

Article

What Role Does Religion Have in Shaping Human Consumption?

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Abstract: Religious belief, as an informal social institution, has a significant impact on all aspects of human civilization. Previous literature has studied the effects of religious belief on economic growth, income, education, etc. Therefore, using the case of China as an example, this paper aims to investigate the effect of religious belief on human consumption. An empirical review of cross-sectional data from China's 28 provinces reveals that religious belief has a detrimental impact on human consumption. Meanwhile, two-stage least squares and substituting the dependent variable (hc2) are employed to perform robustness tests. The new results also support the conclusion that religious belief negatively affects human consumption. In addition, this paper also discusses the heterogeneous effect of religious belief on human consumption in terms of geographical location, income level, and marketization degree. The results demonstrate the existence of the heterogeneous effect. Specifically, in the western area, low income level, and low marketization degree, religious belief negatively affects human consumption the most. On the contrary, in the eastern area, high income level, and high marketization degree, religious belief negatively affects human consumption the least.

Keywords: religious belief; human consumption; two-stage least squares; heterogeneous effect; geographical location; income level; marketization degree



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1. Introduction

As a special social ideology and cultural phenomenon, religion affects most aspects of human society. The United Nations Statistics Division states that currently, about 90% of people still believe in various forms of religion. As a result, we may still observe religious belief playing a distinctive role in many fields of modern social life. The influence of religion on ideology, culture, customs, politics, military, and other fields is known (Arbuckle 2017; Røislien 2013; Kaneff 2018; Yagboyaju 2017). However, in the realm of human consumption, we notice that the issue of how much influence religion has and in what aspects this influence is felt has received little attention. Of course, this issue is the purpose of this paper. Consistent with the diversity of religious content and forms, the effect of religion on people's consumption behavior is also multi-level and multi-angle (Al-Hyari et al. 2012; Nassè 2020). This is not only related to the specific contents of religion itself, such as doctrines, rites, and prohibitions, but also directly related to the individual's cultural background, living environment, piety, belief emphasis, and their different understandings of religion (Aldashev and Platteau 2014). As a result, this influence will manifest itself in various ways and degrees among different religions and adherents.

Firstly, from the proportion of religious life and secular life in the total consumption, the consumption expenditure for religious life will account for a certain proportion of the total consumption among religious believers. Its degree increases or decreases with believers' piety and lifestyle (Coşgel and Minkler 2004). Secondly, from the perspective of the restrictive factors of consumption behavior and consumption structure, due to the life content and lifestyle that are contrary to or inconsistent with religious teachings or are not advocated, they are restricted or prohibited in various forms among religious

believers, and their consumption expenditure in this regard will be restricted or prohibited accordingly (Bloom and Arian 2012). Thirdly, from the perspective of consumption direction and its change, consumption behavior will also be indirectly affected by religious teachings (Choi et al. 2013). For example, devout religious believers often do not pay attention to glory and a comfortable life and do not pursue high-grade material enjoyment. On the contrary, they oppose the luxury lifestyle. Therefore, the proportion of human consumption expenditure for various material enjoyments or entertainment activities in the total consumption expenditure is smaller than that of ordinary people. In addition, the share of such people's expenditure on religious life would rise, and their consumption expenditure on indirect religious life is also larger than that of the general public.

Fourthly, from the perspective of religious consumer goods and substitutes, in recent years, a large number of religious goods have broken through the traditional religious uses and entered thousands of households in the form of handicrafts, cultural goods, and even daily necessities, which can also be regarded as an indirect effect of religious belief on the consumption behavior of non-religious believers (Chiswick 2006). Fifthly, from the perspective of religious tourism, since many places of religious activity are themselves places of tourism, such famous mountain scenic spots, temples, and churches covered with religious mystery have not only been pilgrimages for religious believers since ancient times, but also destinations for a large number of non-religious believers. They also have unusual temptations for non-religious believers, especially in modern society with its developed economy and improving quality of life. Sixthly, from the perspective of the consumption concept and consumption mode, some religious doctrines or commandments do not advocate or even prohibit the accumulation of money. Therefore, for some religious believers, savings will be despised in varying degrees, which will inevitably affect the change of consumption mode (Wilson 1997).

To summarize, we can observe from the above study that religious belief has an impact on people's consumption, either directly or indirectly. From a direct point of view, He et al. (2021) have discussed the effect of religious participation on sustainable culture and entertainment consumption. They defer to future researchers on the impact of religion on human consumption. As a result, to fill this void, we isolate human consumption from total consumption in this paper. Then, we attempt to explore the effect of religious belief on human consumption. Our findings, based on an empirical analysis of cross-sectional data from the Chinese General Social Survey spanning China's 28 provinces, imply that religious belief has a detrimental impact on human consumption. Furthermore, this paper also discusses the heterogeneous effect of religious belief on human consumption in terms of geographical location, income level, and marketization degree. The findings suggest that the heterogeneous effect exists in these three aspects. Concretely, religious belief negatively affects human consumption most in the western area, low income level, and low marketization degree. Religious belief, on the other hand, has the least negative impact on human consumption in the eastern area, high income level, and high marketization degree.

