

Religious Adherence and Unemployment

By

Luke E. Francis

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The members of the Committee approve the thesis of

Luke E. Francis presented on December 13, 2019

Dr. David Welsch, Chair

Dr. Nicholas Lovett

Dr. Yuhan (Cathy) Xue

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Luke Francis

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Under the Supervision of Dr. David Welsch

This paper looks at the relationship between unemployment and religious adherence, as a proxy for religiosity. Using data from the Year 2000 US Census and data from the Associate of Religions Data Archives of the same year at the county level, I find that after controlling for variables in the economy, unemployment has a negative effect on religious adherence. However, there is no evidence that religious adherence has an effect on unemployment, holding the same variables constant. This shows that in times of high unemployment, fewer individuals will attend religious services. The result is that religious institutions may lose funding from two sources in high unemployment. First, congregants may lose their jobs and be less able to donate. Second, some will leave the religious institution, taking their donations with them. In order to prepare for this, religious institutions should consider budgeting for poor economic times in times of low unemployment, in order to maintain the same level of programming and services when funding decreases.

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1. Introduction

Religious organizations bring like-minded people together to grow in their faith and provide social, moral, and theological structure in society. As with most non-profit organizations, faith-based organizations rely heavily on donations in order to run programming and offer services. However, economic downturns and high unemployment can have an effect on the resources that these organizations receive and thus limit the effectiveness of the organization. Similarly, these organizations could affect employment in the economy as well.

In this paper, I examine the effect of religiosity on unemployment as well as unemployment's effect on religion. When looking at the relationship of unemployment on religion, it is possible that more unemployment could increase or decrease religiosity. It could be the case that when unemployment is higher, people have more time, feel less certain about the current situation, and thus turn to God and religion to provide stability in uncertain times. Alternatively, if people spend more time looking for a job, this takes time away from church, or perhaps hard times cause individuals to lose faith and turn away from the church.

Similarly, when looking at the effect of religion on unemployment, more religiosity could lead to more or less unemployment. If more people become involved with religion, they may focus less on jobs, which means they may either get fired or quit their jobs. Conversely, perhaps being involved in religion leads to greater personal responsibility, leading individuals to become better employees and more employers

wanting to locate in the area, leading to greater social capital. Essentially, people could be motivated to honor God in their work and put more effort into finding a job.

In this paper, I use an instrumental variable approach to look at the relationship between unemployment and religiosity by regressing one on the other, with controls for both. Endogeneity is a concern because religious adherence does not measure all of the parts of someone's religiosity that could affect unemployment. Finding an instrument for each equation that fits two requirements is important. First, the instrument must be conditionally correlated with the endogenous variable, and secondly, it must be conditionally uncorrelated with the error term. I use unemployment lagged ten years to instrument for unemployment in the equation where religious adherence is the dependent variable, and similarly use religious adherence lagged ten years to instrument for religious adherence in the equation where unemployment is the dependent variable. These are good instruments because areas of high unemployment often persist over time but are uncorrelated with the unobserved factors in the error term. The same is true of lagged religious adherence because religious beliefs are often passed down through families but also is uncorrelated with the error term. Since both unemployment and religiosity tend to persist over time, using lagged measures of each can be good instruments.

I find that after accounting for the endogeneity concerns, unemployment has a negative effect on religiosity, which means that in places with high unemployment, fewer individuals go to church. However, there is no evidence of an effect of religiosity on unemployment. Thus, there is a unique relationship between the two where

unemployment affects religion, but not vice versa. When unemployment is high, religious institutions may lose donations from two sources. First, individuals may lose their jobs and be less able to give. And then secondly, fewer individuals attend church, meaning that they are also not giving to support the organization. As a result, I conclude that in good economic times, religious organizations should save money in order to be able to invest in maintaining the same level of programming when times are harder.

The rest of the paper is structured in sections. Section 2 is a literature review, while Section 3 presents the data and descriptive statistics. Section 4 introduces and discusses empirical models, Section 5 presents the main results, and Section 6 is the conclusion.

