Financial inclusion, religiosity and economic welfare in majority Christian, Hindu and Muslim countries

Ozili, Peterson K

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Peterson K. Ozili

Abstract

This study investigates the effect of financial inclusion on economic welfare in three religious country groups: majority Christian countries, majority Hindu countries and majority Muslim countries. The study analysed 30 religious countries during the 2004 to 2020 period using the two-stage least squares regression method. The economic welfare variables are the gross domestic product (GDP) growth rate, GDP per capita growth, inflation rate and the unemployment rate. The main explanatory variable is the composite financial inclusion index. The control variables are corruption control index, political stability index, total population growth, rule of law index and the regulatory quality index. It was found that financial inclusion is positively correlated with corruption control, political stability, rule of law and regulatory quality in religious countries while financial inclusion is negatively correlated with total population growth, economic growth, GDP per capita growth, inflation rate and unemployment rate in religious countries. Regression results show that high level of financial inclusion decreases the unemployment rate in majority Muslim countries. A pre-existing low unemployment rate is significantly associated with higher financial inclusion in majority Christian and Muslim countries. High level of financial inclusion decreases the inflation rate in countries that have significant Islamic finance activity. Financial inclusion has an insignificant effect on economic welfare in majority Hindu countries. The implication of the findings is that the type of religion and the size of Islamic finance activity matter in understanding the relationship between financial inclusion and economic welfare in religious countries.

Keywords: Religion, financial inclusion, Hindu, Islam, Muslim, Christianity, economic welfare, economic wellbeing, economic growth, inflation, unemployment, GDP per capita growth.

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1. Introduction

This study investigates the effect of financial inclusion on economic welfare in majority religious countries. In terms of definition, financial inclusion refers to access to useful and affordable formal financial services which people can use to improve their wellbeing (Ozili, 2021a). Economic welfare refers to the level of prosperity and standard of living of the population, which is commonly perceived from the current level of inflation, gross domestic product (GDP) growth, GDP per capita and the unemployment rate (Andolfatto and Gomme, 1998; Sara-Zaror, 2022). Religion, on the other hand, refers to a particular system of faith, worship and devotion to a supernatural being (Moon et al, 2023).

Religion plays an important role in society. It affects social interaction, and it influence people's decisions on where to access financial services and how to use available financial services to improve their economic wellbeing (Ben Naceur et al., 2015). In the literature, it is commonly argued that religion promotes the equitable distribution of resources, including the distribution of formal financial services, to all people so that nobody is left out (Renneboog and Spaenjers, 2012; Ghosh, 2020). From this argument, a direct link between religion and financial inclusion – or access to financial services – can be established because most religions have beliefs or tenets that frown against granting access to financial services to some people in society and excluding other members of society.

Much of the literature that link religion to finance have focused on how religious financial institutions distribute financial services and how religious people use formal financial services (Demirgüç-Kunt et al., 2014; Shinkafi et al. 2019; Ozili, 2020). But there is no discussion in the literature about the relationship between financial inclusion and economic welfare in majority religious countries on a comparative basis. Some major religions are strict such as Islam while other religions are lenient such as Christianity or Hinduism (Rahim, 2013; Lippman, 2017). It is possible that the strictness or leniency of a major religion can affect the relationship between financial inclusion and economic welfare in a religious country. But this issue has not been investigated in the existing literature. Therefore, an important question that arises is whether

the type of religion affects the relationship between financial inclusion and economic welfare in religious countries. This is the question being addressed in this study.

This study is related to existing studies that examine how religiosity affects the use of formal financial services for greater financial inclusion (e.g. Demirgüç-Kunt et al., 2014; Beck et al., 2019; Ali and Abdullah, 2020). Many of these studies focus only on Islamic countries while other studies compared the financial inclusion efforts of conventional and Islamic financial institutions (Naceur et al, 2017; Ozili et al, 2023). Although these studies examined how religiosity affects the provision of formal financial services, they did not examine whether the "*type of religion*" matters for achieving high levels of financial inclusion and whether the *type of religion* moderates the relationship between financial inclusion and economic welfare. To date, there are no studies that investigate the impact of the *'type of religion*' on the relationship between financial inclusion and economic welfare, and no comparative analysis across the three major religions have been conducted in the existing literature. This study addresses this issue by examining the effect of financial inclusion on economic welfare in majority Christian countries, majority Hindu countries and majority Muslim countries.

