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Does Religious Affiliation Protect People's Well-being? Evidence from the Great Recession after Correcting for Selection Effects:

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Abstract

This paper investigates the effect of religious affiliation on individual well-being. Using Gallup's U.S. Daily Poll between 2008 and 2017, we find that those who are engaged in their local church and view their faith as important to their lives have not only higher levels of subjective well-being (SWB), but also acyclical levels. We show that the acyclicity of SWB among Christians is not driven by selection effects or the presence of greater social capital, but rather a sense of purpose over the business cycle independent of financial circumstances.

Keywords: Well-being, public health, social capital, business cycle, financial circumstances.

JEL: E32, I12, I31, Z12

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Introduction

A large macroeconomics literature has found that subjective well-being is highly cyclical—that is, positively correlated with GDP growth and negatively with the unemployment rate (Di Tella et al. 2001; Wolfers 2003). Meanwhile, an even larger psychological and social sciences literature has emerged on determinants of psychological distress and well-being (Koenig 2018). These studies consistently document a protective effect of religious participation (Levin and Chatters 1998), replicated across age cohorts, in both sexes, and regardless of social class, race or ethnicity, religious affiliation, and specific diagnosis or outcome (Levin 1997; Smith et al. 2003; Koenig et al. 2012).

The economics literature has largely studied religious affiliation as an input to the production of social capital (Coleman 1988).² For example, church attendees gain social capital by participating in shared community events and investing time with one another, building trust and social links that influence their economic decision-making (Putnam and Campbell 2010). These social ties can play an important role in facilitating financial development and development of informal networks (Glaeser et al. 2002; Guiso et al. 2004), which could help cushion against risk over the business cycle (Dehejia et al. 2007). However, religious participation may also affect well-being directly by altering the way individuals process and deal with information and circumstances.³

² See Levin (1997) for a survey.

³ This hypothesis would be consistent with a large and increasing empirical literature on the role of personal experience in belief formation; see, for example, (Malmendier and Nagel 2011) for evidence on the effects of individuals growing up during the Great Depression on future risk taking, (Malmendier and Nagel 2016) for evidence on individuals exposed to inflation during the 1970s on beliefs about future inflation, (Kuchler and Zafar 2019) for

The primary contribution of this paper is to explore a specific dimension through which religious participation might influence well-being: the ability to retain a sense of purpose and satisfaction independent of their economic circumstances. Using the U.S. Daily Poll, which tracks psychological well-being among 1,000 individuals each day, we exploit spatial heterogeneity in quarterly employment growth across counties between 2008 and 2017. This setting is particularly advantageous for causal identification since we can compare the responses of observationally equivalent individuals exposed to economic conditions that vary across time and space during the United States' most protracted recovery since the Great Depression (Taylor 2014). Moreover, because business cycles influence how individuals allocate their time towards workplace activities (Aguiar et al. 2013), and the workplace is an important outlet for deriving a sense of purpose (Oswald et al. 2015), these cyclical fluctuations provide insight into subjective well-being.

We distinguish among several categories of religious affiliation, including: Christians, active Christians, and theists. Active Christians are those who report that faith is important to them or attend church at least twice monthly. After replicating the standard result from the literature that well-being—measured using a combination of current and expected future life satisfaction on a 11-point Cantril scale—is strongly procyclical, we find that this association is weaker for Christians and null for active Christians. These results are not only consistent with the traditional view of religious participation as an input into the production of social capital, but also highlight a potentially causal mechanism independent of social capital for active Christians.⁴

evidence on the response to local housing price shocks, and (Binder and Makridis 2020) for evidence on the response to gasoline price fluctuations.

⁴ See (Iannaccone 1998) for a survey about the economics of religion and its importance for understanding real economic outcomes.

To better understand the mechanisms driving our results, we introduce two measures of social capital and estimate our main specification separately for counties that rank above versus below the median of our indices. While the estimates for the cyclicality of life satisfaction for active Christians are statistically indistinguishable in high versus low social capital counties, we find that life satisfaction is procyclical for inactive Christians in low social capital areas. The result that less engaged Christians are more sensitive to business cycle fluctuations is consistent with the “moral communities” hypothesis that individual behavior in religious activities is influenced by the behavior of the group (Stark 1996). In particular, while active Christians already strong in their belief and practice may rely less on larger groups of adherents to remain grounded, others may need the reinforcement from their communities to weather economic storms. We further rule out the possibility that our results are driven by informal social networks by exploring the sensitivity of our results to the inclusion of zipcode-level income growth and individual income bins.

Our results are related with several pieces of evidence about the positive effects of religious affiliation. For example, (Fruehwirth et al. 2019) investigate the causal effect of religious affiliation on depression and suicide by exploiting plausibly exogenous variation in individuals' exposure to peers who vary in their religiosity, finding that a standard deviation increase in exposure to peer religiosity leads to a 0.31sd decline in an individual's depression score. Moreover, these effects are stronger for individuals who are more depressed. Similarly, there is evidence that religious affiliation has a plausibly causal effect on the likelihood to commit certain adverse and risky behaviors, such as drinking and drug use (Gruber and Hungerman 2008; Fletcher and Kumar 2014). In addition, there is a large body of evidence suggesting that religious institutions offset the need for an expanded welfare system (Hungerman 2005; Dehejia et al. 2007).⁵

⁵ See (Iyer 2016) for a survey of the literature.

Our paper is also related with a large literature on the economics of happiness and well-being (Frey and Stutzer 2002; Clark et al. 2008). Motivated by the result that well-being is highly cyclical (Di Tella et al. 2001; Wolfers 2003), more recent studies of happiness have investigated the pass-through of permanent and transitory income shocks (Frijters et al. 2004; Bayer and Juessen 2015).⁶ Our results are related to these in that we focus on local demand shocks, rather than individual income shocks. Our paper is also closely related with (Lelkes 2006) who finds, on a sample of Hungarians in the 1990s, that individuals with greater religious affiliation are less sensitive to periods of economic transition. Similarly, (Clark and Lelkes 2005) use cross-country data to show that those with greater religious affiliation are less influenced by income shocks. However, whereas their statistical strategy requires that religious affiliation be exogenous to the individual's own shock, our identification strategy relaxes the assumption much more by comparing observationally equivalent individuals exposed to different local economic shocks based on where they live.

