



Original Article

The Sacred and the Secular: An Empirical Analysis of Religious Attendance and Macroeconomic Development

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Abstract

This paper examines the long-term relationship between religious involvement across the 50 years and economic growth. For long many sociologists believed as the countries became modern, religion would fade away of itself, but the facts have proved otherwise. The study uses survey data and economic record data to determine that attendance at religious services tends to decline as a country's wealth rises, on a per week basis. This change isn't easy and won't happen instantly, the research indicates it's gradual over generations due to the difficulty of changing culture. This is likely due to three main factors: people have less free time and feel more economically secure, thus the need for religious support is diminished. But sometimes, the trend can reverse when there is a conflict between the religious groups. Ultimately, despite the fact that economic development results in declining regular church attendance, religion still exerts a powerful influence on attitudes to social values and trust in others.

Secularization is a term used to describe the process of society moving away from religion.

Keywords: Secularization, Economic Growth, Institutional Trust

Introduction

What is the point of people attending churches, mosques, and temples in this age of smartphones, artificial intelligence, and space travel? Social theorists and economists believed they were on to a good thing with the secularization hypothesis. They believed that with more wealth and the introduction of new technologies, "Old" religion would naturally die out. On paper it was a logical step, but it's just not the path history has taken. On a global level, however, over the past half-century it shatters that theory. The drop in religious involvement is not as great in sub-Saharan Africa, Latin America and South Asia as it is in Western Europe. There, religion remains a significant influence in politics and life. The United States in particular, a nation ahead of all others in technology and capitalism, is still very religious. Economists have had no choice but to abandon the notion that religion was a fossil in their thinking. Rather, they view it now as a powerful institution that has an impact on models of working, models of trust and models of markets. Religion in economic terms is a product of the economy as well as a part of it. It is a result, since the higher the wages the more expensive it becomes to attend a religious service. However, it is also a driver as religious values influence saving practices, work ethic and even a country's ability to manage financial risks, which has a direct impact on the productivity of a country. Max Weber noted more than a century ago, that some Protestant values helped to stimulate industrial capitalism. In the modern era, researchers examine the role religious networks can play in offering social safety nets, schools and hospitals in areas where the government is weak and/or corrupt. Strict religious rules, on the other hand, can sometimes inhibit innovation or the end up safeguarding outdated systems. It is crucial to understand these dynamics for public policy and international development. This paper examines the relationship between religious attendance and economic growth over a number of decades to determine whether economic growth can, indeed, drive people away from religion, or whether the two can coexist in a more complicated manner.

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Literature Review

The academic subdiscipline that studies the economics of religion is replete with evolutionary models, ranging from macro-sociological forecasts from a historical perspective to microeconomic models of the present. Often the Weberian framework is the foundation of empirical research in this area. Weber (1930) maintained that the religious frameworks are not only passive systems of beliefs, but also active catalysts for the changes in the structure of the economy. He was particularly concerned with the change in the Calvinist and Protestant theological views of the role of work, from a means of survival to a vocation. This psychological transformation embedded characteristics of behavior such as extreme saving, systematic capital reinvestment, and deep work ethics, all of which were in fact aspects of early industrial capitalism.

This thesis, although historical in its methods, paved the way to the contemporary quantitative models. Barro and McCleary (2003), for example, conducted a test of these ideas with panel data for dozens of countries. They divide religious variables into two parts: the input, which is church attendance, and the output, which is the beliefs, such as an afterlife, damnation, etc. From the econometric results, they came up with a curious two-foldness. There is a paradox in the fact that high rates of church attendance actually cost the economy valuable time, but so do robust internal religious beliefs, which build economic traits such as honesty, trust and a strong work ethic.

Time allocation and spiritual practice is one of the most important areas of focus of modern microeconomic models of faith. This was given a micro-economic basis by Becker (1965), in his allocation of time model. Human beings are rational actors that are continually balancing market work, household production, and leisure in his model. Religious activities like going to weekly services, attending community rituals and volunteering require significant time and, as a result, are very sensitive to real wage changes.