The rest of this paper is organized as follows. Section two focuses on the literature review. Section three presents the variable description and model specification. Section four concentrates on the estimation results and discussions. Section five presents the conclusion.

2. Literature Review

Previous studies have studied the relationship between religious belief and consumption. However, no agreement has been achieved. As a result, more focus will be placed in this section on the examination of this issue in prior research in terms of diverse samples, time periods, and methodology.

Religious belief may be viewed as one of human society's cognitive system. That is, people who share a religious belief have a cognitive system that includes beliefs, values, expectations, and behaviors (Hirschman 1983). Consumers' religious beliefs can influence consumers' purchasing behavior through a variety of products (Sheth 1981), but also through their personality structure; -their beliefs, values, and behavioral inclinations

(Sheth et al. 2004). Engel (1976) studied religious sects and consumption in Brazil. He found that there were differences in psychological characteristics between members of God's church and the Lutheran Church, which affect believers' understanding and cognition of products and services, and ultimately affect their consumption. When studying whether religious belief affected the location of stores, Thompson and Raine (1976) found that religious belief was an effective basis for furniture sales market segmentation. For example, the basic consumption of food, clothing, and furniture varied with religious beliefs. When studying the main media usage habits of evangelical and non-evangelical consumers, McDaniel and Burnett (1991) found that there were differences in market segmentation between them. Compared with non-evangelicals, evangelical believers were less likely to consume business and skin care magazines, heavy rock or pop music, or comedic or adventure dramas. However, they tended to consume religious magazines and religious radio media more often than non-evangelicals. Just et al. (2007) assessed the impact of religious beliefs on the food consumption of each family member through a survey of Israeli family members. Their findings suggested that although the direct effect of religious belief on food consumption could be well understood through strict laws, the indirect effect of religious belief on food consumption was vague.

Religious beliefs influence consumer behavior and can have varied effects on people and civilizations. Mathras et al. (2016) provided a theoretical framework for investigating the influence of religion on consumer behavior. They defined it as a multidimensional concept. They found that religion could influence consumer behavior through values, beliefs, community, and rituals. Subsequently, Forghani et al. (2019) intended to analyze this issue through an examination of Iranian consumers' behavior. Interestingly, despite religious beliefs about luxury, religious belief has no influence on consumer behavior. Conversely, Agarwala et al. (2019) provided a synopsis of a review on religion and consumer's behavior. According to a review of marketing research, religious belief affected consumer outcomes such as intolerance, materialism, risk aversion, and ethics. Meanwhile, it also had an influence on consumer attitudes toward religious items as well as economic purchasing behavior. With samples from Korea and the US, Minton (2015) found that the religious value system of consumers affected their sustainable behavior, and Buddhists were more sustainable than Atheists and Christians. Moreover, they also found that religion has a constant impact on sustainable behaviors throughout cultures. Following that, Minton et al. (2018) conducted a survey using a representative online panel to examine the effect of religious values on sustainable consumption behaviors. They found that religious belief had a favorable impact on sustainable consumption behaviors. These findings were also supported by other researches (Minton et al. 2019; Johnson et al. 2021).

Meanwhile, religion is a major source of basic values, as well as one of the most profoundly psychological experiences. Previous studies, however, have frequently underestimated religion's effect on consumer behavior. Minton et al. (2016) used 1000 participants to test the effect of religion on consumption behavior. They found that consumers with a high level of external religiosity were more materialistic, more environmentally conscious, and more inclined to volunteer than consumers with a low level of external religiosity. Consumers who had a high level of internal religiosity were also more inclined to be environmentally conscious. In addition, KHajeh Nori et al. (2012) used 383 participants to study this topic. Employing the Ajzen model to conduct an empirical analysis, they found that various dimensions of religion such as cognitive, sequential, ritual, and experiential dimensions exhibited a significant negative correlation with consuming attitudes. Moreover, Lindridge (2009) also agreed with this idea. Subsequently, Praswati and Prijanto (2017) employed 300 Muslim respondents to investigate the impact of religion on consumer behavior. According to their findings on Muslim consumer behavior, religion had a significant effect in Indonesian Muslim society's purchasing decisions. Of course, the findings above are also consistent with Iqbal and Nisha (2016); Petrescu (2012); Evans et al. (2012); Yan and Jia (2021).