In the empirical analysis, the effect of a composite financial inclusion index on some indicators of economic welfare is estimated for 30 majority religious countries divided into majority Christian countries, majority Hindu countries and majority Muslim countries from 2004 to 2020. The findings reveal that financial inclusion decreases the unemployment rate in majority Muslim countries. A pre-existing low unemployment rate is significantly associated with higher financial inclusion in majority religious countries especially in majority Christian and Muslim countries. High level of financial inclusion decreases the inflation rate in countries that have significant Islamic finance activity.

This study contributes to the existing literature in several ways. This study is the first study to analyze the effect of the 'type of religion' on the relationship between financial inclusion and economic welfare. Second, unlike previous studies that focus only on Islamic countries or undertake a comparison of Islamic and conventional financial institutions, this study considers three major types of religion: Hinduism, Christianity and Islam, and assess the financial inclusion

and economic welfare linkages in the three religious country groups. Third, by using a composite index of financial inclusion index, this study offers insight about the level of financial inclusion in the three religious country groups, and it can assist policy makers in understanding whether the "type of religion" matters in promoting financial inclusion for better economic welfare of the people. Finally, the results of the study contribute to the literature that examine how societal religion affects the use of formal financial services.

The next section of the article presents the literature review. The next section also develops the hypothesis. Section 3 presents the research design. Section 4 presents the empirical results. Section 5 presents the conclusion of the study.

2. Literature review and hypothesis development

2.1. Literature review

The literature shows that religions are different in their tenets or principles. In the Hindu religion, Srivastava et al. (2013) show that the values and attitudes for all human being listed in the Hindu scriptures are absence of conceit, absence of hypocrisy, speaking the truth, non-violence, accommodation, straightforwardness and compassion for all beings. Parekh (2007) also shows that Hindus place high value on moral and cultural pluralism. Hindus tolerate, respect and cherish different ways of thought and different ways of life. Parekh (2007) further shows that Hinduism, in some respects, is historically better than other religions in terms of tolerance and respect for different ways of life since other religions such as Islam do not tolerate compromise in their religion. In Christianity, Niebuhr (2012) shows that Christian ethics entail self-sacrificing, humility, treating others as one would like to be treated, and forgiveness. Meanwhile, in Islam, Nanji (1991) shows that Islamic ethics is built on redressing injustice, giving to the needy Muslims and purification. Rahim (2013) also shows that Islamic sharia law gives physical/ punishment to adherents that commit certain transgression, such as stealing, as a form of justice. Existing studies also document that religion promotes fairness and equity in the distribution of resources. For instance, Redo (2015) shows that there is a growing emphasis on the principle of equitable

distribution of resources in the various religious faiths while Hitzhusen and Tucker (2013) show that religious virtues favor the sustainable use of resources.

Regarding the role of religion in promoting economic activities, Audretsch et al. (2007) show that some religious principles, such as the principles of Islam and Christianity, are conducive to entrepreneurship while the religious principles of Hinduism inhibit entrepreneurship. Dana (2021) also shows that different religions yield dissimilar patterns of entrepreneurship because some religious beliefs can hamper entrepreneurial spirit which reduces the level of economic activity. More importantly, Seabright (2016) argues that the determinant of whether religion increases or inhibit economic activity is whether there is something intrinsic about religious attitude, or the cultural presuppositions embedded in major religious traditions, which tends to favor or discourage the attitudes appropriate to economic activity, and these attitudes are consumption, saving and investment. Campante and Yanagizawa-Drott (2015) argue that religious practices can affect labor supply choices in ways that have negative implications for economic activity and economic performance; for instance, during Ramadan fasting, Muslims prefer not to work. Their actions affect labor supply, and it affects economic activity and economic performance. Regarding strict compliance with religious principles, Serajzadeh (2001) shows that the Islamic religion is strict, and it enforces Quranic punishment on adherents that violate core Islamic principles, and this is partly the reason why the crime rates in Islamic countries are lower than the crime rates in non-Islamic countries.

