

School of Social Sciences and Philosophy

Assignment Submission Form

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Is God still Dead? An Extension of the Effect of Religion on Happiness:

“God is dead. And we have killed him. [...] How shall we comfort ourselves?” – Nietzsche, 1882, p.125.

1. Abstract

This paper aimed to examine the effect of religiousness on happiness. Where religiousness was measured as the number of times a person attended religious services throughout the year. Happiness was measured by an individual’s response to the American General Social Survey question asking if they were “Very Happy”, “Pretty Happy”, or “Not Too Happy. The empirical approach estimated four separate models using a logistical regression approach. The results indicated a highly statistically significant relationship between religiousness and happiness. However, the economic significance varied between models. These findings were robust against the addition of various controls. Despite this, the estimates were found to be biased after the residuals were plotted showing a clear systematic relationship between the residuals and the predicted outcome variable. This residual pattern indicated that the error terms of the regression were not independent. Possible extensions were then discussed to fix this source of endogeneity. The rest of the paper is organised as follows: section 2 includes the motivation and literature review, section 3 describes the data set, section 4 is the empirical approach, section 5 presents the results, section 6 discusses the limitations of the model and possible extensions before the paper is concluded.

2.1 Introduction/Motivation:

Nietzsche’s claim that God is dead has only become more accurate since the words were published first in 1882. The decline in religious affiliation is felt most prevalently in advanced economies such as the USA. In the years previous to the 2000s, religious affiliation was approximately 70%. However, in just the last 20 years, this has dropped to a new low of 47% (Jones, 2024). The most recent literature on this topic states that when controlling for living in a first-world country, religiosity has a negligible effect on happiness (Diener et al., 2011). However, this literature does not explain the simultaneous decrease in happiness scores. According to the World Happiness Report, there has been a slow decline in American’s average happiness beginning in the 1990s (Helliwell et al., 2024). Therefore, this paper aims to identify a link

between people who reported “very happy” on the General Social Survey and their level of religiousness.

2.2 Literature Review:

The literature determining the effect of religiosity on happiness can be traced back to the 1950s when Allport’s study found a positive correlation between religiosity and improved mental health. Since Allport (1950), there has been a long history of finding positive correlations between the two variables (e.g., O'Reilly, 1957; Wilson, 1965; Graney, 1975; Zuckerman et al., 1984; Veenhoven, 1994; Mookerjee & Beron, 2005; Abdel-Khalek, 2006). Contrary to these results, there have also been papers finding a negative correlation between the effect of religiosity on happiness (Poloma & Pendleton, 1989, 1990, 1991; Abdel-Khalek & Nacuer, 2006). Furthermore, other studies have found either ambiguous results or no significant correlation (Lewis et al. 2000; Gartner et al. 1991).

It is argued that the conflicting results from the literature stem from the unsystematic measurement of happiness and religiosity (Lewis & Cruise, 2006). However, recent meta-analyses contrasting the literature of over 850 papers conclude that across the body of literature, religiosity is associated with higher self-ratings of happiness and better mental health outcomes (Koenig and Larson 2001; Hackney and Sanders 2003).

Despite these findings, the number of religious people in advanced economies is decreasing steadily year-on-year (Pew Life Forum, 2007). Barro and Mitchell (2004) argue that the decrease in religiosity in these advanced economies is due to economic growth. This hypothesis was expanded upon by Diener et al. (2011), who summarised that citizens of advanced economies do not require religion to achieve happiness. Moreover, this paper identified that the effect of religion on happiness is more salient in countries where life circumstances are more challenging. Furthermore, after controlling for these life circumstances, the relationship between religion and happiness becomes insignificant in advanced economies. This finding suggests that it was more about what religion provided to people e.g., a sense of community, rather than the religion itself. What religion once offered people can be fulfilled by other means in advanced economies. In conclusion, this paper found that religion had a greater effect on people in developing countries than on people living in advanced economies. Suggesting that the channel through which religion impacts happiness is how it alleviates exogenous circumstances.

This paper attempts to fill a gap in the literature by examining the effect of religiosity on the self-reported happiest people in the USA between the years of 1994-2006. If the happiest people in advanced economies are still religious, there may be cause for a further investigation into why people are leaving organised religion. To do this accurately, it is essential to include established determinants of happiness from the literature to avoid violating the zero conditional mean assumption.

Firstly, income has been identified throughout the literature as a consistently significant determinant of happiness. The more income an individual has, the more likely they are to be happy (Easterlin, 2003).

Secondly, marital status has also been identified as having short and long-term effects on happiness. These results showed that married people are happier than singles on average. Moreover, people who have been divorced or widowed are also less happy on average. (Easterlin, 2003; Lucas Clark, 2006). Due to these results, marital status must be included in the regression.