Religion is crucial to the process of societal development. From the perspective of the relationship between religion and society, religious belief is introduced into sociological theory, which expands the influence of religious belief on society. Under the influence of sociological theory, religious belief tended to be more worldly (Swenson 2000). Durkheim (2014) further pointed out that religious belief had penetrated all corners of social life. Therefore, it was not difficult to see that in many fields of society, religious belief played a unique role in social development and the consumption links in many fields of society were affected by religious belief. Hirschman (1984) believed that people's consumption reasons, consumption structure, and consumption quantity were affected by religious beliefs. Fam et al. (2004) also claimed that religious belief not only affected the segmentation of the consumer market but also affected total consumption. In addition, Delener (1990) believed that the potential for religious traceability was an important factor in predicting consumption. Wilkes et al. (1986), Khraim (2010), and Sood and Nasu (1995) studied the relationship between religion and consumption from the aspects of measurement, participant gender, and data acquisition methods. Moreover, Heiman et al. (2004), and Engelland (2014) found that religious belief negatively affected food consumption. This finding is also supported by previous studies (Engelland 2014; Mullen et al. 2000).

In addition, Dezhua et al. (2012) believed that in China's current society, the effect of religious belief (as an informal institutional factor) on people's economic behavior could not be ignored. Based on the cross-sectional data from the Chinese General Social Survey, Chen et al. (2020) discussed the effect of religious belief on gift consumption at the micro level. Their empirical results showed that religious belief had a significant inhibitory effect on gift consumption. Meanwhile, compared with the high-income sample, religious belief had a greater effect on gift consumption in the low-income sample. Compared with the areas with a high marketization degree, the effect of religious belief on gift consumption was more obvious in areas with a low marketization degree. From a new aspect, Peifer et al. (2016) used the United States as an example to study the role of religion in shaping attitudes toward environmental consumption. Using nationally representative survey data to perform an empirical analysis, their results showed that the relationship between religious belief and environmental consumption was different. Specifically, religious attendance and religious identity were positively correlated with environmental consumption. However, participation in God's belief was negatively correlated with environmental consumption. In the case of India, Saxena and Bhattacharya (2018) conducted an empirical analysis using National Sample Survey Organization data from 87,753 households. They found that religious belief negatively affected consumption. With a sample from Spain, Baena et al. (2019) used survey data with a sample of 2890 in Madrid to test the effect of religious belief on consumption. Their results showed that religious belief was negatively related to consumption. This finding is supported by previous studies (Tumwesigye et al. 2013; Carlucci et al. 1993; Wasserman and Trovato 1996; Kalema et al. 2016).

In summary, the present research pays little attention to the influence of religious belief on human consumption. In light of this, this paper aims to focus on residents' human consumption and investigate the effect of religious beliefs on residents' economic behavior. This complements and enriches the existing literature, especially in light of the actual backdrop of excessive human consumption in today's society. It is thus of great practical importance to investigate the effect of the informal system of religious belief on residents' human consumption when the formal system is unable to prevent it.

3. Variables Description and Model Specification

3.1. Variables Description

From an economic point of view, human consumption refers to the consumption of goods (these goods include daily toiletries, furniture, kitchenware, decorative supplies, cosmetics, bedding, and use of water for drinking, bathing, showering, hand washing, oral hygiene, cooking, etc.) by humans. In this paper, human consumption is treated as a dependent variable. It is measured in two ways: the proportion of human consumption

expenditure in total expenditure and the proportion of human consumption expenditure in log. This data is sourced from the Chinese General Social Survey.

Religious belief belongs to a distinct social ideology and cultural phenomena. It is treated as an independent variable. The question: ‘Do you have any religious beliefs?’ is designed with multiple choices on the Chinese General Social Survey. These multiple options include: (1) I do not have any religious beliefs.; (2) I am a follower of Buddhism; (3) I am a Taoist believer; (4) I have folk beliefs, including the worship of Mazu and Guan Gong; (5) I am a Muslim, with Islamic beliefs; (6) I am a devout Catholic; (7) I am a devout Christian; (8) I am a practicing Orthodox Christian; (9) I have additional Christian convictions; (10) I am a follower of Judaism; (11) I follow Hinduism; (12) I have different beliefs. In the final samples (the Chinese General Social Survey includes 12582 samples), apart from the answers: ‘I do not know’ and ‘not applicable’, the rest, which are used in this paper, include 8025 samples. The ratio of each option is shown as follows. Option (1): 81.325% with 6527 samples, option (2): 5.134% with 429 samples, option (3): 0.424% with 34 samples, option (4): 3.169% with 254 samples, option (5): 3.627% with 291 samples, option (6): 0.342% with 26 samples, option (7): 2.973% with 239 samples, option (8): 0.160% with 13 samples, option (9): 0.218% with 18 samples, option (10): 0.116% with 9 samples, option (11): 0.187% with 15 samples, and option (12): 2.369% with 190 samples. Following previous studies (Miao et al. 2021; Cheng et al. 2021; Voas and Storm 2021; Cuevas and Dawson 2021), religion is set as a dummy variable. If a respondent has a religious belief, the value will be equal to 1; otherwise, the value will be 0.