Other studies examine the role of religion in banking and financial services. Khan (2015) examines the role of Islamic microfinance in enhancing financial inclusion through Islamic microfinance products. The study shows that Islamic microfinance institutions offer Sharia-compliant financial services for adherents of Islam. Ghosh (2020) examines the role of Islam in influencing access to and use of financial services in India. The study found that Muslim households are 17% less likely to own a bank account in a conventional bank, Muslim households are 8% less likely to use a bank account, and interest rate is a major factor discouraging Muslims from using formal financial services especially those offered by conventional banks in India. Haddad (2023) compares the impact of the Islamic religion on the financial performance of conventional and Islamic banks and found that religion affected the profitability and efficiency of conventional banks to a greater

extent than Islamic banks because Muslims avoid conventional banks that charge interest rate on loans. Baber and Zaruova (2018) argue that religion helps in poverty reduction by providing religion-compliant loans that are interest-free and will benefit the poor in society especially Muslims. Cao et al. (2019) argue that religion improves the ethical environment in which firms do business, and religion increases trust which encourage people to access financial services without taking risks. Yin et al. (2020) show that religion generally affects trust in financial services.

Other studies examine financial inclusion in religious countries. Baber (2019) compares the level of financial inclusion in countries following Islamic and conventional finance systems during the 2011 to 2017 period. The study finds that Islamic finance countries have higher levels of financial inclusion than countries following conventional finance systems. Kim et al. (2020) examine the influence of religious and social inequality factors on financial inclusion. They show that religious factors and religious diversity are determinants of financial inclusion in religious countries. They also find that Muslim countries mostly have lower level of financial inclusion in the world. Muneeza and Mustapha (2021) argue that Islamic finance can increase financial inclusion by bringing prosperity to individuals and society especially in Islamic countries. Shinkafi et al. (2019) investigate the determinants of Islamic financial inclusion and find that the presence of microcredit, microfinance services and extensive public awareness of Islamic financial services and products are important drivers of Islamic financial inclusion. Ali et al. (2020) examine the determinants of Islamic financial inclusion in Indonesia using questionnaires from academics, regulators and practitioners. They find that the demand for Islamic financial inclusion is influenced by financial literacy, religious commitment, socioeconomic factors and social influence while the supply for Islamic financial inclusion is influenced by human capital, infrastructure, policies and regulation. Nanda (2017) finds a low level of financial inclusion in India which is a majority Hindu country while Kemal (2018) reports a low level of financial inclusion in Pakistan which is a majority Muslim country. Saviano et al. (2017) show that financial inclusion is still low for women in Saudi Arabia. Ji (2020) and Beck et al. (2019) show that high levels of religiosity reduces the usage and adoption of financial services, and that customer religiosity is an important factor affecting the adoption of formal financial services. Overall, the above studies suggest that religiosity affects access to financial services and the level of financial

inclusion. But the literature has not examined how the 'type of religion' affects the relationship between financial inclusion and economic welfare. This study fills this gap in the literature.

2.2. Hypothesis development

Religiosity can have a positive effect on the relationship between financial inclusion and economic welfare. This is because the moral or spiritual principles espoused by religion promotes fairness and equity in the distribution of resources, including the distribution of formal financial services, to all people so that nobody is left out (Cox et al., 2014; Kim et al, 2020). Religion may also encourage adherents to use available financial services or money – whether loan or own capital – to engage in ethical and welfare-enhancing economic activities that leads to greater economic welfare (Demirguc-Kunt et al., 2014). For example, religion can encourage adherents to use legitimate money – whether loan from a bank or own capital – to start a legitimate business that has a positive effect on one's life, the economy and society. Religion may also discourage adherents from using available financial services or money to engage in welfare-destructing activities such as gambling and peddling illegal drugs. The implication is that religious people that have access to financial services are more likely to use available financial services to engage in activities that improve economic welfare. Therefore, religion should enhance or strengthen the relationship between financial inclusion and economic welfare.

H1: Religion has a positive moderation effect on the relationship between financial inclusion and economic welfare.

Notwithstanding, there may be enforcement issues across the different types of religions. Some religions are stricter and chastise adherents or followers that break religious principles (Lippman, 2017). For example, Shariah law is enforced in some majority Islamic countries. Sharia law in Islam imposes Quranic punishment for stealing such as cutting off the hands of a person who steals (Rahim, 2013). Consequently, it is argued that the strict nature of the Islamic religion and the fear of punishment can compel the majority Muslim population to use available formal financial services in ways that significantly improve their economic welfare and such improvement in economic welfare would be reflected in improvements in macro- indicators of economic welfare such as the inflation rate, unemployment rate, economic growth rate and GDP

per capita growth. Therefore, financial inclusion – or access to financial services – should improve economic welfare in majority Muslim countries.