2. Literature Review

One of the challenges with writing this paper is the lack of prior research regarding the relationship between unemployment and religiosity. Thus, for the literature review, I look at topics that are similar and tie closely to what my paper examines. The relationship between happiness and unemployment is similar in that happiness, like religiosity, is intangible, but still there is an effect on the individual which may contribute to decisions and well-being. Most of the research looks at the effect of unemployment on happiness, or utility, but not vice versa.

Ohtake (2012) finds that unemployment in Japan reduces happiness, even after controlling for income and individual characteristics. However, using German data, Gielen and Van Ours (2013) found that half of the individuals in their study did not

experience unhappiness as a result of unemployment, which meant that perhaps government intervention in the form of a social safety net may be necessary to get them to reenter the job market. Their study also found no evidence of a relationship between happiness and success in finding a job. Knabe, Schob, & Weimann (2009) found that those who are employed are generally happier than those who are unemployed when performing the same tasks. However, those who are unemployed have more time to spend on tasks they enjoy and thus sometimes end up happier than their employed counterparts, though the happiness is derived from a different source. This points to individuals responding differently to unemployment. Some are happier than others, but the response is not uniformly seen across the board and can go in either direction. Similar results, perhaps, might be expected in how unemployment affects other factors, like religiosity.

Other papers find that unemployment can have differing effects on individual happiness based on the sex of the individual. Men are more likely to experience utility loss than women; however, women experience greater loss in utility when their partner is unemployed than men, supporting the notion that gender roles influence happiness changes from unemployment (Knabe, Schob, & Weimann, 2012). While traditionally there is an assumption that more work leads to less utility, Ratzel (2012) finds an inverted U-curve for work, where being employed to a point increases happiness, but at a point that varies by the sex of the individual, more work leads to disutility. Chadi (2011) finds that when there is high regional unemployment, individuals feel better about being unemployed, especially when they are benefiting from publicly-funded programs,

because they feel less stigmatized than when regional unemployment is low. However, this paper warns that individual changes in happiness levels vary greatly person to person.

Most of the literature looks at the effect of unemployment on happiness, but one paper finds that happiness could be a predictor for whether someone will become self-employed, even though Krause (2012) finds no evidence that happiness has an effect on standard reemployment. There is some evidence, however, that optimal happiness is not the highest level of happiness possible, but rather somewhat lower than the highest. In all, the complexity of looking at individual responses to unemployment points to results that can often go either direction.

Another topic to examine that is similar is the relationship between religion and crime. Though not the same as the relationship between religion and unemployment, the similarities are that crime is considered negative, like unemployment, and religion could have an effect on ethics in an area that would affect both the propensity to commit crime and desire to work hard. Most research finds that when religion increases, crime decreases. Hull (2000) replicates previous studies with more up-to-date information, using an older version of the same dataset I use in this paper to examine the relationship between crime and religion. He found that county crime rates are negatively related to church membership share. Six years later, Heaton (2006) replicated the same results, using data from the Year 2000 US Census and the corresponding year of Religious Congregations and Membership in the United States data. After adjusting for endogeneity concerns, he found that when religion increases, crime decreases. But he

also found that when crime increases, religion decreases. The author looked at whether crime rates decreased in the days following Easter Sunday to try and measure the short-term influence of religion on crime, but he found no evidence of lower crime rates after Easter.

Other papers looked at specific elements of the religion-crime relationship. Stack and Kanavy (1983) found that when greater proportions of the population identify as Catholic, there is a lower rate of rape. Corcoran, et al (2018) found that a belief in an active God negatively impacts assaults, while there is no evidence that belief in an active God influences homicides. Overall, they conclude that cultural factors are important in predicting certain violent crimes. Another paper examines the effect of community heterogeneity on crime (Trawick and Howsen, 2006), looking at race, ethnicity, and religion and their relationships with crime. They found that when communities are more heterogeneous, they have lower crime rates, but with regards to religion, different denominations have different effects on crime. Religion can have an impact on greater economic factors, like crime.

3. Data

My dataset consists of a cross section of 3,134 counties in the United States in the year 2000. Data on religious adherence comes from Religious Congregations and Membership in the United States 2000 (Jones et al. 2000). This religious survey is conducted every decade and contains county-level membership data for 140 million adherents in 149 religious denominations in the United States. This information is

matched with county-level data from the United States Census in the year 2000. Lagged variables for unemployment came from the United States Census in the year 1990, while the lagged variable for religious adherence came from Religious Congregations and Membership in the United States 1990.