Because the effect of religious belief on human consumption is affected by other factors, some related variables (control variables) are introduced in this paper so as to accurately estimate the effect of religious belief on human consumption. Following Yi et al. (2021) and Budak et al. (2021), the age of respondents is introduced. Following Kim and Crowe (2021) and Kesintürk (2021), the income level of respondents is introduced. Following Ida and Saud (2021), MahdiNejad et al. (2021), and Yeganeh (2021), the gender of respondents is introduced. Following Nixon et al. (2021), Upenieks and Schieman (2021), and Babie (2021), the education level of respondents is introduced. Following Saleem et al. (2021), and Walters and Benjamins (2021), the healthy status of respondents is introduced. Following Cuevas and Dawson (2021), and Ksiazkiewicz and Friesen (2021), the political orientation of respondents is introduced. Following Williams et al. (2021) and Myers (2004), the marital status of respondents is introduced. Following Karpov et al. (2012) and Stroup (2017), the ethnic identity of respondents is introduced. All these control variables will be added into the framework of the effect of religious belief on human consumption.

All the data in this paper is sourced from the Chinese General Social Survey, which covers 28 provinces and cities. To intuitively understand these variables, Table 1 shows the specific details of them.

Table 1. Results of variable description.

Variable	Form	Definition
Human consumption 1	hc1	Human consumption expenditure (unit: thousand yuan) in log
Human consumption 2	hc2	Proportion of human consumption expenditure in total expenditure
Religious belief	rb	Dummy variable (if a respondent has a religious belief, the value will be equal to 1; otherwise, the value will be 0)
Age	ag	Age in log
Income level	ll	Gross income +1 (unit: thousand yuan) in log
Gender	ge	Dummy variable (if a respondent is male, the value will be 1; otherwise, the value will be 0)

Table 1. *Cont.*

Variable	Form	Definition
Education level	el	Dummy variable (if a respondent has an undergraduate degree, the value will be 1; otherwise, the value will be 0)
Healthy status	hs	Very unhealthy = 1; Unhealthy = 2; Average = 3; Healthy = 4; Very healthy = 5
Political orientation	po	Dummy variable (if a respondent belongs to the Communist Party, the value will be 1; otherwise, the value will be 0)
Marital status	ms	Dummy variable (if a respondent is married, the value will be 1; otherwise, the value will be 0)
Ethnic identity	ei	Dummy variable (if a respondent belongs to Han, the value will be 1; otherwise, the value will be 0)

3.2. Model Specification

A baseline regression model is built up to analyze the effect of religious belief on human consumption. It is shown as follows:

$$hc_1 = a_1 + a_2rb + a_3ag + a_4ll + a_5ge + a_6el + a_7hs + a_8po + a_9ms + a_{10}ei + \omega, \quad (1)$$

where a_1 stands for the constant; [a_2 a_{10}] stands for the coefficients to be estimated; ω stands for the white noise. In this paper, more emphasis will be put to the value of a_2 . Specifically, if the sign a_2 is positive and statistically significant, this means that religious belief positively affects human consumption. On the contrary, if the sign a_2 is negative and statistically significant, this indicates that religious belief negatively affects human consumption. Otherwise, religious belief cannot affect human consumption.

4. Empirical Analysis

4.1. Basic Characteristic Description of Variables

This subsection describes the basic characteristics of variables used in this paper. These characteristics include mean, minimum, maximum, and standard deviation. The results of the basic characteristic description of the variables are presented in Table 2.

Table 2. Results of basic characteristic description of variables.

Statistic/Variable	hc1	hc2	rb	ag	ll	ge	el	hs	po	ms	ei
Mean	1.956	0.773	0.152	1.659	2.683	0.420	0.017	3.265	0.075	0.897	0.921
Minimum	0.278	0.569	0	1.255	0.352	0	0	1.000	0	0	0
Maximum	3.007	0.814	1	1.908	5.668	1	1	5.000	1	1	1
Standard deviation	1.514	0.247	0.413	0.184	0.145	0.112	0.134	1.167	0.068	0.329	0.126

As the results in Table 2 indicate, human consumption 1 has a mean of 1.956 with a standard deviation of 1.514. Human consumption 2 has a mean of 0.773 with a standard deviation of 0.247. Characteristics of human consumption 1 and human consumption 2 show that most respondents have a trend of consuming goods such as daily toiletries, furniture, kitchenware, decorative supplies, cosmetics, bedding, and use of water for drinking, bathing or showering, hand washing, oral hygiene, or cooking, etc., in this sample. Religious belief has a mean of 0.152 with a standard deviation of 0.413. This result indicates that on average, 15.2% respondents in this sample have religious beliefs. Meanwhile, the standard deviation (0.413) indicates that respondents' religious beliefs fluctuate easily; that is, their religious beliefs are not firm. Age has a mean of 1.659 with a standard deviation of 0.184. Income level has a mean of 2.683 with a standard deviation

of 0.145. Gender has a mean of 0.420 with a standard deviation of 0.112. Education level has a mean of 0.017 with a standard deviation of 0.134. Healthy status has a mean of 3.265 with a standard deviation of 1.167. Political orientation has a mean of 0.075 with a standard deviation of 0.068. Marital status has a mean of 0.897 with a standard deviation of 0.329. Ethnic identity has a mean of 0.921 with a standard deviation of 0.126.