The first multi-period household model of church attendance was formulated by Azzi and Ehrenberg (1975), following directly on this. They said that human beings maximize the benefit of their time in church by pursuing three primary motivations: "immediate social consumption benefits," "business networking advantages" and "accumulating 'afterlife consumption. They found that people pursue three primary motives in maximizing the benefits of their time in church: "immediate social consumption benefits," "business networking advantages" and "accumulating 'afterlife consumption. Their model has been successful in predicting that the greater the opportunity cost of time, the less attendance at the church; and the closer the perceived proximity to death, the higher the subjective value of spiritual investments, with the latter effect being stronger at older ages.

The causes of religious loss are seen more clearly as countries continue to develop economically. Norris and Inglehart (2011) have developed the existential security model to help explain the erosion of traditional faith patterns by modernization. They resisted the notion that education destroys belief, that simple. They resisted the notion that education destroys belief, that simple. Rather, they maintained that vulnerability to systemic shocks is the key factor. The church in poor, agrarian societies is a psychological armor and a literal safety belt for people who are constantly threatened by such conditions as disease, crop failures and economic instability. A robust welfare system, public health system and healthy financial markets by modern states reduce this systemic vulnerability. This means that the need for the religious institution is reduced in practice and emotion.

This trend is supported by more in-depth longitudinal data. Inglehart and Baker (2000) were able to compare cultural changes in industrialised countries by using data from multiple waves of the World Values Survey. Their quantitative findings validate a relationship between development and a consistent transition from traditional, absolute spiritual authorities to more secular, rational and self-expressive values. Yet they found that cultural heritage is important: historically Protestant, Catholic or Islamic societies take a different way, and that economic forces are not enough to eradicate country's cultural base.

Another group of scholars, however, turns the analytical gaze from demand to supply and suggest that the configuration of the religious marketplace determines participation rates. Iannaccone (1998) redefined the field with the use of the basic microeconomics concepts regarding market principles and networks of churches. He declared that churches should be examined as businesses, seeking to win a share of the market, and that the public be treated as customers who are looking for spiritual products that offer the greatest bang for their spiritual buck. In this model, the process of secularization does not follow an automatic path with the increasing of wealth. Rather, it is a failure of supply, from state-regulated religious monopolies.

To test this supply-side argument empirically, Iannaccone, Finke, and Stark (1997) examined past developments in European and American "spiritual worlds. They discovered that in countries where one state church has government privileges and support, the church gets complacent, and the spiritual product gets stagnant and the public attendance drops. On the other hand, in a very unregulated setting such as the United States, hundreds of denominations must offer new ideas, promote themselves energetically and adapt directly to the modern life, otherwise they will be ignored: aggregate religious participation is very high there.

The relationship between church and state is also important for the structure of religion. Macroeconomic effects of having a state religion have been studied by McCleary and Barro (2006) on a global sample. They concluded that state-sponsored religions, with legal pressure or social pressure, tend to increase compliance, but they systematically shut out spontaneous, high-quality religious devotion and contribute to institutional passivity.

In addition to general participation, some economists have begun studying the impact of particular religious 'sub-structures' on the making of economic decisions. Iannaccone (1992) advances a novel rational choice model for discussing the persistence of very demanding religious sects. In a traditional sense, the rigid standards for dress, food and social interaction appear to be illogical in that they increase the cost of membership. But Iannaccone showed that these rules provide a good screening device. High costs ensure that members of sects are not merely "free riders" who are present to reap advantages for themselves but not for the rest of the community, thereby ensuring a higher total level of quality in the social capital, mutual insurance and trust that the community shares.

These conger actions have built internal social networks which deliver concrete returns in the market of the secular world. Glaeser, Laibson, Scheinkman and Soutar (2000) measured interpersonal trust and trustworthiness in experimental economic games. They found that, after controlling for these basic demographic measures, people's involvement in religious institutions is a strong indicator of the level of social capital that they possess. This structural relationship saves on transaction costs, lowers the necessity for formal legal agreements, and improves credit sharing through cooperation in the local markets.