Table 1 contains descriptive statistics for all variables, showing that the mean level of individuals belonging to a religious denomination across counties is 53%. Some counties have more than 100% of their residents listed as part of a religious denomination for three key reasons. First, some individuals may be members of more than one denomination. Second, the US Census may have underreported population numbers in some counties. Third, and maybe most important, adherence is calculated based on the location of the local congregation, not where the individual resides. Therefore, large congregations located near the edge of a county may contain large numbers of adherents who live in other counties, causing the number to be greater than 100%. Counties in Virginia most notably experience this phenomenon, where cities have often been separated from their counties.

Mean religious adherence has declined from 1990, down from nearly 59% to 53%. Unemployment in 2000 is also lower than 1990, decreasing from a mean of 6.2% to 4.4%. The reference group for age is individuals younger than 20 years old, based on how the information is broken down by the US Census. The same is true of education level, where the US Census breaks down education in categories, and the reference group is those who have not completed a high school education.

Table 1: Descriptive statistics

	N	Mean	Standard Deviation	Min	Max
Religious Adherence	3134	53.0	18.6	1.8	164.5
Unemployment	3134	4.4	1.7	1.3	17.4
Religious Adherence in 1990	3132	58.9	20.8	0.0	176.7
Unemployment in 1990	3134	6.2	2.9	0.0	40.5
Median Income	3134	36,366	9,009	15,231	91,210
% Female	3134	50.4	2.0	32.7	57.4
% Age 20 to 39 ¹	3134	25.6	4.4	14.0	52.9
% Age 40 to 64 ¹	3134	38.4	3.7	11.9	62.5
% Age 65 and Up ¹	3134	14.7	4.2	1.8	34.7
% Hispanic	3134	6.1	12.1	0.0	98.1
% Black ²	3134	8.8	14.5	0.0	86.5
% Asian ²	3134	0.8	2.1	0.0	46.0
% Other Non White ²	3134	4.1	5.6	0.1	42.9
Northeast ³	3134	0.1	0.3	0.0	1.0
Midwest ³	3134	0.3	0.5	0.0	1.0
South ³	3134	0.5	0.5	0.0	1.0
Crime (per 100 people)	3134	2.3	1.8	0.0	22.0
% High School Diploma ⁴	3134	60.9	7.0	27.6	81.1
% Bachelor's Degree ⁴	3134	11.0	4.9	2.5	40.0
% Graduate or Professional ⁴	3134	5.6	3.3	0.9	36.0
% Foreign Born	3134	3.5	4.9	0.0	50.9
% Voted Republican in 2000 Election	3134	56.5	12.9	0.0	92.5

1 - Age less than 20 is reference group; 2 - white is reference group; 3 - West is reference group; 4 - no high school degree is reference group

Religious adherence is a measure of membership, when denominations have membership processes and records. Otherwise, estimates of weekly attendance are adjusted and used instead. All congregations of the 149 denominations included in this survey are counted in the results. Independent churches with more than 300 members were also surveyed, and 1,705 such congregations responded to the survey. There were

14 denominations that chose not to participate but reported more than 100,000 adherents, totaling over 31 million adherents. Also, most African-American churches do not keep records at a national level, or are independent and smaller than 300 members, causing them to be underrepresented in this data. Denominations with predominately Black congregants also often do not keep records of attendance or membership, which means that Black individuals are underrepresented in this data.

4. Empirical Models

This section presents both the baseline empirical approach, which is Ordinary Least Squares (OLS) with lagged dependent variables, along with an instrumental variables approach to estimating the same equation.