Thirdly, an individual's level of education has been shown to have both direct (e.g., self-confidence) and indirect (e.g., more job opportunities) effects on happiness (Cuñado and De Gracia 2012). Thus, it will be controlled for in the regression.

Fourthly, the impact of kids on happiness has been contested in the literature. Specifically, studies which use cross-sectional data suffer from measurement errors in their happiness proxy. With more longitudinal studies completed, results show that having children has long-term effects on parents' happiness, especially up to having two children (Myrskylä & Margolis, 2014). A meta-analysis also shows that having children can lead to lower reported marital happiness (White et al. 1986). If children are having long-term effects on individuals' happiness, and are changing how married people view their marriage, it must be included in the regression.

Lastly, the employment status of individuals is seen as a determinant of people's happiness. There is a consensus across the literature that unemployment is strongly negatively associated with lower happiness ratings (Dolan et al. 2008; Di Tella et al., 2001; Frey & Stutzer, 2000; Helliwell, 2003). It is possible that these studies suffer from reverse causality bias. Meaning that people were unemployed because they had a lower happiness rating. However, this has been dismissed by a study conducted by Lucas et al. (2004) which concludes that people in the period

before being unemployed reported higher happiness ratings than they did after they were unemployed.

In keeping consistent with the established literature, income, education, marital status, having kids or not, and employment will all be used as explanatory variables in the subsequent specifications.

3. Description of the data set:

For the empirical analysis of this paper, the data used is obtained from the American General Social Survey (GSS). The data is constructed as an independently pooled cross sectional data set which takes data every two years from 1994 until 2006. The dataset contains information on happiness, religiousness, income, employment status, marital status, education, kids, gender, race, and region.

Variable name	Description
Happiness	= 1 if not too happy = 2 if pretty happy = 3 if very happy
Very Happy	= 1 if very happy = 0 otherwise
Attends Religious Services Regularly	= 0 if never; = 1 if once a year; = 2 if twice a year; = 3 if several times a year = 4 if once a month = 5 if 2-3x a month = 6 if nearly every week = 7 every week = 8 if more than once a week
Attends Occasionally	= 1 if Attend = 6, 7, or 8 = 0 Otherwise
Doesn't Attend	= 1 if Attend = 3, 4, or 5 = 0 otherwise
Income	= 1 if high income (15000 – 25000+) = 2 if medium income (7000-14999) = 3 if low income (4000-6999) = 4 if very low (0-3999)
Employment Status	= 0 if unemployed = 1 if employed = 2 if retired
Marital Status	= 0 if the individual is not married = 1 if the individual is divorced.

	= 2 if the individual is married;
Education	Measured in years of education
Children	= 1 if individual has kids
	= 0 if not

The GSS was chosen because it provided the information required to estimate the effect of religion on happiness in an advanced economy. Moreover, the GSS provided necessary information on the socioeconomic controls needed to isolate religion's effect on happiness e.g., income and employment status. Finally, the data set also contained information on established determinants of happiness such as marital status and education levels. By combining this data over multiple years, this dataset was the best available to test the hypothesis of this paper.

Table 2: How often do you attend religious services:

Descriptive Statistics

Variable	N	Mean	Std. Dev.	Min	Max
Happy	17137	2.185	.628	1	3
Very Happy	17137	.307	.461	0	1
Attends Religious Services	16864	3.648	2.73	0	8
Regularly Attends	16864	.131	.338	0	1
Occasionally Attends	16864	.285	.451	0	1
Doesn't Attend	16864	.213	.409	0	1

Table 3: Descriptive statistics of socio-economic controls.

Descriptive Statistics

Variable	N	Mean	Std. Dev.	Min	Max
Income	17137	3.37	1.1	1	4
Employment Status	17134	.931	.593	0	2
Marital Status	17066	.435	.496	0	1
Education	17093	13.319	2.987	0	20
Children	17137	.14	.347	0	1

4. Empirical Approach:

The empirical approach is a two-step process. The first model will estimate the effect of religious service attendance on an individual's happiness to check if the results corroborate with the literature. Expanding on these results, the following model will estimate the effect of religiousness only on people who answered to being "very happy" on the GSS. Both models are estimated via logistical regression techniques. Logit models are used to estimate the probability that someone is "very happy" given the number of times they attend a religious service. The first model includes the general attendance variable that includes eight responses. The second model breaks the attendance variable into three separate dummies indicating regular, occasional, and no attendance to isolate the effect of frequency on happiness.