4.2. Regression Analysis

This subsection focuses on the analysis of the effect of religious belief on human consumption. The results are presented in Table 3.

Table 3. Results of analysis of the effect of religious belief on human consumption (hc1).

Variable/Model	Model (1): hc1	Model (2): hc1
rb	−0.048 *** (−6.466)	−0.043 *** (−6.023)
ag		−0.004 * (−1.887)
ll		0.587 *** (7.626)
ge		0.026 (1.063)
el		0.049 ** (2.301)
hs		0.078 *** (4.518)
po		0.070 (1.332)
ms		0.019 ** (2.226)
ei		0.137 *** (2.943)
c	1.548 *** (2.815)	2.017 ** (2.399)
R ²	0.079	0.052
F-statistic	192.083 ***	150.164 ***
Observation	8025	8025

Note: t-statistic shown in parentheses; * 10% significant level; ** 5% significant level; *** 1% significant level.

Table 3 displays the results of model (1) and model (2) for the effect of religious belief on human consumption. The result for model (1) without control variables implies that religious belief has a detrimental impact on human consumption. This suggests that a 1% increase in religious belief results in a 0.048% decrease in human consumption. In model (2) with control variables, the results indicate that religious belief also has a detrimental impact on human consumption. This indicates that a 1% increase in religious belief leads to a 0.043% decrease in human consumption. When the coefficients of religious belief in model (1) and model (2) are examined, it is discovered that while the coefficient of religious belief in model (2) is somewhat less than that in model (1), both are significant at 1% level. As a result, it is possible to conclude that religious belief has a detrimental impact on human consumption. One such explanation is that religious belief might be viewed as an informal rule. It encourages individuals to be self-disciplined and thrifty in their daily lives. When an individual has religious beliefs, this produces a decrease in human consumption. Another explanation might be that there is a substitution effect between religion and human items (these human items are defined as Section 3 provided). When an individual collects

more religious human capital than he or she consumes human items, religious items' consumption has a better value. Then, an individual's consumption of religious items will rise as a result. If an individual increases his or her consumption of religious items, such as purchasing religious items and donating money to religious organizations, their disposable income will be lowered due to economic resource restrictions. In this situation, the human consumption of non-religious items may have an impact of crowding out. This discovery is, of course, consistent with previous studies (Casidy and Arli 2018; Levitt 2013).

In addition, when control variables are taken into consideration, the results in Table 3 also indicate that age negatively affects human consumption at 10% significant level. This means that as individuals become older, their human consumption patterns change. This result is consistent with Calvo et al. (2021). Income positively affects human consumption at 1% significant level. This means that an individual with a higher income prefers to have more human consumption. This result is consistent with Anghel et al. (2018). Gender positively affects human consumption, but it is not statistically significant. Human consumption is positively affected by education level at 5% significant level. This means that an individual with a higher education level is willing to have more human consumption. This result is consistent with Cheng (2021) and Cardoso et al. (2016). Healthy status positively affects human consumption at 1% significant level. This means that an individual in better health likes to have more human consumption. This result is consistent with Knez et al. (2017). Political orientation positively affects human consumption, but it is not statistically significant. Marital status positively affects human consumption at 5% significant level. This means that an individual who has married has a higher level of human consumption. This result is consistent with McGlone and Pudney (1986). Ethnic identity positively affects human consumption at 1% significant level. This means that an individual belonging to Han tends to have more human consumption. This result is consistent with Xu et al. (2004), Laroche et al. (1998), and Chattaraman and Lennon (2008).

4.3. Robustness Test

Human consumption, as a type of consumption decision-making, may be endogenous to individual socioeconomic variables. Simultaneously, there are several unobservable factors affecting people's religious beliefs, and these factors may also affect human consumption. As a result, the endogenous issue may conflict with our findings. Consequently, two approaches will be used to address endogenous issues. One approach is that human consumption 2 (proportion of human consumption expenditure in total expenditure) is replaced with human consumption 1 (human consumption expenditure) to re-estimate the effect of religious belief on human consumption. Another approach is that the two-stage least squares method is employed to overcome the endogenous problem. In the next section, both approaches will be thoroughly examined. For the first approach, human consumption 2 is replaced by human consumption 1 as a dependent variable to perform the empirical analysis again. The results are presented in Table 4.