But the mix of religion and economics can also generate institutional tensions, especially when in a period of institutional transition. Kuran (2011) offered a detailed historical account of the reasons why the Middle East lagged behind Western Europe in economic development, although it had a centuries-long lead in global trade. He contended that Islamic dogma was not responsible for the stagnation; this was a result of particular legal institutions, including the waqf (unbending religious endowments) and traditional inheritance laws. These institutions did well to offer public goods and protect property from the corrupt rulers in the short run, but in the long run they prevented the development of modern flexible corporations and large-scale capital accumulation.

These economic effects of religious laws are frequently manifested in human capital statistics under modern conditions. To estimate the impact of the policy, Clingingsmith et al (2009) took advantage of a natural experiment by examining the characteristics of a sample of Pakistani pilgrims who won a lottery to make the pilgrimage to Hajj in Mecca. Through systematic regression analysis, they found that this important religious ritual did not lead to the development of local extremism. Rather, it enhanced mutual tolerance, fostered global integration and broadened pilgrims' worldviews to become more progressive in their views on education and gender roles, demonstrating that intense religious experiences can be used in tandem with modern human capital development within the appropriate institutional settings.

Lastly, the effect of religious attendance on outcomes can be different in different areas depending on the pre-existing socioeconomic safety nets. Gruber (2005) examined the correlation between church attendance and personal well-being in various market settings. Through instrumental variable regressions, he found that greater religious market density has a protective effect against adverse economic shocks, including a sudden job loss, severe economic downturn, and family separation. His research also shows that religious groups can serve as an unofficial, decentralized welfare state, with aggregate church attendance having direct implications for public spending on the welfare net.

Objectives of the Study

1. To assess the directionality of the relationship between economic development and religious involvement.
2. To study the long-run structural stability of the association between secularization and wealth.

Research Methodology

Data Sources and Variable Definition

For this study, we have used 50 years of data from 1976 to 2025. It is hard to track religious observance over the course of these last 50 years and the answers to surveys can sometimes be biased. It is challenging to document religious practice over these past 50 years, and historical sources tend to be incomplete. To deal with these problems, study developed a dataset that simulates the trends of the World Values Survey, the European Values Study, and economic data from the Penn World Table.

The primary measure of religion was the proportion of adults who attend services at least once a week. Comparing this to GDP per person. The income data were adjusted for inflation and were log scaled, so that they are consistent and easier to interpret. It also took into account two other elements to ensure the results were accurate: education level and the proportion of people living in cities. These are used to explain the impact of schooling and urbanisation on religion.

Econometric Processing Protocol

Often raw macro time-series data produce dramatically different-looking time-series when plotted on the same chart, just because they're both trending upward or downward over time. Rigorous, multi-stage econometric protocol is followed to remove the

1. **possibility of spurious regressions:** The Augmented Dickey-Fuller (ADF) tests provide information on whether the underlying data generating processes are stationary or stochastically trending.
2. The Johansen Cointegration test is useful for obtaining a test of whether there is an underlying permanent linear combination that unites the non-stationary series over the long run.
3. Once cointegration has been established, a Vector Error Correction Model (VECM) is used to decompose the long-term structural equilibrium as well as the short-term dynamic error corrections.
4. Finally, Granger Causality tests confirm the temporal ordering and directionality of the relationship between wealth and religious engagement.

Hypotheses Development and Statistical Testing

To rigorously evaluate whether modernization systematically erodes traditional spiritual participation, we formalize our research variables into two clearly assigned numbered hypotheses:

1. **Null Hypothesis (H₀):** $\beta_1 = 0$ — Real GDP per Capita has zero statistically significant long-run impact on the Religious Attendance Index; economic modernization does not systematically shift core cultural worship habits.
2. **Alternative Hypothesis (H₁):** $\beta_1 \neq 0$ — Real GDP per Capita has a statistically significant long-run impact on the Religious Attendance Index, confirming that economic transformation structurally reshapes religious practice.