4.1: The Base Model

The dependent and independent variables are ordered from 1-3 (not happy – very happy) and 1-8 (does not attend – attends more than once a week) respectively. Due to the ordinal nature of the data, the base model uses an ordinal logistical model to determine the effect of attending religious services on happiness consistent with the literature (Cunado & Perez, 2010). The estimating equations will include socioeconomic variables which have been established in the literature to be a determinant of the dependent variable. Including these controls helps to isolate the effect of religiousness on people's happiness. Moreover, the equation contains controls for individual differences such as gender, race, and region. These are less important than the vector of socioeconomic controls. However, by accounting for these variations among individuals, the model can more effectively isolate the impact of religiosity on the individual's level of happiness.

$$YHappiness_{it} = \alpha_{it} + \delta'Attend_{it} + \beta'X_{it} + \gamma'C_{it} + \psi_t \sum_t TD_t + \varepsilon_{it}$$

Where:

- $YHappiness_{it}$ measures people's answer to the question "how happy are you" ranked 1-3
- α_{it} is the constant .
- $\delta'Attend_{it}$ is a vector of measurements of how often individual i attended religious services.
- $\beta'X_{it}$ is a vector of statistically significant socioeconomic variables including income, marital status, employment status, kids, and education.
- $\gamma'C_{it}$ is a vector of controls variables including gender, race, and region.

- $\Psi_t \sum_t TD_t$ are the years the data was collected; every two years from 1994-2006.
- ε_{it} is the error term

4.2: The extension

In the extended model, the dependent variable is transformed into a dummy. This dummy = 1 if the respondent answered "very happy" and = 0 otherwise. For this step, the effect is estimated using a binary logistical regression. The rest of the estimating equation is the same. This extension estimates the probability that an individual answered "very happy" on the GSS, given the number of times they attended religious services whilst controlling for a vector of socioeconomic and individual variables.

$$\Phi\text{VeryHappy}_{it} = \alpha_{it} + \delta' \text{Attend}_{it} + \beta' X_{it} + \gamma' C_{it} + \Psi_t \sum_t TD_t + \varepsilon_{it}$$

5. Empirical Results:

5.1 Model 1.1 / Model 1.2

The first two models were run to check if the model could replicate the results from the literature. Both models produced results that corroborate with the literature. In Model 1, an increase in the level of religious attendance (i.e., 0 to 1) predicts an estimated 0.0809 average increase in the log-likelihood that the individual will be happier holding all else constant. This result is statistically significant at the 1% level. However, its economic significance is questionable. To achieve a one standard deviation increase in happiness, an individual who does not attend would need to attend once a week (.628/.0809 = 7.76 unit increase)

In Model 1.1, where the attendance variable is transformed into dummies, it shows a similar result. In this model, the regression estimates that regularly attending religious services increases the log-likelihood of having a higher level of happiness by 0.346 on average holding all else constant. This result is economically significant because it is equal to one standard deviation above the mean in happiness. Moreover, the 'Doesn't Attend' variable has a highly statistically significant negative coefficient. However, this is not nearly as economically significant. This result suggests that not attending makes people less unhappy than attending makes people happy. Occasionally Attends produces a statistically insignificant result and it is also imprecisely estimated as the standard error is three times the size of the coefficient.

Does Religion Effect Happiness?

	(1)	(2)	(3)	(4)
VARIABLES	Model 1	Model 1.1	Model 2	Model 2.2
Dependent Variable	Happy	Happy	Very Happy	Very Happy
Attends Religious Services	0.0809*** (0.00604)		0.0848*** (0.00658)	
Regularly Attends		0.346*** (0.0514)		0.340*** (0.0531)
Occasionally Attends		0.0124 (0.0382)		-0.0489 (0.0431)
Doesn't Attend		-0.137*** (0.0412)		-0.216*** (0.0482)
Income	0.0517*** (0.0154)	0.0532*** (0.0154)	0.000677 (0.0167)	0.00346 (0.0167)
Employment Status	0.128*** (0.0289)	0.134*** (0.0289)	0.0838*** (0.0299)	0.0876*** (0.0298)
Marital Status	-0.264*** (0.0117)	-0.283*** (0.0116)	-0.282*** (0.0131)	-0.300*** (0.0130)
Education	0.0679*** (0.00563)	0.0725*** (0.00561)	0.0580*** (0.00613)	0.0627*** (0.00611)
Children	0.00306 (0.0439)	0.0202 (0.0438)	-0.0526 (0.0503)	-0.0335 (0.0502)
Observations	16,826	16,826	16,826	16,826
Time Dummies Included	YES	YES	YES	YES
Controls Included	YES	YES	YES	YES
Estimation Method	Ordinal Logit	Ordinal Logit	Logit	Logit

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Models 2 and 2.2 are estimated using the extended model. This model transforms the dependent variable from a nominal to a binary variable where it equals 1 if the individual answered "Very Happy" and 0 otherwise. This transformation was done to determine the effect of religion on the happiest people i.e., are the happiest people in the sample more religious on average than those who answered, "Pretty happy" and "Not Happy". Table 1. shows that the results are majorly identical to those in Model 1 and Model 1.1.