The structure of the paper is as follows. Section 2 provides a theoretical background about the role of religious affiliation and its effects on subjective well-being. Section 3 introduces the data and measurement strategy. Section 4 explains the empirical strategy. Section 5 documents the main results. Section 6 explores the mechanisms behind our main results. Section 7 concludes.

Theoretical Background

⁶ See (Jappelli and Pistaferri 2010) for a survey on income and consumption.

Numerous studies have also demonstrated a link between religiosity and happiness and life satisfaction across the world (Stark 2017).⁷ While most of these studies are cross-sectional, there is longitudinal evidence supports similar conclusions, suggesting that these relationships may well be causal (Lim and Putnam 2010), that attendance and participation in religious activities is associated with greater meaning in life (Krause and Hayward 2012), and that those who are active in their faith tend to be more generous and more civically engaged (Putnam and Campbell). These differences can emerge from several channels, including: the effect of prayer (a behavior associated with religiosity) on the likelihood of forgiveness, gratitude, and trust (Lambert et al. 2009, 2010, 2012), the lower likelihood of divorce (Strawbridge et al. 2001; Call and Heaton 1997; Amato and Rogers 1997), the higher likelihood of making friends, marrying, and increasing social support (Strawbridge et al. 2001, (Lim and Putnam 2010; Wilcox and Wolfinger 2016). In sum, the effect of involvement in religious community and religious belief on various aspects of well-being is wide-ranging.

Motivated by all the evidence that religious affiliation and religiosity affects well-being, there is also reason to suspect that religion can serve as a protective factor against adverse life events. For example, an emerging body of evidence suggests attending religious services is associated with better health (Koenig et al. 2012; Idler 2014; VanderWeele 2017). Moreover, longitudinal evidence that participation in religious activities is associated with greater longevity (Hummer et al. 1999; Musick, House and William 2004; Strawbridge et al. 2001; Gillum et al. 2008; Chida, Steptoe and Powell 2009; Li et al. 2016), lower incidence of

⁷ Survey research continues to reveal that Americans are religious. For example, within the United States, 89% believe in God or a universal spirit, 78% consider religion a very important or fairly important part of life, 79% identify with a particular religious group, and 36% report having attended a religious service in the last week (Gallup 2015).

depression (Li et al. 2016; Strawbridge et al. 2001; Balbuena, Baetz and Bowen 2013), lower rate of suicide (VanderWeele et al. 2016), better survival from cancer, as well as other important outcomes (Koenig et al. 2012; VanderWeele 2017; Koenig 2018). These effects are also present among vulnerable groups, like veterans, in mitigating PTSD and alcohol abuse (Sharma et al. 2017). In sum, considerable evidence shows that religion buffers or protects individuals from harmful outcomes: (Koenig et al. 2012) shows that nearly 80% of studies on religion and spirituality find a positive relationship on measures of psychological well-being.⁸

Moreover, the converse is also true. For example, individuals experiencing a decline in faith are more likely to report a decline in positive emotions, like optimism about the future, and prosocial behaviors, like service to others in their community (Krause and Pargament 2017). Nonetheless, an open question remains as to whether these cross-sectional studies reflect a causal effect of religion on mental health. Unfortunately, the bulk of studies are cross-sectional, so researchers cannot separate between the competing hypotheses that posit the presence of selection effects—that is, individuals who are more religious simply vary in other unobserved ways that are also correlated with these different mental health outcomes—from the presence of genuine causal effects—that is, effects of religious affiliation on dimensions of well-being and human flourishing.

To the extent a causal effect exists, we suggest it could emerge for at least one of two reasons. First, individuals' involvement in religious activities may create social capital within their community, creating a safety net for adverse events (Dehejia et al. 2007). Second, individuals' religious worldview may provide a time-invariant sense of purpose and meaning,

⁸ However, related research has also examined differences in well-being among individuals who have switched religions. For example, (Scheitle and Adamczyk 2010) find that individuals who are raised in high-cost religions, such as the Church of Latter-day Saints and Jehovah's Witnesses, report worse health than those who leave other groups.

allowing them to go through traumatic life experiences without corresponding changes in well-being. For example, religious and spiritual factors can help patients undergoing coronary bypass surgery maintain a sense of hope amid challenging circumstances (Ai and Park 2007).

Rather than testing the broader question of whether religion has an overall causal and positive effect on well-being, we answer a more specific question: can differences in religious affiliation explain differences in the cyclical nature of well-being over the Great Recession between 2008 and 2017? While the empirical patterns of self-reported well-being are now well-known, rising and falling with the business cycle (Wolfers 2003), research on the effects of religious or spiritual participation on mental health would suggest that well-being among religious adherents should be less cyclical because their hope does not reside in their economic circumstances, but rather their time-invariant beliefs and religious commitments.

In this sense, religious adherent's happiness is less likely to be tied to the cyclical and transient state of the economy. Rather, religious adherent's worldview (in most cases) is that their well-being is based on the belief that humans have intrinsic worth and eternal significance. In fact, Worry is often explicitly discouraged. Although we begin by exploring differences across multiple faiths, our data points towards important sources of heterogeneity that are unique for Christians, particularly active Christians who view faith as important to their life and attend church at least twice a month. Unlike many other worldviews, which link worth with the performance of specific rituals or behaviors (which may vary over the business cycle), this faith tradition emphasizes the importance of attitude, belief, and motivation that may be more stable and less influenced by fluctuations in the economy (Schnabel et al. 2018).

Data and Measurement

Gallup Daily Polling Repeated Cross-sectional Data. We draw on proprietary data from Gallup, a premier survey research firm. We use data from the U.S. Daily Poll, which surveys

1,000 U.S. adults on various political, economic, and well-being topics. Specifically, 200 Gallup interviewers conduct computer-assisted telephone interviews with randomly sampled respondents (age 18 or over) from all 50 states and the District of Columbia. Detailed geographic data is also available, along with corresponding sample weights. These data have been used recently by social science researchers to study the relationship between well-being and income over time (Kahneman and Deaton 2010; Deaton 2012), over the business cycle (Makridis 2019), and in relation to policy (Makridis 2020).