Table 4. Results of robustness test (hc2).

Variable/Model	Model (3): hc2	Model (4): hc2
rb	−0.026 *** (6.393)	−0.017 *** (−5.559)
cv		Yes
c	1.623 *** (2.988)	1.902 * (1.841)
R ²	0.066	0.051
F-statistic	188.214 ***	143.573 ***
Observation	8025	8025

Note: t-statistic shown in parentheses; cv control variable; * 10% significant level; *** 1% significant level.

The results in Table 4 indicate that religious belief has a negative impact on human consumption, and the coefficient of religious belief is also significant at 1% level. When compared with the results in Tables 3 and 4, it can be found that the coefficient of religious belief varies somewhat in magnitude and passes the significance test at 1% level. This proves that the results in Table 3 are robust and reliable.

In addition, the approach of two-stage least squares is used to re-estimate the effect of religious belief on human consumption. Following Wang and Lin (2014), the religious institutes in each province were viewed as an instrumental variable in overcoming the endogenous issues. According to religious market theory, as the supply of religion rises, so will the number of religious believers and their religiosity. As a result, religious institutes play a vital role in influencing the religious belief of those who fit the required criteria. Because religious institutes are provincial level data (this data is sourced from the "China Religion and Social Space Research Network", jointly developed by the China Religion and Social Research Center of Purdue University and the China Information Research Center of the University of Michigan), they are exogenous for human consumption. Then, the results of the analysis of two-stage least squares are presented in Table 5.

Table 5. Results of robustness test (two-stage least squares).

Variable/Model	Model (5): rb	Model (6): hc1
rb		−0.069 *** (−3.919)
ri	0.146 *** (4.918)	
cv	Yes	Yes
c	0.943 *** (4.107)	1.606 *** (3.259)
Wald F-statistic		316.024 ***
Observation	8025	8025

Note: t-statistic shown in parentheses; ri religious institutes; cv control variable; *** 1% significant level.

As the results of Table 5 indicate, it can be found that the coefficient of religious institutes is positive and statistically significant. This suggests that an individual is more likely to hold religious beliefs in a location with more religious institutes. Moreover, this demonstrates that the instrumental variable (religious institute) has significant explanatory power over endogenous factors. Meanwhile, the value of the Wald F-statistic (significant at 1% level) suggests the validity of the instrumental variable used in this paper. Furthermore, the coefficient of religious belief is still positive and statistically significant. Namely, the results of Table 3 are reliable and robust.

4.4. Heterogeneous Effect

It is apparent that the geographical location in which an individual resides, the income level to which an individual belongs, and the degree of marketization to which an individual belongs may all contribute to heterogeneous results of the effect of religious belief on human consumption. As a result, the heterogeneous effect is considered in this paper in terms of geographical location, income level, and marketization degree. The purpose of this subsection is to retest and supplement the results reported in Table 3. These three types of heterogeneous effects will be examined in depth in the following subsections, respectively.

4.4.1. Geographical Location

Because of China's enormous geography, religious sites and religious adherents are widely dispersed throughout China's provinces and towns. Therefore, in order to better understand the effect of religious beliefs in different geographical locations on human consumption, the whole sample is separated into three sub-samples (China is divided into three areas: the eastern area, the central area, and the western area). The results are presented in Table 6.

Table 6. Results of heterogeneous effect (geographical location).

Variable/Model	Model (7) Eastern Area	Model (8) Central Area	Model (9) Western Area
rb	−0.023 *** (−4.837)	−0.039 *** (−4.312)	−0.057 *** (−3.709)
cv	Yes	Yes	Yes
c	3.626 *** (3.842)	3.914 *** (2.880)	2.531 ** (2.231)
R ²	0.054	0.048	0.041
F-statistic	216.038 ***	167.819 ***	101.923 ***
Observation	3526	2655	1544

Note: t-statistic shown in parentheses; cv control variable; *** 1% significant level; ** 5% significant level.

Table 6 presents the results of the heterogeneous effect of religious belief on human consumption by geographical location. It has been discovered that religious belief has a detrimental impact on human consumption. Meanwhile, the coefficients of religious belief are significant in the eastern, central, and western areas. These results are consistent with those reported in Table 3. Moreover, a surprising discovery is that the effect of religious belief on human consumption is highest in the western area and lowest in the eastern area. A 1% rise in religious belief results in a 0.023% drop in eastern human consumption, a 0.039% decrease in central human consumption, and a 0.057% decrease in western human consumption. One probable explanation is because the western area is populated by ethnic minorities. It is also a multi-cultural area with many religions coexisting, a large number of religious adherents, and a strong ethnic and religious milieu.

