

DOES RELIGION MATTER FOR SAVINGS HABIT OF HOUSEHOLDS IN GHANA?

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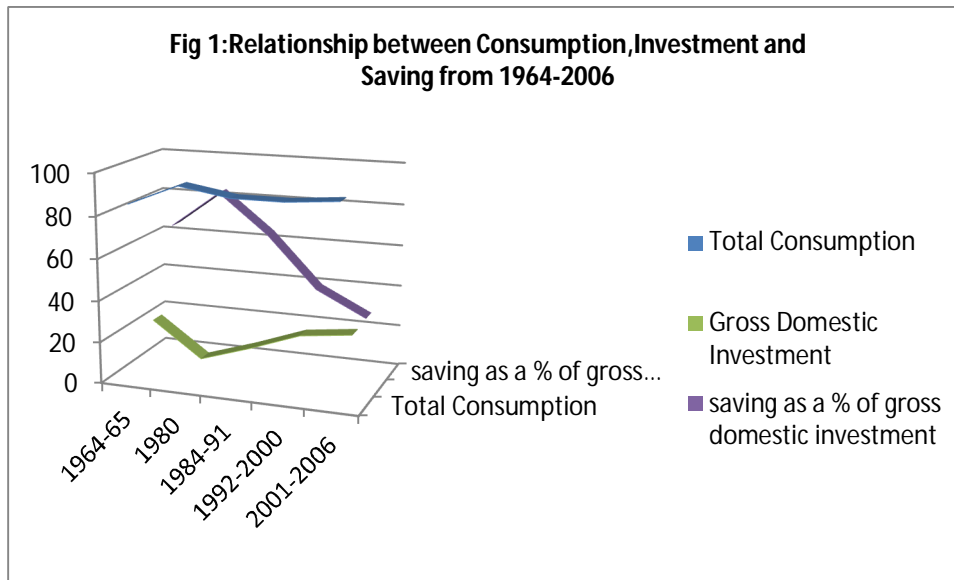
Abstract

Some studies have found that church attendance is negatively associated with economic growth and that belief in hell or heaven is positively associated with economic growth. The implication of this assertion is that ‘believing rather than belonging’ is what matters for economic performance as far as religion is concerned. Using logistic regression model on the data set of a metropolitan area, we have provided another evidence to further the empirical scholarship on the effect of religion on economic performance. We showed that church attendance perversely affects savings but belief may not matter significantly for savings decision of household after we have controlled for liquidity constraint, family ties and income uncertainty. We found that savings is negatively related to church attendance but belief in hell does not matter for household savings.

Key words: Logistic regression, church attendance, belief in hell, savings, liquidity constraints, income uncertainty, intergenerational effect.