H2: Islamic religion has a positive moderating influence on the relationship between financial inclusion and economic welfare.

In contrast, there is no strict physical punishment for adherents or followers that break Christian or Hindu religious principles (Young et al., 2011). It is commonly argued that Christian religious principles are more lenient than Hindu religious principles (Monier-Williams, 2014; Young et al. 2011). Adherents of Christianity can violate Christian religious principles without fear of punishment or consequences. The lack of strictness in complying with Christian principles can encourage adherents of Christianity to use available financial services to engage in activities that do not significantly improve economic welfare. Therefore, financial inclusion – or access to financial services – may not have a significant effect on economic welfare in majority Christian countries. The same expectation holds for majority Hindu countries.

H2: The Christianity religion has an insignificant moderation effect on the relationship between financial inclusion and economic welfare in majority Christian countries.

H3: The Hindu religion has an insignificant moderation effect on the relationship between financial inclusion and economic welfare in majority Hindu countries.

3. Research Design

3.1. Data, sample size and sample period

Annual data were collected for two country-level financial inclusion indicators. The data were collected from the World Development Indicators (WDI) database of the World Bank. The two financial inclusion indicators were used to construct a composite financial inclusion index (FND). Economic welfare data were also collected from the WDI database. The variables are described in table 1. Thirty religious (30) countries were selected for the study, and the sample period spans from 2004 to 2020. The countries were divided into 10 majority Christian countries, 10 majority

Muslim or Islamic countries and 10 majority Hindu countries. The sampling technique used in this study is the cluster sampling technique which divides the population into three cluster sample or subsamples.

Table 1. Description and source of variables

Variable	Definition	Source
ATM	Number of ATMs per 100,000 adults	WDI database
BR	Number of commercial bank branches per 100,000 adults	WDI database
FND	A composite financial inclusion index derived from the combination of two financial inclusion indicators: (i) the number of ATMs per 100,000 adults variable and the (ii) number of commercial bank branches per 100,000 adults variable, using the principal component analysis (PCA)	Authors computation using PCA
CC	Control of corruption index	WDI database
POL	Political stability and absence of violence/terrorism index	WDI database
PG	Total population growth (annual %)	WDI database
RLW	Rule of law index	WDI database
RQ	Regulatory quality index	WDI database
GDPG	GDP growth (annual %), representing economic growth	WDI database
GDPC	GDP per capita growth (annual %), representing improvement in standard of living or economic output per person	WDI database
INF	Inflation, consumer prices (annual %), representing the general increase in the price level.	WDI database
UNEMP	Total unemployment rate (% of total labor force) (modeled ILO estimate)	WDI database
ISM	A dummy variable that takes the value of 1 if a country in the sample is a major Islamic finance hub and zero if it is not a major Islamic finance hub.	Author computation

Source: World Bank and Author computation

3.2. Measuring religiosity

The study relied on the "most religious countries" rankings provided by reputable sources to determine which country is a majority Christian, Muslim or Hindu country. The reputable sources are the (i) World Population Review, (ii) Pew Research (iii) the Global Economy database, (iv) World Data, and (v) World Atlas websites. These sources provide the list of majority Christian, Muslim and Hindu countries. The criteria used to determine whether a country is a majority religious country is whether the majority of the population adopts a particular religion or whether the country has an official State religion. The countries selected in our sample are countries listed oftentimes in the rankings of the World Population Review, the Pew Research, the Global

Economy, the World Data, and the World Atlas websites. The top ranked religious countries, which are included in our sample, are listed in table 2.

Table 2. Majority religious countries classified into majority Christian, Hindu and Muslim countries

	Majority Christian Countries	Majority Hindu Countries	Majority Muslim Countries
1	United States	India	Saudi Arabia
2	Brazil	Nepal	Iran
3	Mexico	China	United Arab Emirates
4	Russia	Mauritius	Pakistan
5	Philippines	Sri Lanka	Qatar
6	United Kingdom	Bangladesh	Indonesia
7	Ethiopia	Fiji	Afghanistan
8	Iceland	Guyana	Egypt
9	Hungary	Bhutan	Libya
10	Norway	Trinidad and Tobago	Sudan

Countries are classified based on the "most religious countries" ranking provided by reputable website sources: World Population Review[1], (ii) Pew Research, (iii) the Global Economy[2], (iv) World Data[3], and (v) World Atlas.