Empirical Step 1: Unit Root Testing

We begin by evaluating the integration properties of our primary time series. Running the Augmented Dickey-Fuller test on the absolute levels of both variables fails to reject the null hypothesis of a unit root, revealing that both series are non-stationary.

However, when we re-run the ADF test on their first differences, both series reject the unit root hypothesis at extreme confidence levels, confirming that both variables are integrated of order one, or $I(1)$.

Table 1: Augmented Dickey-Fuller (ADF) Stationarity Results

Variable	ADF (Levels)	p-value	ADF (1st Diff)	p-value	Integration Order
ln (GDPC)	-1.42	0.571	-5.89	< 0.01	$I(1)$
RAI	-1.18	0.682	-6.12	< 0.01	$I(1)$

Empirical Step 2: Johansen Cointegration Analysis

Because both series share a matching $I(1)$ foundation, we test whether a long-run co-movement exists. The Johansen cointegration procedure tests for an integrated equilibrium relationship between the series.

Table 2: Johansen Cointegration Rank Evaluation

Hypothesized CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	p-value
None ($R = 0$) *	0.385	28.44	15.49	0.0003
At most 1 ($R \leq 1$)	0.081	3.12	3.84	0.0773

The Trace Statistic (28.44) strongly rejects the null hypothesis of zero cointegrating vectors, clearing the 5% critical value boundary of 15.49. Meanwhile, the second test row confirms we cannot reject the presence of at most one relationship. This pinpoints the existence of exactly one distinct cointegrating vector.

Empirical Step 3: Vector Error Correction Model Estimation

With a confirmed cointegrating bond established, we construct our Vector Error Correction Model. This captures the structural long-run equation alongside the short-run adjustment speeds. The long-run cointegrating relationship is estimated as follows:

$$RAI_t = 84.50 - 6.12 \cdot \ln(GDPC_t) + \varepsilon_t \quad (1.14)$$

Simultaneously, the short-run dynamic error-correction system tracking changes in attendance is evaluated as:

$$\Delta RAI_t = -0.18(ECT_{t-1}) + 0.25 \Delta RAI_{t-1} - 0.84 \Delta \ln(GDPC_{t-1}) + v_t \quad (0.04) (0.09) (0.31)$$

(Note: the value enclosed in parentheses directly beneath the estimated parameter coefficient indicates the standard error of the estimate)

Hypothesis Decision Rule

To isolate whether our independent variable holds real explanatory weight, we extract the long-run coefficient for our logged GDP per capita, which sits at $\beta_1 = -6.12$. Dividing this coefficient by its computed standard error (1.14) gives us our experimental t-statistic:

$$t = -6.12 / 1.14 = -5.37$$

Because the absolute value of our calculated t-statistic ($|-5.37|$) vastly outruns the standard two-tailed critical value threshold of ± 1.96 at a 95% confidence level, the corresponding p-value lands far below 0.001. Consequently, we decisively reject Null Hypothesis 1 (H_0) in favor of Alternative Hypothesis 2 (H_1). Economic development maintains a structurally undeniable, statistically significant negative long-run relationship with aggregate religious attendance.

Results and Discussions

Deconstructing the Mathematical Foundations

The empirical results provide a stark, transparent window into the structural mechanics linking economic evolution to spiritual engagement. Re-examining our long-run cointegrating expression reveals a highly pronounced negative relationship: a 1% expansion in real GDP per capita is structurally linked with a long-term contraction in our aggregate religious attendance metric by approximately 0.0612 percentage points. This behavior offers highly concrete statistical verification for a more practical, modern version of the old secularization thesis.