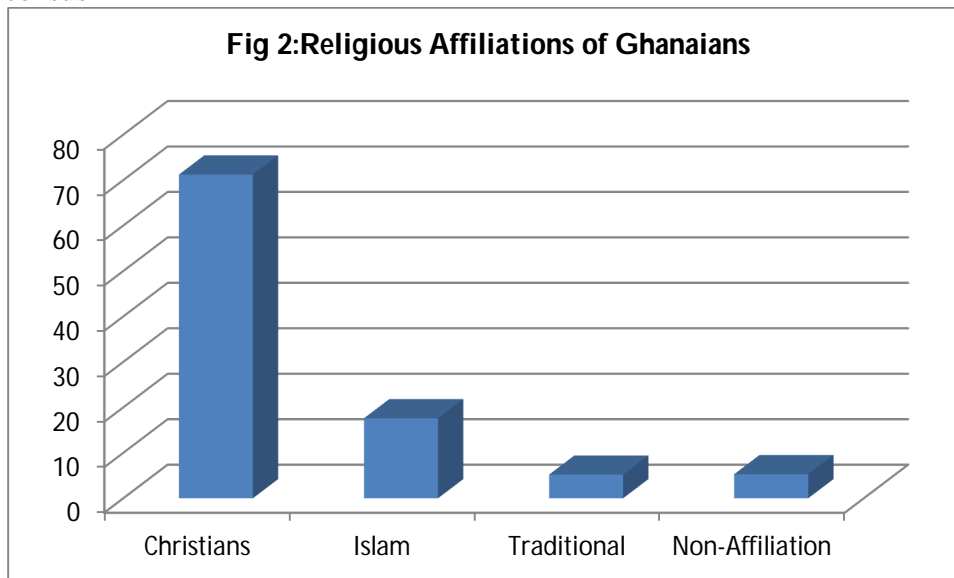
Introduction

The social accounting matrix of the ensemble of households shows that private savings are fairly low (1619 million) comprising less than 9% of total income and that such savings constitute about half of the total cost of fixed capital formation. The state of the Ghanaian economy (2012). The average propensity to consume for the Ghanaian economy has averaged over 90 percent since 1964. Figure 1 shows the consumption, saving and investment pattern of the economy since 1964. Killick (2008)



Source: Killick (2008)

The figure shows the gross domestic saving as a percentage of investment. A point noteworthy is that the percentage of gross domestic saving in investment is declining though there seem to be an upward turn in investment figures in 1980's. Ghana is a very religious country per affiliation measure. Figure 2 shows the religious affiliations of Ghanaians according to the 2010 population census



Source: Ghana Statistical Service, 2010

On 13th October 2014, the *Daily Graphic*, a Ghanaian newspaper carried a peculiar headline “Christian council warns against religious excesses”. It reads, “the christian council of Ghana has called on religious leaders especially those in the christian faith to ensure that their teachings and practices facilitate personal and national development to reflect the balanced teachings of Christ. It stressed the need for Ghanaians to use religion to build the country adding that faith must facilitate the development of our families, communities and nation.” This is among many

other numerous calls made about the excesses of religion (among them Daily graphic editorial carried in the same month October 10th 2014 etc).

However, there are few empirical studies that have examined the effect of religiosity on savings behavior in the Ghanaian economy. Particularly, we found that, studies on the effect of religion on economic performance moderated by some peculiar characteristics of developing economies such as uncertainty in income, intergenerational effect, and liquidity constraints is scanty indeed. This study considered cross-sectional data on a Metropolitan area in Ghana on the effect of religious belief and practice on their saving behavior after we have taken due cognizance of these variables. Using beliefs and church attendance as our measures of religiosity, we found that church attendance is negatively related to saving. We however found belief not to be significant in explaining savings. According to Barro and McCleary (2003), church attendance is an input into the religious sector and beliefs are the principal outputs in the sector. Hence, we should expect church attendance to be negatively related to economic performance such as growth or savings.

Literature Review

The effect of religion on economic outcomes has spanned several decades following Weber's argument. Weber (1905) argued that the protestant ethic was responsible for much of Europe growth. This hypothesis has spurred many studies on the effect of religion on economic growth. Foremost among them is the work of Barro and McCleary(2003). Barro and McCleary (2003) found that church attendance is negatively related to economic growth but believe in hell positively affect economic growth. Before Barro and McCleary (2003, Landes (1998), had build on Weber's argument to show international differences in economic growth. Cantoni (2009) however refused to support the Protestantism hypothesis on the German economy in the long run. His argument however runs contrary to Becker and Woessmann (2009) who found that Martin Luther's stress on education fueled the higher literacy rate in most protestant regions in Europe and hence the economic development in such regions.

Chiteji and Stafford(2000) argues that religious affiliation and participation affect wealth accumulation by making it possible for one to contact people who can provide this important information on saving strategies and asset accumulation.