4.4.2. Income Level

Previous studies (Lam and Hung 2005; De La O and Rodden 2008; Bettendorf and Dijkgraaf 2010, 2011) have found that an individual's income level has a significant impact on his or her religious belief. Therefore, the purpose of this subsection is to examine the effect of religious belief on human consumption at various income levels. Based on income level, the entire sample is separated into three sub-samples. They are the high income, the middle income, and the low income levels. The results are presented in Table 7.

Table 7. Results of heterogeneous effect (income level).

Variable/Model	Model (10) High Income	Model (11) Middle Income	Model (12) Low Income
rb	−0.019 *** (−5.288)	−0.031 *** (−5.778)	−0.062 *** (−5.029)
cv	Yes	Yes	Yes
c	1.143 *** (3.426)	1.854 *** (4.020)	1.309 *** (3.715)
R ²	0.063	0.056	0.069
F-statistic	176.921 ***	167.224 ***	132.178 ***
Observation	1826	4255	1944

Note: t-statistic shown in parentheses; cv control variable; *** 1% significant level.

Table 7 shows the results of the effect of religious belief on human consumption at various income levels. The coefficients of religious belief are shown to be negative and statistically significant. Meanwhile, these coefficients differ. To put it another way, the effect of religious belief on human consumption is heterogeneous across three income levels. Furthermore, the results also indicate that the coefficient of religious belief at the low income level is highest, while the coefficient at the high income level is lowest. In concrete terms, a 1% increase in religious belief results in a 0.062% decrease in low income human consumption, a 0.031% decrease in middle income human consumption, and a 0.019% decrease in high income human consumption. One possible explanation for these findings

is that an individual with a higher income level has, on average, more social capital. He or she may be more motivated to devote a particular level of human resources in order to maintain a high quality of life. As a result, religious belief has a comparatively smaller influence on his or her human consumption. Another possible explanation is that religious items place less economic pressure on an individual with a high income. Therefore, the crowding out effect on other sorts of consumption may be weaker. To summarize, the results of Table 7 are consistent with those in Table 3.

4.4.3. Marketization Degree

According to [Moberg \(2020\)](#), the effect of religious belief on consumption varies depending on the degree of marketization. As a result, the full sample is separated into three sub-samples in this paper in accordance with their thoughts. There are three sub-samples: high degree of marketization, middle degree of marketization, and low degree marketization. The results are reported in Table 8.

Table 8. Results of heterogeneous effect (marketization degree).

Variable/Model	Model (13) High Degree	Model (14) Middle Degree	Model (15) Low Degree
rb	−0.012 *** (−3.377)	−0.033 *** (−3.333)	−0.065 *** (−3.064)
cv	Yes	Yes	Yes
c	1.933 *** (2.005)	1.068 *** (2.363)	1.542 *** (2.524)
R ²	0.058	0.061	0.050
F-statistic	161.764 ***	123.365 ***	142.609 ***
Observation	2249	3587	2189

Note: t-statistic shown in parentheses; cv control variable; *** 1% significant level.

Table 8 reports the results of the effect of religious belief on human consumption across three degrees of marketization. These results suggest that the coefficients of religious belief are negative and statistically significant. In addition, the coefficients of religious belief differ. That is, the effect of religious belief on human consumption is heterogeneous among the three degrees of marketization. Religious belief, in particular contributes the most to human consumption at a low marketization degree and the least to human consumption at a high marketization degree. In further detail, a 1% increase in religious belief leads to a 0.012% decrease in human consumption at a high marketization degree, a 0.033% decrease in human consumption at a middle marketization degree, and a 0.065% decrease in human consumption at a low marketization degree. Taking these results into consideration, a possible reason is that for an individual with a low marketization degree, human consumption factors have a higher effect on his or her social and economic behaviors. Therefore, religious belief will have a bigger marginal effect on individual's human consumption. Meanwhile, the results of Table 8 are consistent with those in Table 3.

5. Conclusions

China is unmistakably a multi-religious country. With the fast advancement of civilization and the growth of an individual's democratic consciousness, individuals prefer to live a free and equal life, which includes, of course, religious freedom. Because of religion's growing importance in societal development, a great number of scholars ([Blum and Dudley 2001](#); [Durlauf et al. 2012](#); [Braunstein 2014](#); [Lindley 2002](#); [Hunter-Henin 2015](#)) have been drawn to study its impact on all aspects of society, including economic growth and employment. As a result, from the perspective of human consumption, this paper attempts to examine the effect of religious belief on human consumption using China as a case study. An empirical analysis of the effect of religious belief on human consumption is undertaken using data from the Chinese General Social Survey in 2017. According to the findings, religious belief has a detrimental impact on human consumption. Moreover, to keep the

results more reliable and robust, the robustness tests, including two-stage least squares and changing the corresponding dependent variable (changing $hc1$ to $hc2$), were conducted. The robustness tests' findings show that religious belief continues to have a detrimental impact on human consumption. In addition, this paper also examines the heterogeneous effect of religious belief on human consumption in terms of geographical location, income level, and marketization degree. When the empirical investigations are conducted again, the findings demonstrate that the heterogeneous effect really occurs. Religious belief, in particular, matters most to human consumption in the western area, at a low income level and at a low degree of marketization. Religious belief, on the other hand, has the least impact on human consumption in the eastern area, in a high income level, and in a high degree of marketization.