Gallup's polling relies on live interviews with dual-frame sampling (including random-digit-dial [RDD]) landline and wireless phone sampling. Half of the respondents receive the "well-being track" version of the survey questions, whereas the other half receives the "politics and economy track". The two surveys contain different topical questions, but both contain the same identifying demographic information. We focus on the well-being track, which contains information on current and expected future life satisfaction. Gallup also conducts the survey in Spanish to record replies from those Spanish speakers who do not also speak English. In addition, the sampling methodology uses a three-call design to reach respondents who do not answer the original attempted call.

Our main measure of subjective well-being (life satisfaction) is based on the answer to the two questions: (i) "Please imagine a ladder with steps numbered from zero at the bottom to ten at the top. The top of the ladder represents the best possible life for you and the bottom of the ladder represents the worst possible life for you. On which step of the ladder would you say you personally feel you stand at this time?" and (ii) "On which step do you think you will stand about five years from now?" We use the logarithm of current life satisfaction and an indicator for whether the individual is thriving, which (following Gallup) is set equal to one if the respondent answers at least a 7/10 about current life satisfaction and at least an 8/10 about

expected future life satisfaction.⁹ While our measure of well-being focuses more on the individual's hedonic state, we recognize that there are many alternative approaches to measuring well-being, including the eudemonic view that focuses on meaning (Ryan and Deci 2001). Unfortunately, our data do not contain such measures over the entire sample, but any measurement error should reinforce our results since meaning is less time-varying and more closely correlated with spirituality (Koenig et al. 2012).

Gallup also provides detailed data on religious affiliation and, more specifically, religiosity. We define Christians as those are Protestant, Catholic, or Other (e.g., Orthodox). We also define respondents as “active” if they report attending a religious service at least twice per month and view their faith as important in their life. Our latter refinement on religiosity is key since there is evidence of systematic differences between individuals who, for example, might self-identify as Christian because of their parents or tradition, in contrast to those who are committed to this worldview and align beliefs with actions, although we recognize that our two proxies for engagement have their own limitations since they do not track actual behavior (Koenig et al. 2001). In our empirical tests, we allow for differences across denominations and other religious groups, namely Jews, Muslims, and Mormons, although the shares of respondents in the sample identifying as such are small: 2.1%, 0.4%, and 1.7%, respectively. Our individual demographic controls include: employment status, age, education fixed effects (no high school, technical school, some college, college, and post-graduate), marital status, number of children, and race (white, black, and Asian).

Table 1 documents summary statistics for the pooled sample, theists, Christians, and active Christians. Active Christians are less likely to be male (42%) compared to the pooled sample

⁹ Our definition for whether an individual is thriving builds upon internal behavioral psychology research at Gallup; see <https://news.gallup.com/poll/110125/gallup-daily-life-evaluation.aspx> for more details.

(49%), slightly less likely to be white (70%) compared to the pooled sample (72%), slightly older (50.3 years) compared to the pooled sample (47 years), and thus less likely to be employed, and much more likely to be married (62% for active Christians and 54% for the average). We see no difference in the share of college graduates and little differences in the income distribution. We also see some differences in current and expected future life satisfaction and the share reporting that they are thriving. Note that 75.6% of the sample is a theist, 71.2% is a Christian, and 26.5% is an active Christian.

[insert table 1 here]

We recognize that using data on subjective well-being can make causal inference difficult. For example, (Bond and Lang 2019) argue that, when there are only a few discrete categories for different states of happiness, it is impossible to rank two groups based on their mean happiness levels. In particular, depending on the distribution of these different states, the share of people that fall into the various ordinal categories can result in group means that do not strictly dominate one over the other. However, our data is much richer, containing an 11-point scale for both current and expected future life satisfaction, thereby producing much more variation to identify differences in means across groups. Following the recommendations of (Bond and Lang 2019), we also test the robustness of our main results by reporting estimates using not only the indicator for whether the respondent is thriving, but also different functional forms (e.g., logarithm). Moreover, (Benjamin et al. 2012) find that life satisfaction measures, which are the focus in this paper, are better predictors of actual choices than traditional happiness measures.

County Panel of Employment. Since the Gallup data contains significant geographic detail over time, we match the micro-data with quarterly employment data from the Quarterly Census of Employment and Wages (QCEW). The administrative records from the QCEW cover 95% of jobs, maintained in part by state agencies for the purposes of tracking and

distributing unemployment insurance, making it the “gold standard” for measuring labor market outcomes.

One of the advantages of our study is the fact that we observe nearly a decade of data between 2008 and 2017. These years featured considerable variation in both the cross-section and time-series variation of local employment growth. To understand the extent of this variation, Figure 1 illustrates the spatial heterogeneity in year-to-year employment growth between 2008 and 2009 (Panel A) and 2012-2013 (Panel B). We see considerable variation across states and time. For example, whereas employment growth declined by an average of 2.9 percent between 2008 and 2009 (with a standard deviation of 5.8 percent), it grew by an average of 1.2 percent between 2012 and 2013 (with a standard deviation of 4.8 percent). This gives us significant variation not only across counties, but also within counties over nearly a decade of booms and busts specific to local labor markets.

[insert Figure 1 here]

Empirical Strategy

To understand the potential ways that faith moderates the effects of business cycle fluctuations on individual well-being, we consider fixed effect regressions of the form:

$$y_{it} = \gamma REL_{it} + \phi \Delta e_{ct} + \xi (REL_{it} \times \Delta e_{ct}) + \beta X_{it} + \eta_c + \lambda_t + \epsilon_{ict} \quad (1)$$

Where y denotes our measure of individual life satisfaction residing in county c in year-quarter t , REL denotes our measure of religious affiliation, Δe denotes local (county) year-to-year employment growth, X denotes a vector of individual demographic covariates, and η and λ denote fixed effects on county and time (year and quarter). We cluster standard errors at the county-level to account for arbitrary degrees of autocorrelation (Bertrand et al. 2004). Our two main outcome variables are the z-score of current life satisfaction and an indicator

for whether the individual is thriving, based on their responses to two questions on current and expected future life satisfaction.