In Model 2, the generalised attend variable has an estimated coefficient of 0.0848. This implies that a one-unit increase in the frequency that an individual attends religious services increases the log-odds that the individual will answer very happy by 0.0848 on average, holding all else constant. This result is significant at the 1% level implying a strong correlation between the two variables. However, the result is not economically significant. It would require a 5.4 unit increase in religious service attendance to achieve a one standard deviation increase in the probability that someone would be "Very Happy".

When the Attend variable is broken down in Model 2.2, it is seen that regularly attending religious services increases the log-likelihood of an individual being very happy by 0.340 on average holding all else constant. This result implies that individuals in this category have a nearly one standard deviation higher probability of being very happy compared to those who do not attend regularly.

Interestingly, not attending religious services decreases the log-likelihood that someone would be "Very Happy" by 0.216 on average holding all else constant. This result is also statistically significant at the 1% level. This result implies that non-religious people are less likely to be "Very Happy" on average across this sample.

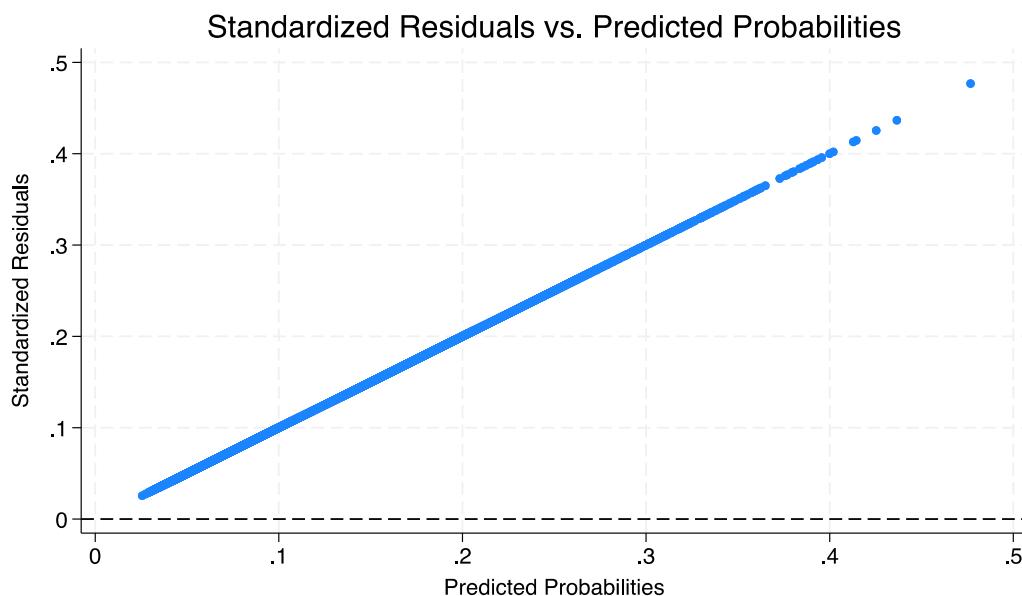
The vector of socioeconomic variables produced very similar results across both models. Throughout all the regressions, higher levels of income, education and employment were all associated with increases in the log-likelihood of an individual being happier. This is consistent with the literature. Interestingly, being married was associated with a decrease in the log-likelihood that an individual would be happier. The high significance indicates that these variables are required to avoid violating the zero conditional mean assumption. If these variables were not included, omitted variable bias would be present. It must be noted that children proved insignificant across each regression. This is likely due to the measurement error discussed in the literature review. Signs of measurement error in the estimates for the effect of children on happiness can be seen in the inflated standard errors.

In summary, results across all four models indicate that an increase in religious attendance increases the log-likelihood that a person will be very happy holding all else constant. This result was consistently significant at the 1% level. However, the economic significance of these results was lacking.

6. Limitations and Discussion of Possible Extensions:

The necessary assumption for ensuring the validity of the results hinges on the independence of error terms. Despite the efforts made to guarantee the independence of the error terms through methods like employing robust standard errors and including a set of significant controls, the examination of residual plots reveals a systematic correlation between the residuals and the outcome variable. Consequently, the estimates from prior regressions are biased. The appendix contains residual plots for all regressions estimated.

Figure 1. Residual Plot of Model 1.



Although the findings that an increase in religious service attendance on average increases the probability that people are happier are robust against the inclusion of other determinants of happiness, this model does not explicitly say that it is religion that is driving the higher happiness scores i.e., the relationship is not causal.

The empirical approach could use a discrete choice model (DCM) framework to get closer to a causal estimate. DCMs can be modelled under the assumption that the agents are utility

maximisers. This assumption means that when the model is derived and predicted using a logistical regression, it can predict how important attending religious services is on the probability that they chose "Very Happy" on the survey. If the results of this model prove religion is significant, it could imply that it is religion driving the choice in choosing "Very Happy". Moreover, the model can be specified in such a way that the error term (the unobserved probability) becomes a white noise process. This would eliminate the need to justify the independence of the errors in the current model. Creating an error term which is a white noise process can be achieved by including a similar vector of previously established determinants of happiness. The more the model observes, the more accurate the model can be in determining an agent's choices.