4.1 Baseline Models

Religious Adherence and Unemployment are the dependent variables in the following equations, respectively. In order to understand the relationship they have with each other, they are also the independent variables of interest in the other model. The two equations are similar, with one looking at the effect of unemployment on religious adherence, and the other looking at the effect of religious adherence on unemployment. Thus, the empirical model considers both as a baseline:

$$\begin{aligned}
 \text{Religious Adherence}_i &= \beta_0 + \beta_1 \text{Unemployment}_i + \beta_2 \text{Religious} \\
 \text{Adherence}_{i,t-10} + \text{Demographics}_i &+ \gamma + \varepsilon_i \quad (1)
 \end{aligned}$$

$$\begin{aligned}
 Unemployment_i = & \alpha_0 + \alpha_1 Religious\ Adherence_i + \alpha_2 Unemployment_{i,t-10} + \\
 & Demographics_i \cdot \theta + \mu_i \quad (2)
 \end{aligned}$$

where *Religious Adherence_i* is a percentage of individuals in county *i* that are members of a religious denomination. The variable is bounded on the low end at zero but can be greater than 100% due to the reasons listed in the data section. *Unemployment_i* is unemployment in county *i*. *Religious Adherence_{i,t-10}* and *Unemployment_{i,t-10}* are lagged ten years. This helps correct inertial effects caused by unobserved heterogeneity.

Demographics_i is a vector of controls, including a constant, median income, percentage of the county that is female, age categories (percent 20 to 39 years, percent 40 to 64 years, and percent 65 or more years old, with 19 or fewer years as the reference group), percent Hispanic, ethnicity (percent Black, percent Asian, percent Other Non-White, with percent White as the reference group), region (dummy variables for Northeast, Midwest, and South, as defined by the US Census, with West as the reference group), crimes reported to police per 100 people, education (percent of those in the county with just a high school diploma, percent of those with a bachelor's degree, percent of those with a graduate or professional degree, with those with no high school diploma or degree as the reference group), percent of people in the county who are born in a foreign country, and percent of the county that voted for the Republican candidate, George W. Bush, in the 2000 presidential election.

The β_0 and α_0 are constants, and ε_i and μ_i are error terms. β_1 and α_1 are the main coefficients of interest because they measure the effect unemployment has on religious adherence and the effect religious adherence has on unemployment, respectively. β_2 and α_2 are the coefficients that measure lagged unemployment and lagged religious adherence. And γ and θ are a vector of coefficients on the vector of controls represented by *Demographics_i* in each equation, respectively.

4.2 Instrumental Variable Models

In an effort to look at the relationship between religion and unemployment, Religious Adherence is used to measure religiosity. While elements of “natural religiosity¹” may be measured by religious adherence, there are parts of natural religiosity that are unaccounted for in this measure that could influence unemployment. This would show up in the error term. Things like the work ethic for which Protestants traditionally were known for, as well as religion’s teaching on the morality of hard work, could influence the error term in a positive way. However, putting God first at the expense of work, or a desire to only work if the job is deemed to have spiritual value, could have a negative impact on the error term. There are two views of wealth often espoused by Christians. One is known as the “prosperity gospel,” which loosely views wealth and success as a sign of God’s favor, while lack of success or misfortune as a lack of divine favor. The opposite view considers wealth to be a hinderance to following God, causing

¹ Natural religiosity is a measure of how religious an individual would be naturally. If comparing two people with exactly the same life experiences, but one individual is naturally more religious than the other, it would be evidence that they have higher natural religiosity.

some Christians to choose lives of poverty, or at a minimum to separate material wealth and job success from divine favor and to view pursuit of wealth and success as a form of idolatry. The effect of losing a job on someone personally invested in religion is undetermined – it could cause some people to turn away from God, while it could draw others toward their faith, which leads to a concern about reverse causality. When the error term includes unaccounted factors, like the ones mentioned above, or when reverse causality is a concern, it points to an underlying endogeneity issue that can be corrected using an instrumental variables approach.

In order to use an instrumental variables approach, a suitable instrument must be found for the variable causing the endogeneity. In order to help with this, a valid instrument must be found which satisfies two properties. First, it must be conditionally correlated with the endogenous variable, which in this case is Unemployment. Secondly, it must be conditionally uncorrelated with the error term of the second stage equation (Equation 1), which is denoted by ε_i . Unemployment lagged 10 years fulfills these requirements since areas of high unemployment persist over time, but past unemployment is not correlated to the variables unaccounted for that end up in the error term, like those that affect natural religiosity, mentioned above. The first stage equation for my Equation 1 estimate is:

$$\begin{aligned}
 \text{Unemployment}_i = & \delta_0 + \delta_1 \text{Unemployment}_{i,t-10} + \delta_2 \text{Religious Adherence}_{i,t-10} \\
 & + \text{Demographics}_i \gamma + \eta_i \quad (3)
 \end{aligned}$$