Our identification strategy exploits the exposure of observationally equivalent individuals to different fluctuations in local (county) economic activity between 2008 and 2017. Since the Great Recession was the United States' most severe protracted and downturn since the Great Depression (Taylor 2014), it provides a uniquely important window into the behavior of individuals and their self-reported life satisfaction. Moreover, rather than simply drawing on national time series variation from the 2007-2008 financial crisis, we utilize spatial variation in the timing and severity of business cycles across different labor markets (e.g., counties). Our inclusion of demographic characteristics purges variation that might arise from selection into different areas and our inclusion of county and time fixed effects removes variation in life satisfaction that could be correlated with time-invariant properties of a location, like an area's strength of social ties and social capital.

Main Results

Table 2 documents our main results, including county and day-of-the-year fixed effects and demographic controls in every specification. This purges variation in life satisfaction that could be correlated with selection into higher growth counties and/or standard differences in life satisfaction across individuals. We begin by replicating the well-known result that life satisfaction is highly cyclical (Di Tella et al. 2001; Wolfers 2003). For example, we find that a 1pp rise in employment growth is associated with a 0.21 standard deviation rise in current life satisfaction and a 0.05pp rise in the probability that an individual is thriving. These estimates are identified off of within-county variation, meaning that we compare observationally similar individuals in the same county exposed to different labor market

conditions over time. To put the life satisfaction estimate in perspective, this amounts to moving a little under half a unit on the index from, say, a 7 to an 8.

We now explore the interaction between religious affiliation, religiosity, and employment growth. Column 2 shows that Christians have 0.08sd higher current life satisfaction. But, more importantly, a 1pp rise in employment growth is associated with a 0.28sd rise in current life satisfaction among non-Christians and a 0.20sd rise among Christians. However, the interaction effect between employment growth and Christian is statistically insignificant. Motivated by evidence, for example, from (Storm 2011 and Day 2012) about the importance of religiosity for Christians, including for physical and mental health outcomes (Sternthal et al. 2010; Burdorf and van Lenthe 2015; Chen and VanderWeele 2018), we now interact an indicator of whether the individual is an active Christian with employment growth.¹⁰ Here, we find that not only active Christians have a 0.18sd higher current life satisfaction, but also a 1pp rise in employment growth is associated with a 0.30sd rise in current life satisfaction for non-active Christians and a meager 0.06sd decline for active Christians, although we fail to reject the null hypothesis of a zero effect.

The subsequent columns now allow for heterogeneous responses for other denominations and faith traditions. For Protestants, Catholics, and Other Christians, we restrict our sample to

¹⁰ When we construct an indicator for active Christian, we are comparing these active Christians with not only non-Christians, but also inactive Christians—that is, individuals who report being Christian, but do not attend religious services at least twice a month and view faith as important to their life, and non-Christians. In the subsequent columns, we conduct similar exercises for specific denominations where we focus on that group (excluding other Christians). For example, we look at active Protestants against inactive Protestants and non-Christians (taking Catholics and Other Christian out of our sample for the given specification).

the specific group, comparing them with their non-Christian counterparts. For example, column 4 shows that a 1pp rise in employment growth is associated with a 0.31sd rise in current life satisfaction among inactive Protestants and non-Christians, but a 0.23sd decline for active Protestants. This countercyclical response is interesting since it implies that Protestants feel comparatively happier when local economic conditions are worse. This is not driven by occupational heterogeneity—for example, Protestants working in occupations that far better during busts. While we caution readers against reading too much into the result, the countercyclical nature could be consistent with theories of the Protestant Work Ethic whereby individuals work harder and take more joy in their work even during times of crisis.¹¹

Column 5 focuses on active Catholics. Similar to active Christians as a general group and active Protestants more specifically, active Catholics also have a 0.14sd higher current life satisfaction. We also see that a 1pp rise in employment growth is associated with a 0.32sd rise in current life satisfaction for inactive Catholics and non-Christians, but a 0.11sd rise for active Catholics. While there is still some evidence of procyclicality in reported life satisfaction among this group, we fail to reject the null at a 1% level of significance that there is a null response ($p=0.032$). We see nearly identical results among active Other Christians (e.g., Orthodox) in column 6: we fail to reject the null that their response to employment growth is acyclical ($p=0.15$).¹²

We now turn towards other major theistic worldviews to examine whether this phenomenon is unique to Christians or whether other religious groups also exhibit it. Columns 7 and 8

¹¹ While (van Hoorn and Maseland 2013) find contrasting results, they are focusing on individual-level shocks. Our two results are not mutually exclusive.

¹² Unfortunately, we do not observe more heterogeneity within each group, e.g., Black Evangelical Protestants versus Baptists. However, given that our main hypothesis does not rely on these disaggregations, we leave it to future work.

show that active Jews and Muslims have even more procyclical responses in current life satisfaction, although the interaction effects have large standard errors. However, we can still reject the null that their responses are procyclical. However, Mormons exhibit very different patterns. In particular, we find that a 1pp rise in employment growth is associated with a 0.68sd decline in current life satisfaction among Mormons, which implies significant countercyclicality. Nonetheless, consistent with (Koenig et al. 2012), we find that all religious denominations exhibit higher levels of current life satisfaction; religiosity, however, behaves as an important mediating force for understanding the response to local employment fluctuations.

In the final columns of Table 2, we focus on an alternative measure of life satisfaction, namely an indicator for whether an individual is thriving. This binary variable captures an individual's current life satisfaction and expected future life satisfaction over the next five years, providing perspective into how business cycle fluctuations also affect an individual's sense of hope and optimism about the future. For brevity, we only present our three most important specifications.