Conclusion:

In summary, this paper aims to expand the existing research on the impact of religion on happiness. Previous studies indicated a positive correlation between religiosity and happiness, but this paper sought to ascertain if the happiest individuals remained religious amidst a decline in organised religion. Using survey data from the GSS, including happiness levels, religious service attendance, and socio-economic factors, a logistic regression model was employed. The results estimated were consistent with the literature. The extended model also revealed that regular religious attendees had a significantly higher log-odds of reporting being 'very happy', with a notable economic significance of one standard deviation increase compared to non-attendees. However, the model exhibited a systematic relationship between its residuals and the outcome variable. This result implies the results are biased. Furthermore, this model didn't establish causation between religion and happiness, suggesting the possibility of a discrete choice model extension. Despite this limitation, the findings highlight the ongoing relevance of religion in advanced economies' happiness, paving the way for future research in this area.

Word count: 2953

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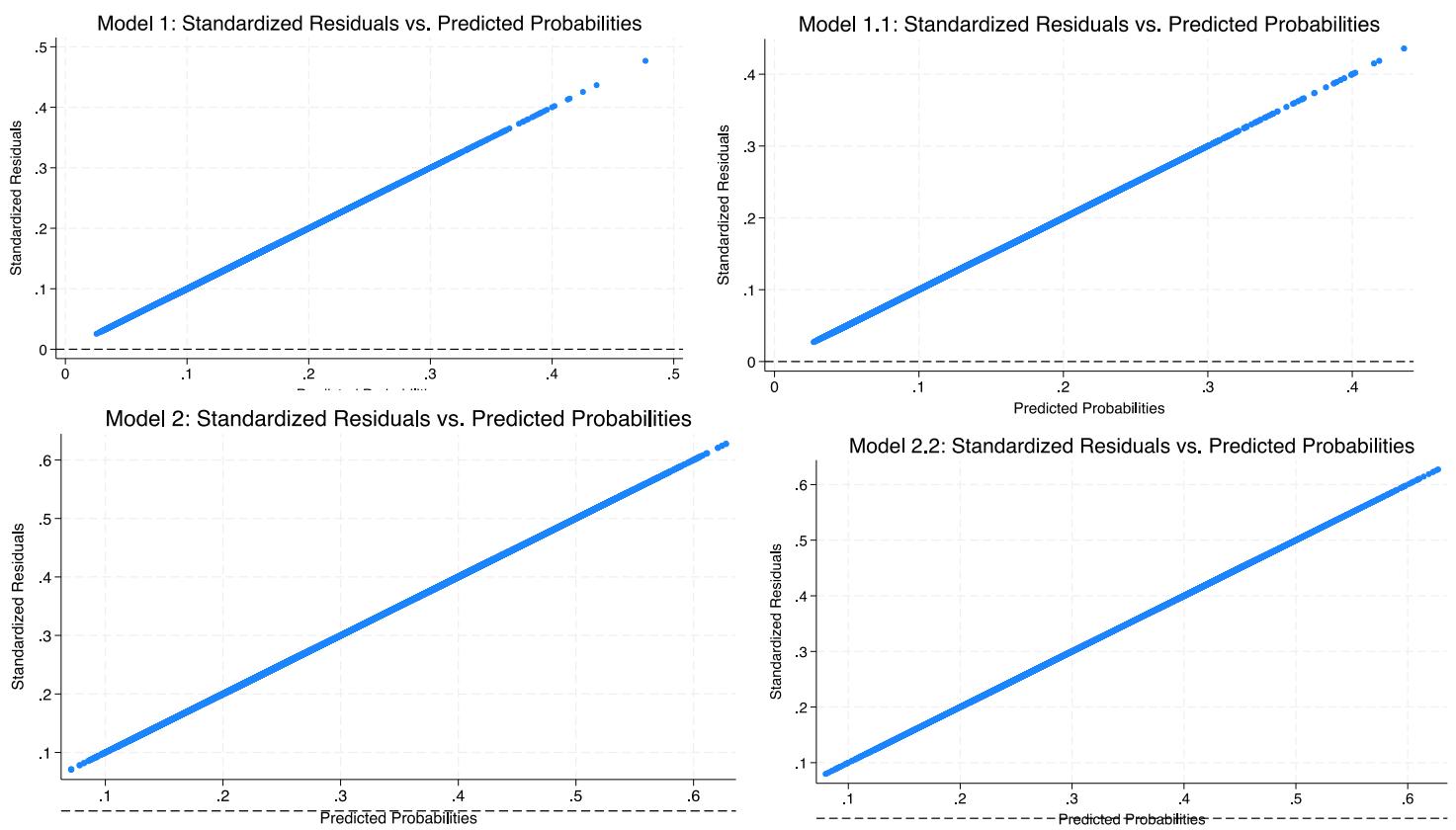
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Appendix:

Residual plots each regression:



Full regression with all controls shown:

VARIABLES	(1) Model 1	(2) Model 1.1	(3) Model 2	(4) Model 2.2
Attends Religious Services	0.0809*** (0.00604)		0.0848*** (0.00658)	
Regularly Attends		0.346*** (0.0514)		0.340*** (0.0531)
Occasionally Attends		0.0124 (0.0382)		-0.0489 (0.0431)
Doesn't Attend		-0.137*** (0.0412)		-0.216*** (0.0482)
Income	0.0517*** (0.0154)	0.0532*** (0.0154)	0.000677 (0.0167)	0.00346 (0.0167)
Employment Status	0.128*** (0.0289)	0.134*** (0.0289)	0.0838*** (0.0299)	0.0876*** (0.0298)
Marital Status	-0.264*** (0.0117)	-0.283*** (0.0116)	-0.282*** (0.0131)	-0.300*** (0.0130)
Education	0.0679*** (0.00563)	0.0725*** (0.00561)	0.0580*** (0.00613)	0.0627*** (0.00611)
Children	0.00306 (0.0439)	0.0202 (0.0438)	-0.0526 (0.0503)	-0.0335 (0.0502)
Region	0.0196*** (0.00593)	0.0184*** (0.00593)	0.0167** (0.00659)	0.0151** (0.00657)
Gender	-0.0515 (0.0317)	-0.0231 (0.0316)	-0.0422 (0.0357)	-0.0154 (0.0354)
Race	-0.357*** (0.0490)	-0.299*** (0.0487)	-0.261*** (0.0547)	-0.202*** (0.0543)
1994	-0.0987* (0.0519)	-0.0783 (0.0518)	-0.158*** (0.0589)	-0.135** (0.0587)
1996	-0.0164 (0.0528)	-0.000221 (0.0526)	-0.0444 (0.0588)	-0.0252 (0.0586)
1998.00	0.0425 (0.0530)	0.0430 (0.0529)	0.0250 (0.0586)	0.0275 (0.0586)
2000	0.109** (0.0526)	0.110** (0.0525)	0.0554 (0.0590)	0.0577 (0.0589)
2002	0.00649 (0.0660)	0.0107 (0.0658)	-0.0120 (0.0740)	-0.00414 (0.0737)
2004	-0.0671 (0.0675)	-0.0499 (0.0676)	-0.0447 (0.0734)	-0.0267 (0.0734)
2006	-	-	-	-
/cut1	-1.231*** (0.110)	-1.441*** (0.110)		
/cut2	1.735*** (0.110)	1.510*** (0.109)		
Constant			-1.326*** (0.118)	-1.057*** (0.117)
Observations	16,826	16,826	16,826	16,826
Time Dummies Included	YES	YES	YES	YES
Controls Included	YES	YES	YES	YES
Estimation Method	Ordinal Logit	Ordinal	Logit	Logit

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Pairwise correlations for main variables of interest:

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) Happy	1.000						
(2) Attends Religious Services	0.135	1.000					
(3) Income	0.076	0.007	1.000				
(4) Employment Status	0.066	0.025	0.049	1.000			
(5) Martial Status	-0.208	-0.188	-0.089	-0.100	1.000		
(6) Education	0.118	0.052	0.203	0.015	0.008	1.000	
(7) Children	0.023	0.057	0.051	-0.140	-0.116	0.004	1.000

Descriptive Statistics for all variables:

Variable	Obs	Mean	Std. Dev.	Min	Max
year	17137	1999.474	4.143	1994	2006
educ	17093	13.319	2.987	0	20
reg16	17137	4.378	2.616	0	9
region	17137	5.011	2.464	1	9
attend	16864	3.648	2.73	0	8
happy	17137	1.815	.628	1	3
vhappy	17137	.307	.461	0	1
black	17137	.138	.345	0	1
female	17137	.559	.497	0	1
occattend	16864	.285	.451	0	1
regattend	16864	.131	.338	0	1
kids	17137	.14	.347	0	1
new happy	17137	2.185	.628	1	3
employed	17134	.931	.593	0	2
marital status	17137	2.44	1.393	1	4
noattend	16864	.213	.409	0	1
new income	17137	3.37	1.1	1	4
Year1	17137	.174	.379	0	1
Year2	17137	.168	.374	0	1
Year3	17137	.164	.37	0	1
Year4	17137	.162	.369	0	1
Year5	17137	.08	.271	0	1
Year6	17137	.078	.268	0	1
Year7	17137	.174	.379	0	1