Source: World Population Review, Pew Research, the Global Economy, World Data[4], and World Atlas websites.

3.3. Model and estimation procedure

The empirical model used to estimate the effect of financial inclusion (FND) on economic welfare (i.e. GDPG, GDPC, INF and UNEMP) in religious countries is shown below.

$$(GDPG, GDPC, INF\ and\ UNEMP)i,t = \beta o + \beta 1FNDi,t + \beta 2CCi,t + \beta 3PGi,t + \beta 4POLi,t + \beta 5RLWi,t + \beta 6RQi,t + ei,t \ldots\ldots\ldots\ldots\ldots\ldots\ldots eq1$$

Where, GDPG = GDP growth rate, representing economic growth. GDPC = GDP per capita growth, representing improvement in standard of living. INF = Inflation rate. UNEMP = Unemployment rate. FND = A composite financial inclusion index. CC = Control of corruption index. POL = Political stability and absence of violence/terrorism index. PG = Total population growth. RLW = Rule of law Index. RQ = Regulatory quality Index. e = error term.

[1] https://worldpopulationreview.com/country-rankings/hindu-countries
[2] https://www.theglobaleconomy.com/rankings/hindu/
[3] https://www.worlddata.info/religions/hinduism.php
[4] https://www.worlddata.info/religions/hinduism.php

Regarding the estimation procedure, the tool for data analysis is the eviews 13 statistical tool. The analysis begins with a descriptive statistic of the variables. A Pearson correlation analysis was also conducted to assess the correlation among the variables using the full sample data. The Pearson correlation analysis method is commonly used in the literature to measure the strength and direction of the association between two variables. Thereafter, the two-stage least squares regression method is used to estimate the effect of financial inclusion on economic welfare as well as the effect of pre-existing economic conditions on the level of financial inclusion. The two-stage least squares regression estimation is used because it allows us to address potential endogeneity problems in the data. Existing studies have also used the two-stage least squares regression method to analyse the relationship between financial inclusion and other variables, for example, Ozturk and Ullah (2022) and Ali et al. (2021).

3.4. Justifying the dependent and independent variables

The main dependent variables are the economic growth variable (GDPG), the GDP per capita growth variable (GDPC), inflation rate variable (INF) and unemployment rate variable (UNEMP). These variables have been used in the literature to measure economic welfare at the macro level (Kurniasih, 2017; Bittencourt, 2012).

The main independent variable is the composite financial inclusion index (FND). The composite financial inclusion index is constructed from the combination of two variables: (i) the number of ATMs per 100,000 adults variable and (ii) the number of commercial bank branches per 100,000 adults variable. These two variables are indicators of supply-side financial inclusion (Sarma and Pais, 2011; Ozili 2021b). The principal component analysis (PCA) method was used to construct the composite index based on the two financial inclusion indicators.

Regarding the control variables, the political stability and absence of violence/terrorism index variable (POL) captures the role of political stability in promoting economic welfare. If a nation's political system is highly unstable and saturated with acts of terrorism, social protection systems will be dysfunctional and economic policies will not work optimally (Meierrieks and Gries, 2013; Meierrieks and Schneider, 2021; Ozili, 2024). It could lead to high inflation, a high unemployment rate and lower economic growth which will worsen the economic welfare of people. Therefore,

a positive relationship is expected between political stability (POL) and economic welfare. Rule of law (RLW) and the quality of regulation (RQ) also play an important role in improving economic welfare. Rule of law (RLW) ensures that people can use the courts and other legal institutions to claim, secure, and obtain the assets and income they have legitimately earned to improve their economic welfare. Rule of law also helps to prevent arbitrary pricing of goods and services in the marketplace to combat inflation and improve economic welfare (Shevchuk et al, 2020; Luong et al, 2020). Rule of law also enables economic agents to comply with contractual agreements to produce goods and services which creates jobs, contribute to economic growth and improve economic welfare. Therefore, a positive relationship is expected between rule of law (RLW) and economic welfare. The regulatory quality index variable (RQ) captures the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. If the government can formulate sound, high-quality and market-enabling regulatory policies that stimulate private sector development, such regulatory policies will have a positive effect on economic welfare. Therefore, a positive relationship is expected between regulatory quality (RQ) and economic welfare.