[Insert Table 2 Here]

Column 10 replicates the standard result on the procyclicality of life satisfaction. Column 11 shows that Christians generally have procyclical levels of life satisfaction too, although they are 2% more likely to report that they are thriving. Most importantly, however, column 12 shows that active Christians are 6% more likely to report they are thriving and that a 1pp rise in employment growth is associated with a 0.01pp rise in the probability of thriving, which is indistinguishable from zero. Are our results sensitive to how we proxy for business cycle fluctuations? We have investigated the robustness of our results to other measures, like year-to-year quarterly real GDP growth. Consistent with our baseline results, we find that life satisfaction is pro-cyclical: a 1pp rise in quarterly real GDP growth is associated with a

0.11sd (p-value = 0.105) rise in current life satisfaction and an 0.06pp rise in the probability that an individual is thriving. Allowing for heterogeneity in religious affiliation, we again find an acyclical (and potentially counter-cyclical) response among active Christians: a 1pp rise in real GDP growth is associated with a 0.16sd rise in current life satisfaction among active Christians, but a slight 0.07sd decline among active Christians (and we cannot rule out the null of an acyclical response). These results give us confidence that our results are not driven by the choice of our proxy for the business cycle.

The health and well-being literature on religious affiliation has historically emphasized heterogeneity in treatment effects among, for example, males and females. There are now multiple large longitudinal studies with good confounding control suggesting that participation in religious community affects health (Li et al. 2016). However, comparable evidence for other life satisfaction outcomes is still lacking. Thus while there are numerous rigorous longitudinal studies, for example, indicating that religious service attendance is subsequently associated with less depression (Strawbridge et al. 2001; Norton et al. 2008; Balbuena et al. 2013; Li et al. 2016) and lower mortality risk (Hummer et al. 1999; McCullough et al. 2000; Strawbridge et al. 2001; Musick et al. 2004; Gillum et al. 2008; Li et al. 2016), similar empirical evidence is missing for happiness or meaning in life: hundreds of studies suggest some association for happiness or meaning, but these are all cross-sectional and, therefore, confounded by selection effects. unable to address causality.

Table 3 investigates the potential heterogeneity in the cyclicity of life satisfaction across three standard demographic characteristics: race, gender, and age. We find slight differences among males and females: while a 1pp rise in employment growth is associated with a 0.16sd decline in current life satisfaction among active Christian males (compared with a 0.23sd rise among inactive Christian males), there is only a full cancellation of effects among active Christian females (compared with a large 0.37sd rise among inactive Christian females). The

relatively greater acyclicity of subjective life satisfaction among females could either reflect differences in labor force participation or underlying attitudes, but we cannot fully distinguish between the two hypotheses.¹³

We also see slight differences in the cyclicity of life satisfaction among whites and non-whites, although the confidence intervals are fairly large and prevent us from ruling out the null that they are the same. For example, a 1pp rise in employment growth is associated with a 0.28sd and 0.33sd rise in life satisfaction for inactive Christian whites and non-whites, respectively, but a 0.11sd decline and a meager 0.09sd rise for active Christian whites and non-whites, respectively.

There are two potential explanations behind these slight differences. On one hand, wage discrimination could vary over the business cycle, hurting minorities comparatively more. On the other hand, composition effects in the set of jobs that different sets of workers select into could be correlated with subjective life satisfaction and wage opportunities. Since Biddle and (Hamermesh 2013) investigate these possibilities using the longitudinal component of the Current Population Survey (CPS), we also control for occupational fixed effects and find that the differences between whites and non-whites vanish. Moreover, these specifications suggest that a 1pp rise in employment growth is associated with a 0.05sd decline in current life satisfaction among non-whites, although it is not statistically different from zero. These

¹³ For example, we find that the standard deviation of employment growth rates in a county is negatively correlated with the probability of observing a male, conditional on demographic controls and restricted to the set of employed workers. We interpret this as evidence that females are more likely to enter the labor force or increase their allocation of time to market services during times of economic turbulence. If entry into employment is correlated with changes in well-being, these differences among males and females could account for the heterogeneity in our treatment effects.

results suggest that composition effects account for the slight differences that we see in Table 3 between whites and non-whites.

We now turn towards heterogeneity in age. We find that a 1pp rise in employment growth is associated with a 0.17pp and 0.32pp rise in current life satisfaction for under 35 and over 35 inactive Christians, respectively, but a slight 0.08sd rise and 0.03sd decline for active Christians. This could reflect the fact that young professionals are likely to experience greater volatility in their careers for reasons that are independent of the business cycle (Topel and Ward 1992), whereas mid-career professionals are more likely to experience the consequences of a recession arising from a layoff. While the effects for inactive Christians are statistically different, it is interesting that the effects for active Christians are statistically indistinguishable from one another. In both cases, life satisfaction among active Christians is fairly acyclical and consistent with our main results.

[Insert Table 3]

Understanding the Mechanisms

Our results highlight the important role that faith plays in moderating the effects of business cycles on subjective well-being. On one hand, these results could reflect selection: individuals engaged with their church communities might receive informal forms of insurance over the business cycle. For example, (Hungerman 2005) found that church activity largely substitutes for standard government services that come in the form of welfare payments. Similarly, (Dehejia et al. 2007) reported that households who contribute to religious organizations are better able to insure their consumption against income fluctuations, which they suggest is a function of informal insurance networks. On the other hand, these results could reflect the causal effect of the Christian worldview on well-being: they process information differently from their counterparts. This would be consistent with, for example, a large literature about the role of personal experience that highlights how

individuals are more attentive to certain information over others, such as beliefs about inflation (Malmendier and Nagel 2016) or gas prices (Binder and Makridis 2020).

To understand the role that social capital may play in explaining these results, we exploit spatial heterogeneity in measures of social capital and examine its potentially mediating role. If life satisfaction among active Christians is invariant to business cycle conditions simply because these individuals have higher social capital—for example, access to better social insurance—then we should see evidence of heterogeneous treatment effects among these individuals when they are in high versus low social capital areas. We use existing and accepted measures of social capital (Putnam 1995; Rupasingha and Goetz 2008; Chetty et al. 2014).¹⁴ The index is generated based on several inputs: voter turnout rates, the share of people who return their Census forms, and measures of community participation in community organizations. We also measure the adherence rate as a percent of the total population. The correlation between the adherence rate and the social capital index is only 0.0546. We subsequently classify counties as ranking high versus low in these two dimensions based on whether they fall above the median of all counties in the sample.

Table 4 documents the main results separately for counties that have above versus below the median level of social capital. The first four columns partition counties based on the social capital index (Chetty et al. 2014); the second four partition counties based on the (religious) adherence rate.¹⁵ Starting with the first two columns, we see no statistically significant

¹⁴ We have also found statistically indistinguishable results using the county index of social capital from the United States Congress Joint Economic Committee (JEC). The correlation between the (Chetty et al. 2014) and JEC measures is 0.50. Given that they are not perfectly correlated, we are especially comforted by the similarities in estimates.