In general, this paper makes five contributions. The first contribution was that in contrast to [Minton et al. \(2018\)](#), who only analyzed the effect of religion on consumption, which covered all sorts of consumption, this paper separated human consumption from total consumption and discussed the effect of religious belief on human consumption. The finding that religious belief had a detrimental impact on human consumption had more particular implications for an individual seeking to balance religious belief and human consumption. The second contribution was that [He et al. \(2021\)](#) investigated the effect of religious participation on sustainable culture and entertainment consumption. They allowed an opportunity for future scholars to investigate the effect of religion on human consumption. The outcome of this paper compensated for their lack of contribution to the current literature. The third contribution was that, due to China's unequal religious distribution, empirical findings demonstrated that religious belief had a heterogeneous effect on human consumption in the eastern, central, and western areas. Religious belief, in particular, contributed the most to human consumption in the western area. Religious belief, on the other hand, contributed the least to human consumption in the eastern area. The fourth contribution was that, in terms of different income levels, the empirical results showed that religious belief had a heterogeneous effect on human consumption among high, middle, and low income levels. To put it another way, religious belief mattered the most to human consumption at the low income level. Religious belief, however, had the least impact on human consumption at the high income level. The fifth contribution was that, empirical results based on different marketization degrees revealed that religious belief had a heterogeneous effect on human consumption across high, middle, and low marketization degrees. Religious belief, in particular, had the greatest impact on human consumption at a low marketization degree. On the other hand, at a high degree of marketization, religious belief had the least impact on human consumption.

Based on this paper's findings, there are certain implications for related industries in society. For public policy officials, if there is excessive consumption in society, government can undertake policies to encourage individuals to participate in religious activities in order to reduce excessive consumption. For marketers, they should avoid going to religious gathering places to engage in activities involving human consumption. For consumers, individuals' religious beliefs might assist individuals in developing the habit of conserving and avoiding excessive expenditure on human consumption. Moreover, the findings of this paper can be generalized to countries other than China. According to the statistics in this paper, Buddhist adherents are the most numerous religious adherents in China. This paper's findings may also be extended to countries with similar religious structures to China such as Korea, Japan, Vietnam, Myanmar, Thailand, India, and others. One possible explanation is that religion, as an informal system, might limit an individual's behavior to some degree. In addition, [Park et al. \(1998\)](#) (a case of Korea), [Watts and Loy \(1998\)](#) (a case of Japan), [NGO et al. \(2021\)](#) (a case of Vietnam), [Assanangkornchai et al. \(2002\)](#) (a case of Thailand), [Filippini and Srinivasan \(2019\)](#) (a case of India), and others support the conclusions of this paper.

Furthermore, as an essential component of the informal system, this paper had proven that religious belief has a significant impact on individual's human consumption. This

finding of this paper was not only a useful supplement to the existing literature, but the empirical results are consistent with the real situation in China. As a result, the facts presented in this paper can serve as a point of reference for the development of religion and human consumption in China. Excessive consumption is common in China, for example, due to the continual growth in individuals' income. This paper proposed a solution to solve this dilemma, which was detrimental to social development. That is, an individual with religious belief can alleviate his or her excessive consumption. Additionally, because the effect of religious belief on human consumption is heterogeneous by geographic location, income level, and degree of marketization, individuals should make rational use of the effect of religious belief on human consumption so as to live the happiest lives possible.

Finally, certain limits are highlighted, as well as future study objectives. When it comes to religious beliefs, we look at them all together to see how they affect human consumption. However, there are two types of religious beliefs in China: local religious belief (Taoist beliefs) and foreign religious beliefs (Buddhist belief, Christian belief, etc.). It is possible that the effects of religious belief on human consumption vary between local and foreign religious beliefs. This opens up a new line of inquiry for future scholars to fill this gap. We only talk about human consumption when it comes to consuming. When we use total consumption or various types of consumption such as food consumption, gift consumption, and alcohol consumption, our results may change. Using these new indices to measure consumption, new findings concerning the effect of religious belief on consumption may be generated. This opens up another new study scope for future scholars to fill this gap. In addition, human consumption has the peer effect (a consumption phenomenon in which an individual's consumption behavior is influenced not only by the incentives of their own economic interests, but also by those around them who have the same status as them). Scholars in the future can focus on this issue to investigate the peer effect of religious belief on consumption.

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