Keister (2003) also studied the effect of religion on asset accumulation. Keister (2003 notes that 'religious doctrine seldom discourages saving and nearly always encourages correct and conventional living'. According to Keister (2003, religion can affect asset accumulation directly or indirectly. Indirectly, religion affects marital stability, divorce, fertility, women participation in employment and health which directly affect household wealth. For the direct influence, she argued that religion imparts certain values as hard work, priorities as the choice between saving today and consuming today. She argued similarly that religion affords the opportunity for one to create social contacts which can affect her working or income earning behavior. Also religion that encourages women participation in the labour force would increase wealth. With respect to fertility, she argued that religious groups that encourage low birth rates would most likely increase wealth. Religious groups that stringently enforces rules against nonmarital sex and encourage marital stability would increase wealth accumulation. Keister (2003) found that whiles conservative Protestants accumulate little wealth, Jews have the tendency to accumulate more wealth during early adulthood. She noticed that Jews encourage low fertility, low labour participation during childhood (as they encourage accumulation of human capital rather than physical capital,) they encourage homogamy in marriage and this ensures marriage stability.

Renneborg and Spaenjers (2010) examined the relationship between religion, economic attitudes and household finance. They found that if households are religious, they have higher motivation to bequest. They also found that religious households consider themselves more trusting, and have a stronger bequest motive and a longer planning horizon. They reported that “Catholics attach more importance to thrift and are more risk averse, while Protestants combine a more external locus of control with a greater sense of financial responsibility. Religious households are more likely to save. Catholic households invest less frequently in the stock market”. As a measure of religion, they used religious affiliation, specifically whether an individual is Catholic or Protestant.

Arrun~ada (2010) find that religiosity is associated with a higher emphasis on the importance of saving in line with Keister (2003). They produced evidence to show that Catholics appear to value thrift more than Protestants. This evidence however seemingly contradicts the Weberian hypothesis that it was mainly Protestant thriftiness that stimulated the growth of capitalism. More recently, Arrun~ada (2010) has argued that the Protestant effort-based work ethic supports saving.

Methodology

Following Barro and McCleary (2003), one can use 5 different measures of an individual religiosity. These include (1) attendance at formal religious services at least monthly. This measures the frequency of attendance at religious services. It is a very important measure since it measures one’s exposure to religious teachings and norms. (2) Personal prayer at least weekly; (3) belief in hell, (4) belief in an afterlife, and (5) self-identification as religious.

We used only two measures of religion including one’s frequency of church attendance and belief in hell in line with Barro and McCleary (2003). For saving, which is the dependent variable, to ensure more flexibility in our analysis and to avoid dishonesty of individuals revealing their saving level, we avoided quantitative measure of savings. Instead, we attempted a comprehensive measure of saving behavior at three levels. We asked respondents to indicate their saving preference from a pool of the most common saving strategies in the Ghanaian economy. These are saving accounts with banks and other financial institutions, joining a credit union, joining a ‘susu’ group, buying of bonds or shares. Preference for any of these strategies is coded 1 and 0 for respondents without any of these strategies. We also asked respondents to evaluate the frequency with which they utilize these strategies and coded 1 and 0 for those who use the strategy more frequently and those who uses it less frequently respectively. We also asked individuals to self-assess themselves as to whether they think they are saving more or less relative to their income level. We coded 1 and 0 for those who self-revealed more and less savings respectively. We measured the correlation between our various measures of the dependent variable. We used only one measure of the dependent variable in our analysis since we found all three measures to be highly correlated. We included other variables such as ones stage in life, liquidity constraint, uncertainties, family ties and income level which are important variables which affect saving levels in developing countries. For family ties, respondents were made to answer questions on how frequently they visit their extended family, whether they send or receive money from other family members. For uncertainty, we labeled all jobs in the formal sector as having certain income and those in the informal sector as ones with uncertain income. For liquidity constraint, we asked respondents about whether they are always able to borrow given the work they do.

We used a simple random sampling and convenience sampling methods for our study. The sample size used in the study is 200 different individuals drawn conveniently from 10 different towns selected randomly in Accra Metropolitan area.

Empirical model.