¹⁵ We use data from the Association of Statisticians of American Religious Bodies accessed through Social Explorer to measure religious adherence at a county-level. However,

evidence of heterogeneity: a 1pp rise in employment growth is associated with a 0.03-0.07sd decline in current life satisfaction among active Christians in both low and high social capital counties, but a 0.24sd and 0.35sd rise among non-active Christians, respectively. However, when we focus on the broader sample of self-reported and potentially inactive Christians, a 1pp rise in employment growth is associated with a 0.14sd rise in current life satisfaction among Christians living in high social capital counties, compared with a 0.27sd increase in low social capital counties. In fact, the interaction between religious affiliation and employment growth is not even significant for those in low social capital counties. These results suggest that social capital matters, but primarily for inactive Christians who are less likely to be engaged in community. When we use the adherence rate for Christians as a measure for social capital in the final four columns, we find nearly identical estimates.

[Insert Table 4 Here]

While these results are consistent with (Stroope and Baker 2018) who find that health outcomes among more versus less religious individuals diverge the most in more religious contexts (e.g., communities), one limitation with our approach is that individuals in these high versus low social capital communities might differ in unobserved ways from their counterparts in such a way that is correlated with their underlying labor market shocks. To further investigate whether our results potentially reflect the role of informal insurance markets within the church, we proxy for individual income shocks using the year-to-year

admittedly, it has flaws. For example, it relies upon self-reports from denominations and undercounts traditions without a central denominational organization, such as Black Protestant churches, Pentecostal and Charismatic churches, Latino churches, and mosques. Regrettably, the 2010 U.S. Religion Census still remains the best available data source for membership and adherence data at the county-level

growth in adjustable gross income (AGI) at the zipcode-level from the Internal Revenue Service (IRS) Statistics of Income (SOI) series.

Recognizing that these data only imperfectly proxy for individual income shocks, Table 5 documents variants of the baseline specification with and without zipcode AGI growth as an additional control. Importantly, there is no statistically significant difference between the specifications with or without zipcode AGI growth: increases in county employment growth remain positively associated with both current life satisfaction and whether an individual is thriving, but either slightly counter-cyclical or acyclical for active Christians.

We argue that these results are consistent with the “moral communities” thesis proposed by Rodney Stark that religion ought to be understood sociologically as a group property more than an individual one—that is, religion directly affects the behavior of the group’s members, as well as indirectly how an individual’s religious traits shape their own personal behavior (Stark, 1996; Johnson, 2020).¹⁶ One of the corollaries of this hypothesis is that living with or near a

[Insert Table 5 Here]

¹⁶ One of the central assumptions of early criminological work was that a proper understanding of crime and delinquency included the joint consideration of individual traits and the social contexts in which those traits have meaning (Bursik and Grasmick 1993). Connecting religious behavior to the contexts in which these are given meaning, for the purpose of understanding human behaviors, is not widely practiced outside of religion. Those few studies that have done this have uncovered new support for an old, Durkheimian idea—that participation in harmful behaviors such as suicide is reduced in places where particular religions or religious rituals are widely practiced (Pescosolido 1990; Stark and Bainbridge 1996; Ellison et al. 1997).

Discussion and Limitations

The traditional way of estimating the effect of religious affiliation and/or religiosity on subjective well-being and/or physical outcomes is by estimating cross-sectional relationships. Even with longitudinal data, exploiting changes in religious affiliation is likely to encounter challenges since selection into and out of a religious affiliation is not random. We tackle this historical challenge by exploiting variation in county employment fluctuations over 2008 and 2017—a period with significant economic turmoil during and following the 2008-09 Great Recession. If religious affiliation and/or religiosity matter, then we should see an economically and statistically significant mediating effect over employment growth on subjective well-being: we do for active Christians.

One potential concern with these results is that the acyclicity of life satisfaction among active Christians, and/or more religious individuals in general, might be detrimental to their lives. However, the acyclicity of life satisfaction does not imply that their behavior is acyclical. For example, an active Christian who owns a small business may very well allocate more time towards market activities during a boom to capitalize upon market opportunities even if their life satisfaction does not change significantly. Moreover, there is a large literature on the link between religiosity and optimism and the resulting benefits (rather than harm) associated with this relationship; see, for example (Myers 2000a; 2000b), (Schnall et al. 2011), and (Younas, Muqtadir and Khan 2018).¹⁷

¹⁷ Consistent with this, we use respondents' answer to a question about whether they have enough money to pay their bills and have enough to eat. We do not find any economically meaningful differences between active Christians and their counterparts over the business cycle, or even much in the cross-section.

Nonetheless, our analysis contains several potential limitations. First, our data is constrained to the United States, which is not necessarily representative of other countries (Henrich et al. 2010). Using data from the World Poll between 2006 and 2018 (see Makridis 2020) for a summary of the data, we run similar regressions for whether an individual is thriving on country GDP growth, an indicator for whether the individual is Christian, and an interaction, conditional on individual controls (age, education, gender, marital status, children) and both country and time fixed effects. We find a coefficient of 0.149 ($p=0.038$) on real GDP growth and a coefficient of -0.078 ($p=0.334$) on the interaction, consistent with the view that life satisfaction among Christians is less procyclical. However, the combination of having annual (not quarterly data), a crude indicator for religious affiliation (not engagement), and aggregate country (not local) business cycle shocks all contribute to attenuation bias. While we cannot know for sure what the interaction effect would be if we had the perfect data environment, these results are comforting and provide further external validity.

Conclusion

Economists and social scientists have traditionally viewed well-being as highly procyclical. However, using variation in reported life satisfaction, coupled with local (county) employment growth between 2008 and 2017, we show that life satisfaction is acyclical among active Christians and weakly procyclical among theists with some religious affiliation. These results are consistent with a large literature on the relationship between social capital and religious affiliation, but they also suggest a possible causal effect of Christianity on the way individuals process and respond to external circumstances. Moreover, we show that individuals who may identify as Christian, but are not actively engaged in their local church community, may benefit significantly from being surrounded by religious adherents and communities with social capital. These results contribute to a growing literature on the effect of religiosity on human flourishing and economic outcomes.