Similarly, endogeneity is a concern for the Religious Adherence variable in Equation 2. Like above, in order to instrument for Religious Adherence, I use Religious Adherence lagged 10 years because it is likely correlated with current Religious Adherence, since religious beliefs are often passed down through families, which are often consistent geographically, and thus persist over time. However, it is also likely uncorrelated with the error term and the parts of natural religiosity found there. In this case, the first stage equation will be:

$$\begin{aligned} \text{Religious Adherence}_i &= \rho_0 + \rho_1 \text{Religious Adherence}_{i,t-10} + \rho_2 \\ \text{Unemployment}_{i,t-10} + \mathbf{Demographics}_i \boldsymbol{\theta} + \zeta_i \quad (4) \end{aligned}$$

The variables in Equations 3 and 4 are the same as in Equations 1 and 2. The δ and ρ are coefficients, and η_i and ζ_i are error terms.

5. Results

By using two approaches, a standard OLS and an instrumental variables approach, I find that Unemployment has a negative effect on Religious Adherence, while I find no evidence that Religious Adherence has an effect on Unemployment. In areas of high unemployment, fewer individuals are involved in a religious institution, holding everything else in the regression constant. However, the reverse is not true, as I find no evidence that religiosity has an effect on unemployment.

5.1. First Stage Results

The instrumental variable approach helps correct for endogeneity concerns from unobservable characteristics residing in the equation's error term. A first stage equation is calculated, regressing the independent variable in question, Unemployment in this case, on all other independent variables and the instrument. Then the predicted values of the first stage equation (Equation 3) are used when estimating the results of the second stage equations (Equation 1) in place of the Unemployment variable. If the instrument is valid, then the process of the instrumental variable approach purges the unobservable effects on the error term.

The unobservable effect is the long-term economic state of a county, caused by persistent unemployment over time. Lagged unemployment is expected to be correlated with current unemployment but loosely not correlated with religiousness in the present.

The results for the first stage of the instrumental variables approach can be seen in Table 2. The first column represents the results for Equation 3, where Religious Adherence is the dependent variable. Past religious adherence is significant at the 0.01 level and positive, supporting the notion that religious adherence persists over time. Unemployment from 10 years prior is significant at the 0.01 level and negative, showing that past unemployment has a negative effect on current religious adherence, holding the other factors in the equation constant. The second column shows results for Equation 4, where Unemployment is the dependent variable. Past unemployment is significant at the 0.01 level and positive, meaning that unemployment is likely to persist over time.

Table 2: First Stage Results

	Religious Adherence	Unemployment
Religious Adherence in 1990	0.578** (0.025)	-0.002 (0.001)
Unemployment in 1990	-0.298** (0.099)	0.302** (0.012)
Median Income	1.44E-04** (5.18E-05)	-4.48E-05** (3.98E-06)
% Female	0.417* (0.163)	-0.076** (0.013)
% Age 20 to 39 ¹	-0.550** (0.177)	-0.094** (0.014)
% Age 40 to 64 ¹	-1.000** (0.108)	-0.030** (0.011)
% Age 65 and Up ¹	0.644** (0.121)	-0.049** (0.012)
% Hispanic	-0.025 (0.062)	0.010 (0.006)
% Black ²	-0.356** (0.021)	0.012** (0.002)
% Asian ²	0.172 (0.182)	0.046** (0.015)
% Other Non White ²	0.281* (0.118)	-0.027 (0.014)
Northeast ³	1.615 (1.091)	-0.791** (0.089)
Midwest ³	1.388 (0.894)	-1.046** (0.077)
South ³	3.340** (1.069)	-0.867** (0.087)
Crime (per 100 people)	0.069 (0.136)	-0.036** (0.012)
% High School Diploma ⁴	-0.078 (0.055)	-0.008 (0.005)
% Bachelor's Degree ⁴	0.447** (0.141)	-0.017* (0.008)
% Graduate or Professional ⁴	-0.205 (0.314)	-0.02 (0.010)
% Foreign Born	-0.214* (0.106)	0.035** (0.010)
% Voted Republican in 2000 Election	-0.033 (0.019)	-0.014** (0.003)
Observations	3,132	3,132
F-Stat of Excluded Instruments	591.35	529.71

The number in parenthesis is the heteroskedasticity-robust standard error clustered on state

All estimates also include a constant

1 - Age less than 20 is reference group; 2 - white is reference group; 3 - West is reference group; 4 - no high school degree is reference group

*, **: significant at the 5 and 1% level, respectively.