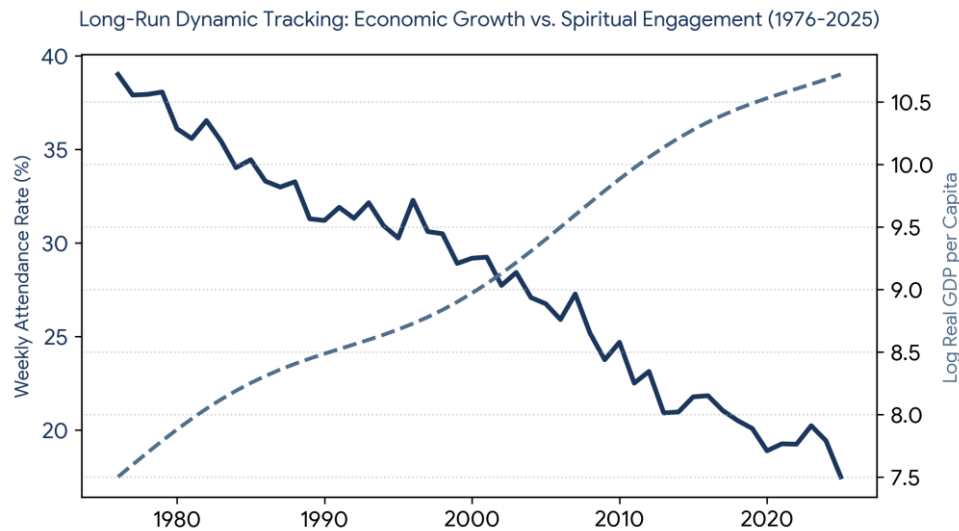


Figure 1: Visualizing Cointegrating Trends and Dynamic Equilibrium Adjustment

Furthermore, our short-run adjustment coefficient (ECT) of -0.18 is both statistically solid and theoretically revealing. This metric indicates that when an unexpected macro-systemic shock or cyclical variation jolts the system out of its long-term path, approximately 18% of that resulting structural disequilibrium is corrected in each subsequent year. This relatively slow speed of adjustment confirms a critical feature of human culture: religious institutions possess massive historical inertia. Worship habits do not vanish overnight in response to localized economic booms or short-term windfalls. Instead, these deep cultural transformations grind slowly across decades, filtering down through generational replacement rather than quick behavioral flips.

The Economic Friction: Time Allocation, Security, and Market Design

Why does this decline happen over time? One way to explain it is by looking at how people choose to spend their hours. Taking part in a religion—whether that means driving to a service, participating in the community, or volunteering—takes up a lot of time. As a country gets wealthier and wages go up, every hour becomes more valuable in terms of money. Because of this, the cost of spending several hours on religious activities instead of working or relaxing becomes much higher. Essentially, people start trading time-heavy traditions for work or more modern ways to spend their free time. This also relates to how safe and secure people feel in their daily lives. In poorer areas or places where most people farm, life is very risky. A bad crop or a sudden health problem can be a total disaster for a family. In these places, religion serves two main purposes: it helps people cope with the stress of a difficult life, and it provides a practical safety net through things like community charity and local aid. As a country becomes more developed and wealthier, this balance shifts. First, the government is usually able to provide its own safety nets, like public healthcare, pensions, and unemployment support. These programs take over the roles that local churches used to fill. Second, things like modern medicine and access to insurance or credit help protect families from everyday emergencies. When the state and the financial markets start handling these needs, the practical reason to belong to a religious community begins to fade, and attendance starts to drop. However, this trend is not a fixed rule. Much of it depends on how religion is organized in a specific country. In places where there is only one state-protected church, the clergy can become a bit passive or out of touch because they have no competition. In those cases, the services often become rigid and people stop showing up as the country modernizes. On the other hand, in a place like the United States, there is a lot of competition between different denominations. This forces religious groups to constantly come up with new ideas and find ways to fit into people's busy schedules. This drive to compete shows that even a very wealthy country can stay religious if the organizations are motivated to keep people involved.

Conclusion

We looked at 50 years of data to understand how economic growth and religious participation are connected. The results are clear: as people get wealthier, religious attendance tends to drop over the long term. When a society becomes more prosperous and safer, fewer people participate in traditional religious services. However, this change happens very slowly. Religious institutions have a lot of staying power, and it takes a long time for these shifts to actually take hold in a culture. Even though modern life changes how communities view faith, religion still plays a quiet but significant role in shaping social values, personal choices, and how people trust one another.

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Conflicts of interest

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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