberg (1975). The impact of variables obtained from the empirical analysis in Sullivan (1985) is also opposite to Azzi and Ehrenberg (1975) but close to the empirical results in Mainland China.

For estimation of other variables, the impact of having religious belief since young age to religious participation shows opposite direction for both the Taiwanese and Chinese people. In addition, unemployment experience shows insignificant impact on religious participation. People's religious attitude (belief in gods) has a significantly positive impact on religious participation (coefficient estimates are 0.191 and 0.068 respectively). For estimation on the dummy variable of religious believers, Catholics and Christians show the greatest impact (0.341 and 11.528), possibly due to the fact that Catholics and Christians generally have a habit of going to church (Liu, 2001a)

People or housewives with wage lower or near 0 will spend more time to participate in religious activities.

¹⁰Readers can also refer to Newman (1986) for more information. Israeli men were used in the sample analysis of the study. Results show a U-shape relationship between age structure and the average number of church visits.

¹¹For income, we used individual and family income respectively and found that both have similar impact to religious participation and contribution. Hence, we only report the impact of individual income.

Table 4. Religious activities participation and empirical analysis (male and female samples)

	Т	aiwan	Mainla	and China
	Male	Female	Male	Female
	OLS	OLS	OLS	OLS
Education (years)	-0.025**	-0.016	-0.004	-0.005
	(0.011)	(0.012)	(0.003)	(0.003)
Dummy variable, married=1, others=0	0.238***	0.014	0.062**	0.008
	(0.089)	(0.082)	(0.032)	(0.039)
Age (years)	0.005	0.030**	-0.004	1.121E-04
	(0.014)	(0.015)	(0.004)	(0.006)
Age square (years)	-1.155E-04	-3.323E-04**	2.990E-05	2.310E-05
	(1.322E-04)	(1.493E-04)	(4.440E-05)	(5.760E-05)
Personal monthly income (logarithm)	-0.122**	-0.088	0.019	0.047
,	(0.058)	(0.065)	(0.019)	(0.031)
Religious belief since young=1, others=0	-0.201*	-0.214**	0.289***	0.332***
•	(0.110)	(0.097)	(0.029)	(0.037)
Dummy variable, with unemployment experience=1, others=0	0.234*	-0.096	0.047	-0.028
	(0.134)	(0.115)	(0.031)	(0.034)
Believe in god or not,	0.190***	0.190***	0.083***	0.054***
1=not really believe; 6=really believe	(0.021)	(0.026)	(0.008)	(0.009)
Dummy variable, Buddhist=1, others=0	0.057	0.087	0.190***	0.454***
,	(0.083)	(0.091)	(0.056)	(0.053)
Catholic, Christian	0.455***	0.217	1.288***	1.636***
Dummy variable=1, others=0	(0.167)	(0.142)	(0.096)	(0.074)
Constant term	1.822***	1.074*	0.055	-0.434
	(0.520)	(0.589)	(0.180)	(0.292)
Sample size	745	574	1611	1362
R-square	0.178	0.156	0.312	0.461

Notes: standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01.

Source: CGSS and TSCS, as sorted by this study and own calculations.

Table 4 further separates the samples from Taiwan and Mainland China into male and female groups using regression model for analysis. The empirical results show that there is no significant impact from variables of education, marital status, and unemployment experience on female's religious participation. Although there is no significant impact from the age variable, as women age, their religious participation is significantly higher than men (see age estimation in female sample, coefficient at 0.0030), which is consistent with the conclusion in Azzi and Ehrenberg (1975). In addition, for both men and women, the variable of belief in god (0.190, 0.190, 0.083, and 0.054) shows significant impact on their religious participation frequency. Besides, Taiwanese men with unemployment experience (0.234) show a higher religious participation frequency than those without unemployment experience. But no impact is observed to women with unemployment experience. To explain such

¹²We also followed Table 3 using regression analysis and Ordered Probit for estimation. But the estimation results turned out similar to those using traditional regression. Due to limited space, only regression results are listed.

Only Taiwan women sample shows significant level.

phenomenon, we think that the Chinese society has different expectations for men and women. Either in a traditional agricultural society or the modern Chinese society, men are usually assigned the role of family breadwinner, which has intuitively created more pressure on men than women. Besides, men tend not to vent out their frustration as openly as women. This possibly explains why men show higher tendency than women to pursue help from religion when unemployed or facing family economic problems.

Comparing *Table 3* and *Table 4*, we see that there are two other differences between Taiwanese and Chinese people, namely income and religious belief since young age. Contrary to Mainland China, the religious participation of people in Taiwan is more consistent with the literature in Europe and America, that when income level is higher, the incentive to participate in religious activities is reduced; the effect is not significant in the Chinese society though. Besides, Taiwanese people with religious belief since young age show a much lower participation frequency in religious activities than in the Chinese society. After controlling other variables, such behaviour can be explained by the trend in the effectiveness of religious activities, which will diminish after going up at the beginning. That is, when the sense of satisfaction from consumption of a product steadily increases in a consumer, continual consumption of such product will possibly exceed the point of saturation where diminishing effect will show. We suspect that possibly because the Taiwan society was opened up earlier than the Chinese society in religion, and is therefore more prone to a diminishing trend than in Mainland China.