We would use the logit model for our estimation. The logit model follows the general logic:

$$\begin{aligned}
 p_i &= p_i \left(\text{saving} = 1 \left| \begin{array}{l} \text{Religiosity,} \\ \text{uncertainty,} \\ \text{liquidity constraint,} \\ \text{stage in life,} \\ \text{intergenerational effect} \\ \text{income} \end{array} \right. \right) \\
 &= E \left(\text{saving} \left| \begin{array}{l} \text{Religiosity,} \\ \text{uncertainty,} \\ \text{liquidity constraint,} \\ \text{stage in life,} \\ \text{intergenerational effect} \\ \text{income} \end{array} \right. \right) \quad [2] \\
 1 - p_i &= 1 - p_i \left(\text{Not saving} = 0 \left| \begin{array}{l} \text{Religiosity,} \\ \text{uncertainty,} \\ \text{liquidity constraint,} \\ \text{stage in life,} \\ \text{intergenerational effect} \\ \text{income} \end{array} \right. \right) \\
 &= E \left(\text{Not saving} \left| \begin{array}{l} \text{Religiosity,} \\ \text{uncertainty,} \\ \text{liquidity constraint,} \\ \text{stage in life,} \\ \text{intergenerational effect} \\ \text{income} \end{array} \right. \right)
 \end{aligned}$$

p_i is the probability that an individual is saving given the explanatory variables and $1 - p_i$ is the probability that an individual is not saving given the explanatory variables. We estimated the logit model:

$$\text{Prob}(Y = 1|X) = \frac{e^{X'\beta}}{1 + e^{X'\beta}} = \Lambda(X'\beta)$$

According to Greene (2008) the marginal effect of the logit model is calculated as: $\frac{\partial E[Y|X]}{\partial X} = \Lambda(X'\beta)[1 - \Lambda(X'\beta)]$. X is a vector of explanatory variables including one's religiosity, income, uncertainty about income, intergenerational effect, liquidity constraint, gender and age. The logit model is estimated with the maximum likelihood estimator. It estimates mutually exclusive binary outcomes that occur with probability p_i rather than an alternative outcome that occurs with probability of $1 - p_i$. We would report the odds ratio and the marginal effects as well.

We report these results for two measures of religion including church attendance (practice), and belief in hell. Our use of hell to measure the aspect of belief in religion is informed by the fact that most studies (e.g Barro and McCleary, 2003) found belief in hell to be more significant than heaven in explaining economic performance. In logit regression, the marginal effects are more

meaningful than the coefficient. Hence we reported the coefficients with their marginal effect using robust standard errors to account for cross-sectional effect (heteroscedasticity). Our marginal effect is the average marginal effect.

Results

Our results as shown in Table 1 shows that church attendance (CH.ATTENDANCE) significantly explains one's savings behavior. From the marginal effect an increase in church attendance by one unit decreases one savings behavior by 0.01 units. In other words, there is a chance that as one attends church regularly, her saving behavior would be affected negatively. We rejected the null hypothesis at ($p < 0.05$) that church attendance does not negatively affect savings. For the control variables, we found only income and intergenerational effect to be statistically significant. It should be noted that family ties is only marginally significant. As expected, income significantly affects one's savings level. We found however that all the variables simultaneously explain an individual saving behavior as indicated by the likelihood ratio test ($P > \chi^2 = 0.000$) at the bottom of the table 1 for church attendance.

For our second measure of religion, we used one's belief in hell. We found that belief in hell does not significantly explain savings as the p-value is greater than the specified ($p < 0.05$). We still found income to be statistically significant. Family ties effect was also found to be statistically significant in explaining savings. We found however that simultaneously, all the variables explain one's saving behavior as shown by the likelihood ratio test ($P > \chi^2 = 0.003$) in Table 2.