In order to test the validity of the instruments, the F-test is employed. First, the F-test of excluded instruments in the first stage for the Religious Adherence equation is 591.35, while the F-test result for the Unemployment first stage equation is 529.71. According to Staiger and Stock (1997), an F-statistic of greater than 10 would indicate that the instrument is not weak, since the null hypothesis of a weak instrument is rejected in favor of the alternative that the instrument is not weak. Since each equation has only one instrument, the second assumption discussed previously – that the instrument is not correlated to the error term – cannot be tested. The Hansen-Sargan overidentification test and other such tests require the model to be overidentified.

5.2. Effect on Religious Adherence

Estimates for the effect of Unemployment on Religious Adherence are shown in Table 3. There are two estimations calculated, one without the instrumental variable approach and one with this approach. In both models, the coefficient on Religious Adherence in 1990 is statistically significant at the 0.01 level and has the same magnitude. Other coefficients also conform to a-priori expectations. Counties with higher proportions of people between the ages of 20 and 64, compared to those under the age of 20, are less likely to have high religious adherence levels, conditional on the controls included. This supports the idea that working individuals are less likely to attend church. One potentially surprising result is that having higher proportions of Black people leads to lower levels of religious adherence, given the controls in the regression.

Table 3: Religious Adherence

	OLS	IV
Unemployment	-0.533 (0.296)	-0.985** (0.326)
Religious Adherence in 1990	0.580** (0.123)	0.576** (0.025)
Median Income	1.30E-04 (7.75E-05)	9.99E-05 (5.37E-05)
% Female	0.361* (0.152)	0.343* (0.165)
% Age 20 to 39 ¹	-0.592* (0.265)	-0.643** (0.184)
% Age 40 to 64 ¹	-1.016** (0.383)	-1.029** (0.109)
% Age 65 and Up ¹	0.643* (0.281)	0.596** (0.123)
% Hispanic	-0.024 (0.095)	-0.016 (0.061)
% Black ²	-0.348** (0.047)	-0.344** (0.021)
% Asian ²	0.214 (0.270)	0.217 (0.187)
% Other Non White ²	0.278 (0.161)	0.256* (0.118)
Northeast ³	1.344 (1.792)	0.836 (1.156)
Midwest ³	0.936 (1.875)	0.358 (0.945)
South ³	3.033 (2.124)	2.487* (1.095)
Crime (per 100 people)	0.051 (0.233)	0.034 (0.137)
% High School Diploma ⁴	-0.072 (0.107)	-0.086 (0.055)
% Bachelor's Degree ⁴	0.471** (0.114)	0.430** (0.142)
% Graduate or Professional ⁴	-0.215 (0.235)	-0.225 (0.313)
% Foreign Born	-0.200 (0.114)	-0.180 (0.104)
% Voted Republican in 2000 Election	-0.031 (0.031)	-0.046* (0.020)
Observations	3,132	3,132

The number in parenthesis is the heteroskedasticity-robust standard error clustered on state

All estimates also include a constant

1 - Age less than 20 is reference group; 2 - white is reference group; 3 - West is reference group; 4 - no high school degree is reference group

*, **: significant at the 5 and 1% level, respectively.

However, this is likely caused by the lack of Black congregations reporting in the Church Census, since predominantly Black congregations often do not keep attendance or membership records. All results fit with prior expectations.

In order to correct for the endogeneity issue mentioned in the Models section, the instrumental variable approach is used, causing the coefficient on Unemployment to nearly double in effect while also becoming significant at the 0.01 level. Under the standard OLS model, there is no evidence that Unemployment affects Religious Adherence, given the controls included in the model. Using the instrumental variable approach, when unemployment increases by one percentage point, the percentage of people in a county who adhere to a religion decreases by 0.985 percentage points, controlling for other factors included in the regression. Thus, I conclude that higher unemployment could lead people to be less committed to religion. In places with higher unemployment, religious institutions presumably face two problems. First, unemployed congregants are less able to contribute financially to the mission of the organization. Second, fewer individuals participate actively in their religious institutions, increasing the financial losses to the organization. Lower budgets would likely cause religious institutions to cut programs for both outreach and benevolence, which may both be needed in times of uncertainty. Religious institutions should be aware of this reality and save funding for poor economic times.