Table 5. Empirical analysis of religious contribution (all samples)

	Taiwan	Mainland China
	OLS	OLS
Education (years)	0.043***	0.026
	(0.015)	(0.017)
Dummy variable, married=1, others=0	0.014	-0.033
	(0.028)	(0.216)
Gender (male=1)	0.147	-0.065
	(0.095)	(0.138)
Age (years)	0.096***	0.003
	(0.022)	(0.029)
Age square (years)	-6.761E-04***	3.430E-06
	(2.209E-04)	(3.090E-04)
Personal monthly income (logarithm)	0.226***	0.379***
	(0.082)	(0.114)
Religious belief since young=1, others=0	-0.513***	0.566***
,	(0.126)	(0.142)
Dummy variable, with	,	, ,
unemployment experience=1, others=0	0.485***	0.195
•	(0.160)	(0.181)
Believe in god or not,	0.156***	0.137***
1=not really believe; 6=really believe	(0.034)	(0.037)
Dummy variable, Buddhist=1, others=0	0.182	0.182
	(0.111)	(0.196)
Catholic, Christian	0.673***	0.840***

Dummy variable=1, others=0	(0.181)	(0.278)	
Constant term	0.582	-3.149***	
	(0.812)	(1.180)	
Sample size	738	582	
R-square	0.290	0.183	

Notes: standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01.

Source: CGSS and TSCS, as sorted by this study and own calculations.

Besides participation in religious activities, another focus of this study is religious contribution. *Table 5* lists out the impact of all the explanatory variables to religious contribution amounts. We found that high in education level, age, personal or family income; unemployment experience, higher faith level, Catholics and Christians are all contributing factors to the willingness in making religious contribution in the people of Taiwan. But the impact from marital status, gender, and being Buddhist is not significant. In comparing cross-strait differences, individuals with better economic status tend to contribute more (all estimation results show significance), similar to results obtained from Zheng *et al.* (2010). But there is no significant impact observed from the variables of education, age, and unemployment experience to the behaviour of religious contribution in people from the Chinese society.

Table 6. Empirical analysis of religious contribution (male and female samples)

	Taiwan		Mainland China	
	Male	Female	Male	Female
	OLS	OLS	OLS	OLS
Education (years)	0.044**	0.047**	0.021	0.030
	(0.022)	(0.020)	(0.028)	(0.022)
Dummy variable, married=1, others=0	-0.003	0.030	-0.124	0.132
	(0.045)	(0.035)	(0.327)	(0.314)
Age (years)	0.070**	0.118***	-0.038	0.036
	(0.035)	(0.028)	(0.039)	(0.045)
Age square (years)	-4.624E-04	-8.660E-04***	4.438E-04	-3.105E-04
	(3.457E-04)	(2.860E-04)	(4.092E-04)	(4.792E-04)
Personal monthly income (logarithm)	0.134	0.347***	0.314**	0.429**
	(0.128)	(0.108)	(0.142)	(0.212)
Religious belief since young=1, others=0	-0.579***	-0.458***	0.358*	0.729***
,	(0.210)	(0.157)	(0.205)	(0.201)
Dummy variable, with unemployment experience=1, others=0	0.111	0.737***	-0.066	0.306
	(0.278)	(0.201)	(0.291)	(0.239)
Believe in god or not,	0.135***	0.188***	0.200***	0.085
1=not really believe; 6=really believe	(0.049)	(0.046)	(0.054)	(0.051)
Dummy variable, Buddhist=1, others=0	0.154	0.225	-0.054	0.313
	(0.162)	(0.153)	(0.307)	(0.263)
Catholic, Christian	0.904***	0.452**	0.889**	0.931***
Dummy variable=1, others=0	(0.301)	(0.222)	(0.477)	(0.353)

		Structural Trans	<mark>formations in B</mark> l	<mark>ısiness Develo</mark> p	men
Constant term	2.430**	-1.308	-2.606*	-4.004**	
Constant term	(1.255)	(1.093)	(1.569)	0.132	_
Sample size	382	356	266	316	
R-square	0.239	0.369	0.228	0.171	_

Notes: standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01.

Source: CGSS and TSCS, as sorted by this study and own calculations.