Discussion of Results

This result conforms to the existing knowledge in the literature that church attendance is an input in the religious producing religious goods and could adversely affect savings. Church attendance involves the commitment of one's resources (time allocation) and this may reduce time spent at work. It also involves more financial contributions and this may affect savings adversely. In Ghana, financial commitment during church attendance is very significant. We also found that individuals who have intergenerational linkage tend to save less. We can surmise that familial linkages insure such individuals in times of need and this tend to affect their savings. As highly expected one's savings behavior is significantly positively related to his income level. From the marginal effect, we found that an increase in one's income by one unit increases one saving behavior by about 0.242 units. Religious belief, as indicated in Table 2 does not significantly explain saving behavior and this result is curious. A possible candidate explanation for this could be that earthly incentives may dominate afterlife incentives in religious participation (e.g. Garcia-Muñoz(2010) and hence belief in hell which encourages such virtues as thriftiness, hard work and honesty may not matter to individuals. We found liquidity constraint as measured by one's ability to borrow not to be significant. In developing countries, the existing models in the literature do suggest that savings should increase in response to liquidity constraints. However, we did not find this relationship to be significant though the relationship is negative as predicted by the model. Perhaps, since individuals know they cannot borrow against bad times, they try to live within their means and follow a rule of thumb in their consumption. We however found that all the variables statistically explain one's saving behavior as shown by the likelihood ratio test in both tables.

Table 1: Saving Behaviour and Religiosity as measured by Church Attendance (CH.ATTENDANCE)

Variables	Odds Ratio	p-Values
Age	0.685(0.267)	0.334
Gender	3.880(2.880)	0.069*
Uncertainty	1.125(0.787)	0.866
CH.ATTENDANCE	0.822(0.0604)	0.008**
Family Ties	0.081(0.001)	0.001**
Income	35.331(32.511)	0.000**
Liquidity Constraint	0.808(0.372)	0.645
Constant	1.631(2.877)	0.781
Variables ⁺⁺	ME*($\frac{\partial E[Y X]}{\partial X}$)	p*
CH.ATTENDANCE	-0.0133	0.008**
Family	-0.1704	0.000**
Income	0.242	0.000**

$\text{Log Pseudolikelihood} = -43.083, \text{Pseudo } R^2 = 0.325, P > \chi^2 = 0.000, \text{Wald } \chi^2 = 37.90$

Notes: *and ** shows statistical significance at 10% and 5% respectively. ME*($\frac{\partial E[Y|X]}{\partial X}$) is the marginal effect of statistically significant variables at 5%. p* are the p-values for marginal effects. Variables⁺⁺ are statistically significant variables.

Table 2
Saving Behaviour and Religiosity as measured by Belief in Hell (HELL)

Variables	Odds Ratio	p-Values
Age	0.719(0.271)	0.383
Gender	4.386(3.343)	0.052*
Uncertainty	1.163(0.801)	0.826
HELL	0.501(0.476)	0.467
Family Ties	0.082(0.059)	0.001**
Income	42.901(37.635)	0.000**
Liquidity Constraint	0.743(0.340)	0.517
Constant	1.668(3.094)	0.783
Variables ⁺⁺	ME*($\frac{\partial E[Y X]}{\partial X}$)	p*
Gender	0.103	0.032**
Family	-0.1704	0.000**
Income	0.262	0.000**

$\text{Log Pseudolikelihood} = -44.523, \text{Pseudo } R^2 = 0.306, P > \chi^2 = 0.003, \text{Wald } \chi^2 = 27.29$

Notes: *and ** shows statistical significance at 10% and 5% respectively. ME*($\frac{\partial E[Y|X]}{\partial X}$) is the marginal effect of statistically significant variables at 5%. p* are the p-values for marginal effects. Variables⁺⁺ are statistically significant variables

Conclusion

We have provided evidence that religion matters for economic performance. Our finding is more significant especially when we have controlled for other variables like family ties and liquidity constraint which have been theorized to significantly explain savings behavior in developing countries. We noted that church attendance matters a lot for household saving but one's belief (here, belief in hell) does not explain savings behavior in Ghana. We encourage religious service providers to use the pulpit to preach more messages on the need for savings for the progress of our society. Further studies can investigate the effect of different motivations in church attendance on savings.

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