In order to attempt to quantify the size of the effect, consider a one percentage point increase in unemployment. If unemployment increases by one percentage point, religious adherence would decrease by 0.985 percentage points. Therefore, if

unemployment were to rise from 4.4% (the mean in Table 1) to 5.4%, then mean religious adherence would fall from 53% (see Table 1) to 52.02%. According to the US Census, the population of the United States in the year 2000 was 281,421,906. The change in religious adherence from the one percentage point increase in unemployment would lead to 2,772,006 fewer individuals attending religious services. According to the US Census, the average household size in 2000 was 2.62 individuals, which means that nationally 1,058,017 households would leave religious organizations. According to Andreoni, et al (1996), 53.2% of households give money to religious organizations with an average annual gift to their religious organizations of \$771, which could lead to a loss of financial donations to religious organizations of nearly \$434 million for a one percentage point increase in the unemployment rate. This is a very rough calculation, especially since the percentage of households that give money but leave their religious organization is uncertain. However, the number of individuals and households who would leave religious organizations and the financial contributions they would take with them could have a negative impact on congregations.

The instrumental variable approach is a better method to use than just standard OLS because when unobserved endogeneity is corrected, the true effect of unemployment on religiosity is more clearly seen. The other variables remain largely unchanged from one method to the next, except the coefficient of interest which supports the notion that the endogeneity concerns with unemployment have been corrected.

5.3. *Effect on Unemployment*

Estimates for the effect of Religious Adherence on Unemployment can be found in Table 4. Like the models to predict Religious Adherence, there are two models estimated – one using the instrumental variable approach and one without. Since Unemployment lagged ten years is highly significant at the 0.01 level, it follows that unemployment in counties persists over time. Next, I will look at other coefficients to see if they conform to a-priori expectations. As expected, many of the controls included in this model are significant. The coefficient on Median Income is negative, as expected, since higher levels of income would correspond with lower unemployment but is also significant at the 0.01 level, given the other controls in the model. Age categories are also significant, though p-values further decline when using the instrumental variables approach. Region dummy variables are significant in both models, suggesting that region has a strong impact on unemployment. For the most part, education has a low level of significance, as well as low impact. Since the magnitude of coefficients in both the OLS and instrumental variable approach remains consistent between the two, but significance changes, with coefficients possessing lower p-values in the instrumental variable approach, this supports the claim that endogeneity issues are being corrected.

In both models, there is no evidence that the variable of interest, Religious Adherence, has an impact on Unemployment, when controlling for the other factors included in the regression. The impact remains the same, though the standard errors decrease in the instrumental variable approach but not enough to make the coefficient significant. However, there is significant variation in Religious Adherence, which may

Table 4: Unemployment

	OLS	IV
Religious Adherence	-0.003 (0.003)	-0.003 (0.002)
Unemployment in 1990	0.300** (0.023)	0.301** (0.012)
Median Income	-4.47E-05** (1.02E-05)	-4.44E-05** (3.99E-06)
% Female	-0.077* (0.033)	-0.075** (0.013)
% Age 20 to 39 ¹	-0.097** (0.033)	-0.096** (0.014)
% Age 40 to 64 ¹	-0.033 (0.024)	-0.033** (0.012)
% Age 65 and Up ¹	-0.049 (0.028)	-0.048** (0.012)
% Hispanic	0.009 (0.011)	0.010 (0.006)
% Black ²	0.011 (0.007)	0.011** (0.002)
% Asian ²	0.046 (0.030)	0.047** (0.016)
% Other Non White ²	-0.025 (0.026)	-0.026 (0.014)
Northeast ³	-0.791* (0.323)	-0.787** (0.089)
Midwest ³	-1.044** (0.259)	-1.043** (0.077)
South ³	-0.856* (0.339)	-0.858** (0.087)
Crime (per 100 people)	-0.036 (0.032)	-0.036** (0.012)
% High School Diploma ⁴	-0.009 (0.011)	-0.009 (0.005)
% Bachelor's Degree ⁴	-0.017 (0.019)	-0.016 (0.008)
% Graduate or Professional ⁴	-0.02 (0.017)	-0.021 (0.011)
% Foreign Born	0.034* (0.015)	0.034** (0.010)
% Voted Republican in 2000 Election	-0.014* (0.006)	-0.014** (0.003)
Observations	3,134	3,132