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Table 1: Summary Statistics, by Group

	Pooled		Theists		Christians		Active Christians	
	mean	sd	mean	sd	mean	sd	mean	sd
<i>Demographics</i>								
College, %	0.31	0.46	0.31	0.46	0.30	0.46	0.32	0.47
Male, %	0.49	0.50	0.47	0.50	0.49	0.50	0.42	0.49
White, %	0.72	0.45	0.72	0.45	0.46	0.45	0.70	0.46
Black, %	0.11	0.31	0.12	0.32	0.34	0.32	0.14	0.34
Age	47.0	17.6	48.7	17.5	17.7	17.5	50.3	17.7
Children, #	0.9	3.9	0.9	3.8	3.7	3.8	0.9	3.7
Married, %	0.54	0.50	0.57	0.50	0.48	0.50	0.62	0.48

Christia n		.08** * [.00]									.02*** [.00]	
Active Christia n			.18** * [.00]									.06*** [.00]
Active Protesta nt				.18** * [.00]								
Active Catholi c					.14* ** [.00]							
Active Other Christia n						.19* ** [.00]						
Active Jew							.13** * [.03]					
Active Muslim								.05** [.02]				
Active Mormo n									.08*** [.01]			
Employ ment Growth	.22** *	.28** *	.30** *	.31** *	.32* ** [.07	.21* ** [.06	.22** *	.22** *	.23** *	.06** *	.02 [.03]	.07** *

Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
County FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes.—Sources: Gallup, QCEW, 2008-2017. The table reports the coefficients associated with regressions of the standardized z-score of current life satisfaction on a 0-10 scale and an indicator for whether the individual is thriving on the year-to-year quarterly employment growth, an indicator for religious participation, an interaction between the two, and a vector of demographic controls, which include, employment status, gender, age, education fixed effects (no high school, technical school, some college, college, and postgraduate), and race (white, black). Individuals are defined as Christian if they are protestant, catholic, or other Christian. The prefix “active” is inserted if a respondent says that they attend religious services at least twice a month and report who report that their faith is important to them. Individuals are defined as thriving if they report at least a 7/10 about current life satisfaction and at least an 8/10 about expected future life satisfaction in the next five years. Observations are weighted by sample weights and standard errors are clustered at the county-level.

Table 3: Heterogeneity in the Cyclicity of Subjective Well-being

Dep. var. =	Current Life Satisfaction (z-score)					
	Male	Female	White	NonWhite	Under35	Over35
Active Christian	.17*** [.00]	.19*** [.00]	.18*** [.00]	.16*** [.01]	.18*** [.01]	.16*** [.00]
Employment Growth	.23*** [.06]	.37*** [.06]	.28*** [.05]	.33*** [.11]	.17* [.09]	.32*** [.05]
× Active Christian	-.39*** [.08]	-.37*** [.08]	-.39*** [.06]	-.24* [.14]	-.09 [.13]	-.35*** [.06]
R-squared	.06	.06	.07	.06	.08	.08
Sample Size	1051349	1059754	1688797	422205	358803	1752268
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
County FE	Yes	Yes	Yes	Yes	Yes	Yes

Notes.—Sources: Gallup, QCEW, 2008-2017. The table reports the coefficients associated with regressions of the z-score of current life satisfaction on a 0-10 scale on the year-to-year quarterly employment growth, an indicator for religious participation, an interaction between the two, and a vector of demographic controls, which include, employment status, gender, age, education fixed effects (no high school, technical school, some college, college, and postgraduate), and race (white, black). Individuals are defined as Christian if they are protestant, catholic, or other Christian; active Christians are those who attend church at least

twice a month or report who report that their faith is important to them. County and day of the year fixed effects are also included. These specifications are estimated by gender (male/female), race (white/non-white), and age (above/below 35). Observations are weighted by sample weights and standard errors are clustered at the county-level.

Table 4: Examining the Role of Social Capital in Explaining the Asymmetry

	Heterogeneity with Social Capital				Heterogeneity with Adherence Rate			
	High	Low	High	Low	High	Low	High	Low
1[Christian]			.08*** [.00]	.07*** [.00]			.08*** [.00]	.07*** [.00]
1[Active Christian]	.19*** [.00]	.17*** [.00]			.18*** [.01]	.17*** [.00]		
Employment Growth	.24*** [.07]	.35*** [.06]	.34*** [.11]	.27*** [.08]	.23*** [.07]	.35*** [.06]	.34*** [.10]	.24*** [.08]
× 1[Christian]			-.21* [.11]	-.01 [.07]			-.26** [.10]	.03 [.07]
× 1[Active Christian]	-.31*** [.10]	-.38*** [.07]			-.34*** [.08]	-.37*** [.08]		
R-squared	.07	.06	.06	.05	.06	.06	.06	.06
Sample Size	794438	1308710	794438	1308710	929879	1181247	929879	1181247
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
County FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Active Christian	Yes	Yes	No	No	Yes	Yes	No	No

Notes.—Sources: Gallup, Census Bureau, (Chetty et al. 2014), QCEW, 2008-2017. The table reports the coefficients associated with regressions of the standardized z-score of current life satisfaction on a 0-10 scale on the year-to-year quarterly employment growth, an indicator for either being Christian or active Christian, an interaction between the two, and a vector of demographic controls, which include, employment status, gender, age, education fixed effects (no high school, technical school, some college, college, and postgraduate), and race (white, black). Individuals are defined as Christian if

they are protestant, catholic, or other Christian; active Christians are those who attend church at least twice a month or report who report that their faith is important to them. The social capital index is from Chetty et al. (2014) and the

Dep. var. =	Current Life Satisfaction		Is Thriving	
	(1)	(2)	(3)	(4)
Active Christian	.178***	.178***	.057***	.057***

adherence rates are from the religious 2010 census. We define high and low levels of social capital and adherence by taking county values above the median in their respective distributions. County and day of the year fixed effects are also included. Observations are weighted by sample weights and standard errors are clustered at the county-level.