Do File:

```
// loading Pooled Cross-Sectional (PCS) data set

use "/Users/robmulligan/Downloads/1111531048_364888/happiness.dta"

// generating an ID variable for each observation
gen id = _n

***** Next couple lines of code are recoding and doing logistical
things with the data set to make it easier to work with *****
```

```

// 1) Need to generate a general kids variable because having 3
separate ones is very overkill

egen max_dummy = rowmax(babies preteen teens)
gen kids = max_dummy > 1

// 2) Need to recode the happiness variable so that it is more
intuitive to work with:

recode happy (1=3) (2=2) (3=1), generate(new_happy)
label define happiness_lbl 1 "Not too happy" 2 "Pretty happy" 3
"Very happy"
label values new_happy happiness_lbl

// 3) Need to record the workstat variable
recode workstat (1=1) (2=1) (3=0) (4=0) (5=2) (6=0) (7=0) (8=0),
generate(employed)
label define employed_lbl 0 "unemployed" 1 "employed" 2 "retired"
label values employed employed_lbl

// 4 need to add in a marital status variables
recode divorce (.i=0) (1=0) (2=1), generate(married)
label define married_lbl 0 "not married" 1 "married"
label values married married_lbl

//5 Need to combine marriage variables into 1
gen marital_status = .
replace marital_status = 1 if married == 1
replace marital_status = 2 if divorce == 1
replace marital_status = 3 if widowed == 1
replace marital_status = 4 if married == 0 & divorce == 0 & widowed
== 0
recode marital_status (.=4)

label define marital_status_lbl 1 "Married" 2 "Divorced" 3 "Widowed"
4 "Never Married"
label values marital_status marital_status_lbl

```

```

// 6 need to code a 'doesn't attend' variable

recode attend (1=1) (2=1) (3=0) (4=0) (5=0) (6=0) (7=0) (8=0),
generate(noattend)
label define noattend_lbl 0 "attends more than once a year" 1
"doesn't attend"
label values noattend noattend_lbl

// 7 need to relabel income

recode income (.=1) (1=1) (2=1) (3=1) (4=2) (5=2) (6=2) (7=3) (8=3)
(9=3) (10=4) (11=4) (12=4), generate(new_income)
label define income_lbl 1 "high income" 2 "medium income" 3 "low
income" 4 "very low"
label values new_income income_lbl

// getting a year variable for time fixed effects

tab year, gen(Year)

//9 need to relable everything for output purposes

label variable attend "Attends Religious Services"
label variable new_happy "Happiness"
label variable vhappy "Very Happy"
label variable new_income "Income"
label variable regattend "Regularly Attends"
label variable occattend "Occasionally Attends"
label variable noattend "Doesn't Attend"
label variable employed "Employment Status"
label variable marital_status "Marital Status"
label variable reg16 "Region"
label variable educ "Education"
label variable black "Race"
label variable female "Gender"
label variable kids "Children"

```

```

/// Description of the data set

** table of descriptive statsitics showing my dependent variable and
variable of interest

asdoc sum new_happy vhappy attend regattend occattend noattend

** table of descriptive statistics showing my vector of economic
controls

asdoc sum new_income employed married educ kids female black

/// Running the four models and outrregging them

ologit new_happy attend new_income employed marital_status educ kids
reg16 female black Year1-Year7, vce(robust)
outreg2 new_happy attend new_income employed married widowed educ
kids reg16 female black Year1-Year7 using myEMA.doc, word drop(Year*
female black reg16 Year7) replace title(Does Religion Effect
Happiness?) ctitle(Model 1) addtext(Time Dummies Included, YES,
Controls Included, YES, Estimation Method, Ordinal Logit) label

ologit new_happy regattend occattend noattend new_income employed
marital_status educ kids reg16 female black Year1-Year7, vce(robust)
outreg2 new_happy regattend occattend noattend new_income employed
marital_status educ kids reg16 female black Year1-Year7 using
myEMA.doc, word drop(Year* female black reg16 Year7) append
ctitle(Model 1.1) sortvar(attend regattend occattend noattend) see
addtext(Time Dummies Included, YES, Controls Included, YES,
Estimation Method, Ordinal Logit) label

logit vhappy attend new_income employed marital_status educ kids
reg16 female black Year1-Year7, vce(robust)
outreg2 vhappy attend new_income employed marital_status educ kids
reg16 female black Year1-Year7 using myEMA.doc, word drop(Year*
female black reg16 Year7) append ctitle(Model 2) addtext(Time
Dummies Included, YES, Controls Included, YES, Estimation Method,
Logit) label