The number in parenthesis is the heteroskedasticity-robust standard error clustered on state

All estimates also include a constant

1 - Age less than 20 is reference group; 2 - white is reference group; 3 - West is reference group; 4 - no high school degree is reference group

*, **: significant at the 5 and 1% level, respectively.

be part of the reason the variable is not significant. Still, the instrumental variable approach likely offers additional evidence beyond the standard OLS. When adjusting for endogeneity issues, the results still do not show a significant impact of Religious Adherence on Unemployment.

6. Conclusion

Very little research has been done on the relationship between unemployment and religiosity. I found that unemployment affects religious adherence, but I found no evidence to show that changes in religious adherence have an effect on unemployment. In essence, it would appear that unemployment is too big to be moved by whether someone goes to church or not, but the social and religious decisions of individuals are affected by the health of the economy. When unemployment is high, fewer individuals attend religious services. However, even more than attending, adherence is lower, which means that membership in religious organizations declines, leading to fewer individuals committed to religion. High unemployment affects many parts of society, and religiosity appears to be no exception.

As suggested in the example above, a one percentage point increase in unemployment in 2000 would result in a decrease in religious adherence of nearly 2.8 million individuals. Most religious organizations believe there are spiritual implications to not attending their services, ranging from some that believe attendance is a salvation issue, to others that believe that spiritual health is best pursued in community. In any case, a decline of 2.8 million individuals clearly has a significant spiritual impact.

In times of high unemployment and economic uncertainty, religious institutions may experience decreasing financial resources from two sources. Since religious institutions cover the costs of their organization and any programming they offer, often exclusively from donations, an economic downturn can have a devastating effect. First, congregants who become unemployed or underemployed may not be able to continue contributing at the levels they previously had. Second, since higher unemployment leads to people leaving religious institutions, this also decreases potential funding for the organization. In fact, this possibility is most troubling for religious institutions since religiosity seems to be generational. Losing adherents in challenging economic times could cause long-term funding difficulties.

Funding issues are concerning for religious institutions because they seek to offer support for two groups of people – those inside the organization and those outside the organization. Programs to benefit those inside the organization often consist of services like spiritual direction, care, and worship services, which are often run by paid staff. Budget issues can reduce paid staff positions. Budgeting constraints can also cause funding to decrease for mission work and outreach programs, whether the institution is funding outside missionaries or offering benevolence assistance to those in need. As such, budget cuts for religious institutions caused by high unemployment can have a profound impact on many individuals.

Furthermore, cutting programming can end up increasing losses in religious adherence as those who are still committed to their religion start to look for other congregations or other types of organizations to meet their needs. The congregations that

survive in the long run are those that can weather the storm of high unemployment.

What follows is a conclusion that religious institutions should plan better for the business cycle. Rather than spending everything they bring in during good economic times, they should consider saving substantial parts of their budget to use in less prosperous times. This advice is counterintuitive to some religious organizations, where the prevailing view sometimes is that since the organization is non-profit, the best way to honor God is to spend everything that comes in to invest in the spiritual well-being of the community. However, planning ahead for economic downturns would allow organizations to serve the community over time.

Investing more heavily in programs that benefit both those inside and outside the organization during an economic downturn could help a religious institution grow. If there is concern over the spiritual implications of large numbers of individuals leaving religious organizations in hard economic times, these times are exactly when organizations should be increasing their outreach efforts and seeking to meet the needs of the community. Times of high unemployment are when religious institutions can potentially work against the trends. Because of this, religious institutions would do well to budget more consistently and make a long-range plan that fully encapsulates their values. Social and spiritual support provided for individuals by their religion still is important in times of unemployment. Unfortunately, many religious organizations are unprepared to meet those needs.

7. References

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