Table 6 is an estimation based on male and female cluster sampling. Results are similar to Table 5. Among the results, the estimation of age variable in the Taiwan society is consistent to the hypothesis in Azzi and Ehrenberg (1975): impact of the age variable is positive but that of the square root is negative. The outcome indicates that although religious contribution increases as age increases, the percentage of increase goes down as age increases. But such relation is not significant in the Chinese society. Regardless of gender, both variables of personal income and having religious belief since young age lead to higher contribution. Economic status is a variable that is worth our attention. In comparing Table 3 to Table 5, economic status might not necessarily show a significant impact to the participation frequency in religious activities of an individual but very significant to his/her contribution. In other words, in both Taiwan and China, the better the economic status, the higher the contribution amount (willingness) an individual will make. In comparing the cross-strait societies, we found a trade-off relationship between income level and participation frequency of religious activities in the Taiwan society, that is, as income increases, people's participation in religious activities goes down but corresponding religious contribution goes up. However, similar empirical results only show in the contribution part in the Chinese society.

Conclusions

Comparing to literature that uses empirical analysis to discuss people's religious beliefs in Europe and America, related research on people of Mainland China is relatively scarce. Besides, there is no related research available that compares cross-strait people's participations in religious activities and their contribution behaviours'. As the Chinese government has only started to relax the policies on religion restrictions since after 1990s, religion development in China in the recent years is therefore at its very beginning stage as compared to the other countries. Secondly, existing empirical research of religious activities in China is mostly limited to certain regions; analysis and discussion of the academic results do not necessarily reflect the trend across the whole nation. Besides, there has not been any quantitative analysis or comparison exclusively addressing the people's religious behaviour in the society across the two straits. In referencing to the empirical analysis of religious behaviour used in various literatures in China, we use the Chinese General Social Survey and the Taiwan Social Change Survey to analyse cross-strait people's religious participations and their contribution behaviours', making comparison supplemented with related literature to find out if there are any differences. According to the estimation results, there is no significant impact from gender and economic situation to people's religious participation in Mainland China but very significant to people's religious participation or contribution in Taiwan. In addition, education level and income level have significant impact to people's religious contribution in Taiwan but not in the Chinese society. According to sample clustering by gender, results show that men with unemployment experience show a higher participation frequency in religious activities than men without unemployment experience. As age increases, Taiwanese women increase their participation time in religious activities. In

comparing the differences of people's religious activities as discussed in literatures from Taiwan and Mainland China, we found that the impact of education level to religious participation is relatively lower in the people of China than in Taiwan. But a totally opposite result was observed between the two straits for the variable of having religious belief since young age.

In summary, the empirical results of samples taken in Taiwan are more consistent with the results in literature from Europe and America. Empirical results in China appear to be more inconsistent. This is possibly due to differences in eastern and western culture and Taiwan is generally regarded as more westernized. In addition, income is an important factor to the trade-off relationship between people's participation in religious activities and their religious contribution behaviour. The empirical analysis in this study confirms such trade-off situation in Taiwan but not in China. We propose three possible reasons: 1. The effect might have been distorted by the religion control policies in the Chinese government polluting the significance of the trade-off relationship. 2. People's goal of having religious belief in Mainland China is not for afterlife consumption as suggested by Azzi and Ehrenberg (1975) but for current effectiveness as suggested by Sullivan (1985). 3. Stress-related - Perhaps due to stress, Chinese people at a certain age level participate more in religious activities to pursue religious consolation so as to release some of the stress they experience. Whether there are other factors in play, more in-depth discussion is needed in subsequent research.

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RELIGINĖS VEIKLOS ŽEMYNINĖJE KINIJOS DALYJE IR TAIVANE EMPIRINIS TYRIMAS

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SANTRAUKA

Šiame tyrime panaudota 2010 metų "Kinų bendroji socialinės apklausos" (CGSS) ir 2009 metų "Taivaniečių socialinių pokyčių apklausos" (TSCS) pagrindu sudaryta duomenų bazė. Tikslas – ištirti ir palyginti Kinijos ir Taivano religinių veiklų ir aukojimo panašumus ir skirtumus. Empiriniai rezultatai atskleidžia, kad nuo vaikystės įdiegti religiniai įsitikinimai bei pačių žmonių požiūris į religiją yra itin reikšmingi, susiję su dalyvavimo religinėse veiklose dažniu. Rezultatai taip pat atskleidžia, kad asmeninės pajamos ir ekonominė namų ūkio situacija labai lemia skiriamų religinių aukų dydį. Tyrimo rezultatai atskleidžia, kad taivaniečiai vyrai, turintys bedarbystės patirties, dažniau dalyvauja religinėse veiklose nei tokios patirties neturintys vyrai. Taivaniečių moterys su amžiumi vis dažniau dalyvauja religinėse veiklose, tačiau žemyninėje Kinijos valstybės teritorijoje amžius dalyvavimui religinėje veikloje nedaro jokios įtakos. Taivane surinkti empiriniai duomenys rodo, kad žmonių pajamas su dalyvavimu religinėse veiklose ir religinėmis aukomis sieja kompromisiniai santykiai. Kuo didesnės asmeninės žmogaus pajamos, tuo mažesnis jo dalyvavimas religinėse veiklose. Ši koreliacija nebūdinga kinų visuomenei.

REIKŠMINIAI ŽODŽIAI: religinis dalyvavimas; religinės aukos; kompromisiniai santykiai, Kinija, Tailandas.