```

```
logit vhappy regattend occattend noattend new_income employed  
marital_status educ reg16 kids female black Year1-Year7, vce(robust)  
outreg2 vhappy regattend occattend noattend new_income employed  
marital_status educ kids reg16 female black Year1-Year7 using  
myEMA.doc, word drop(Year* female black reg16 Year7) append  
ctitle(Model 2.2) sortvar(attend regattend occattend noattend) see  
addtext(Time Dummies Included, YES, Controls Included, YES  
Estimation Method, Logit) label
```

```
// TESTING ASSUMPTIONS OF THE ordinalLOGIT  
// for ordinal logit I have to test:  
** 1) proportional odds assumption  
** 2) multicollinearity  
** 3) independence of errors  
  
//1) Proportional odds (DONE)  
// Results model 1 are that attend satisfies the condition yup the  
lads; all the socioeconomic variables do not; the controls and time  
dummies do  
  
ologit new_happy attend new_income employed marital_status educ  
kids reg16 female black Year1-Year7, vce(robust)  
asdoc brant, detail  
// results model 1.1 are that reg attend satisfies it, hwoever none  
of the other ones satisfy. None of the socioeconomic variables  
satisfies it. the controls satisfy  
ologit new_happy regattend occattend noattend new_income employed  
marital_status educ kids reg16 female black Year1-Year7, vce(robust)  
asdoc brant, detail  
  
// 2) Indepedence of errors  
** RESULTS: the error terms are correlated as hell there is a 45  
degree line like so it fails this assumption. However, I am using  
robust standard errors so we so back
```

```
ologit new_happy attend new_income employed marital_status educ kids  
reg16 female black Year1-Year6, vce(robust)  
predict stdres  
predict predprob, p  
scatter stdres predprob, yline(0) ///  
    title("Model 1: Standardized Residuals vs. Predicted  
Probabilities") ///  
    xtitle("Predicted Probabilities") ///  
    ytitle("Standardized Residuals")
```

```
ologit new_happy regattend occattend noattend new_income employed  
marital_status educ kids reg16 female black Year1-Year7, vce(robust)  
predict stdres1  
predict predprob1, p  
scatter stdres1 predprob1, yline(0) ///  
    title("Model 1.1: Standardized Residuals vs. Predicted  
Probabilities") ///  
    xtitle("Predicted Probabilities") ///  
    ytitle("Standardized Residuals")
```

```
logit vhappy attend new_income employed marital_status educ kids  
reg16 female black Year1-Year7, vce(robust)  
predict stdres2  
predict predprob2, p  
scatter stdres2 predprob2, yline(0) ///  
    title("Model 2: Standardized Residuals vs. Predicted  
Probabilities") ///  
    xtitle("Predicted Probabilities") ///  
    ytitle("Standardized Residuals")
```

```

logit vhappy regattend occattend noattend new_income employed
marital_status educ reg16 kids female black Year1-Year7, vce(robust)
predict stdres3
predict predprob3, p
scatter stdres3 predprob3, yline(0) ///
    title("Model 2.2: Standardized Residuals vs. Predicted
Probabilities") ///
    xtitle("Predicted Probabilities") ///
    ytitle("Standardized Residuals")

// Full tables and regressions for the Appendix

```

```

ologit new_happy attend new_income employed marital_status educ kids
reg16 female black Year1-Year7, vce(robust)
outreg2 new_happy attend new_income employed married widowed educ
kids reg16 female black Year1-Year7 using myEMA2.doc, word replace
title(Does Religion Effect Happiness?) ctitle(Model 1) addtext(Time
Dummies Included, YES, Controls Included, YES, Estimation Method,
Ordinal Logit) label

```

```

ologit new_happy regattend occattend noattend new_income employed
marital_status educ kids reg16 female black Year1-Year7, vce(robust)
outreg2 new_happy regattend occattend noattend new_income employed
marital_status educ kids reg16 female black Year1-Year7 using
myEMA2.doc, word append ctitle(Model 1.1) sortvar(attend regattend
occattend noattend) see addtext(Time Dummies Included, YES, Controls
Included, YES, Estimation Method, Ordinal Logit) label

```

```

logit vhappy attend new_income employed marital_status educ kids
reg16 female black Year1-Year7, vce(robust)
outreg2 vhappy attend new_income employed marital_status educ kids
reg16 female black Year1-Year7 using myEMA2.doc, word append
ctitle(Model 2) addtext(Time Dummies Included, YES, Controls
Included, YES, Estimation Method, Logit) label

```

```
logit vhappy regattend occattend noattend new_income employed  
marital_status educ reg16 kids female black Year1-Year7, vce(robust)  
outreg2 vhappy regattend occattend noattend new_income employed  
marital_status educ kids reg16 female black Year1-Year7 using  
myEMA2.doc, word append ctitle(Model 2.2) sortvar(attend regattend  
occattend noattend) see addtext(Time Dummies Included, YES, Controls  
Included, YES Estimation Method, Logit) label  
  
// Correlation table showing very minimal cross correlation between  
included variables  
asdoc pwcorr new_happy attend new_income employed marital_status  
educ kids reg16 female black Year1-Year7, replace  
  
// Full descriptive table:  
asdoc sum, replace
```