Table 5: Investigating the Robustness to Zipcode Income Shocks

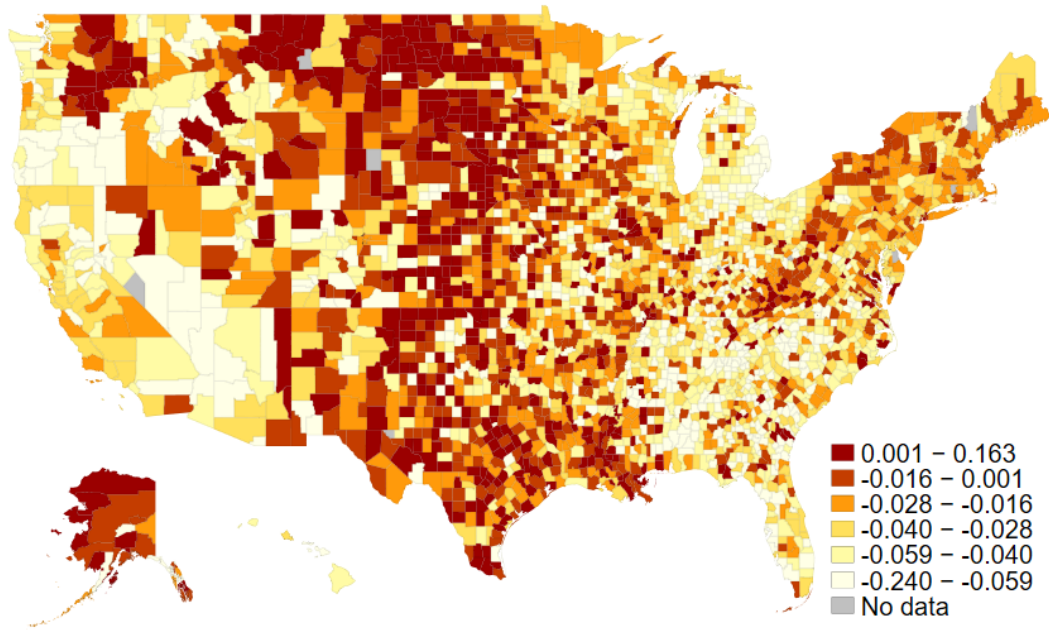
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	[.003]	[.003]	[.002]	[.002]
Employment Growth	.298***	.320***	.061***	.073***
	[.045]	[.045]	[.019]	[.019]
× Active Christian	-.357***	-.358***	-.054**	-.058**
	[.057]	[.058]	[.027]	[.027]
Adjustable Gross Income Growth		-.081***		-.022***
		[.014]		[.006]
R-squared	.06	.06	.07	.07
Sample Size	2111126	2108444	2108444	2108444
Controls	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes
County FE	Yes	Yes	Yes	Yes

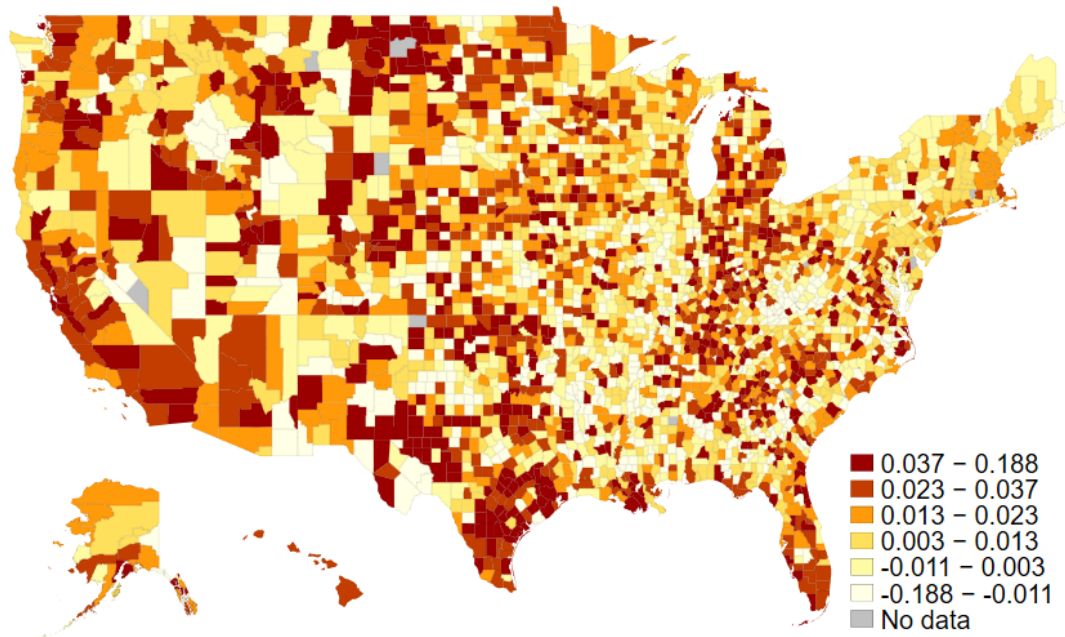
Notes.—Sources: Gallup, QCEW, IRS SOI, 2008-2017. The table reports the coefficients associated with regressions of the standardized z-score of current life satisfaction on a 0-10 scale and an indicator for whether the individual is thriving on the year-to-year quarterly employment growth, an indicator for being an active Christian participation, an interaction between the two, and a vector of demographic controls, which include, employment status, gender, age, education fixed effects (no high school, technical school, some college, college, and postgraduate), and race (white, black). Individuals are defined as Christians who attend church at least twice a month or report who report that their faith is important to them. Zipcode and day of the year fixed effects are also included. Individuals are defined as thriving if they report at least a 7/10 about current life satisfaction and at least an 8/10 about expected future life satisfaction in the next five years. Observations are weighted by sample weights and standard errors are clustered at the county-level.

Figure 1: Spatial Heterogeneity in the Severity and Timing of the Great Recession

Panel A: Employment Growth 2008-09



Panel B: Employment Growth 2012-13



Notes.—Sources: Quarterly Census of Employment and Wages. The figures plot the average quarterly employment growth between 2008-2009 and 2012-2013 before and after the Great Recession across counties in the United States.

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