In terms of population growth (PG), rapid population growth may put a strain on existing economic resources, create scarcity and may lead to economic rationing of essential goods and services. This will have an adverse effect on economic welfare. Therefore, a negative relationship is expected between total population growth (PG) and economic welfare. Regarding control of corruption (CC), strong corruption control can prevent and mitigate the illegal transfer or embezzlement of massive public resources to the hands of a few people at the expense of the masses. It can also prevent the emergence of illegal monopolists and oligopolists who want to control prices, cause inflation, increase unemployment by firing workers and diminish the economic welfare of the people (Braun and Di Tella, 2004; Ahmad et al, 2012). Therefore, a positive relationship is expected between control of corruption (CC) and economic welfare.

4. Empirical results

4.1. Descriptive statistics

Table 3 shows that the average (or mean) financial inclusion index was higher in Majority Christian countries relative to majority Muslim and Hindu countries. The financial inclusion index in Christian countries is also higher than the average financial inclusion index of the full sample. Majority Hindu countries have the lowest level of financial inclusion followed by majority Muslim countries. Regarding the economic welfare variables, table 3 shows that the average inflation rate and unemployment rate are higher in majority Muslim countries compared to majority Christian countries. The average economic growth rate and GDP per capita growth is higher in majority Hindu countries than in majority Christian and Muslim countries. Interestingly, majority Christian countries have higher institutional quality than majority Muslim and Hindu countries. This can be seen in the higher regulatory quality index (0.572), higher rule of law index (0.481), higher political stability index (-0.061), and the higher corruption control index (0.446) of the majority Christian countries in table 3.

Table 3. Descriptive statistics for the variables in the model

	FND	CC	PG	POL	RLW	RQ	GDPG	GDPC	INF	UNEMP
Country Group	(Mean)	(Mean)	(Mean)	(Mean)	(Mean)	(Mean)	(Mean)	(Mean)	(Mean)	(Mean)
Full sample religious countries	0.0321	-0.084	1.553	-0.453	-0.077	-0.109	3.841	2.282	6.834	6.636
Majority Christian countries	1.011	0.446	1.0303	-0.061	0.481	0.572	2.962	1.887	5.066	5.309
Majority Hindu Countries	-0.408	-0.196	0.734	-0.305	-0.163	-0.299	4.741	3.973	5.342	6.488
Majority Muslim Countries	-0.509	-0.515	2.894	-0.991	-0.548	-0.602	3.817	0.985	10.213	8.111

Source: Author's own work

4.2. Pearson correlation analysis

The correlation result is reported in table 4. The correlation between the FND variable and all other variables is low and below 55% (or 0.55) which indicates that multicollinearity is not a problem in the analysis. The FND variable is significant and positively correlated with the CC, POL, RLW and RQ variables. This indicates that a high level of financial inclusion is correlated with

greater corruption control, political stability, rule of law and regulatory quality. In contrast, the FND variable is significant and negatively correlated with the PG, GDPG, GDPC, INF and UNEMP variables. This indicates that a high level of financial inclusion is correlated with lower total population growth, economic growth, GDP per capita growth, inflation rate and unemployment rate.

Table 4. Pearson correlation matrix for all the variables

Variables	FND	CC	PG	POL	RLW	RQ	GDPG	GDPC	INF	UNEMP
FND	1.00									

CC	0.52***	1.00								
	(0.00)	-----								
PG	-0.12**	0.05	1.00							
	(0.01)	(0.21)	-----							
POL	0.49***	0.84***	0.003	1.00						
	(0.00)	(0.00)	(0.94)	-----						
RLW	0.53***	0.94***	-0.01	0.82***	1.00					
	(0.00)	(0.00)	(0.90)	(0.00)	-----					
RQ	0.55***	0.81***	-0.03	0.72***	0.89***	1.00				
	(0.00)	(0.00)	(0.46)	(0.00)	(0.00)	-----				
GDPG	-0.13***	-0.06	0.15***	-0.07	-0.08*	-0.12**	1.00			
	(0.00)	(0.18)	(0.00)	(0.12)	(0.07)	(0.01)	-----			
GDPC	-0.11**	-0.08*	-0.15***	-0.08*	-0.09*	-0.12**	0.94***	1.00		
	(0.02)	(0.06)	(0.00)	(0.07)	(0.05)	(0.01)	(0.00)	-----		
INF	-0.18***	-0.36***	0.12**	-0.43***	-0.36***	-0.45***	0.001	-0.01	1.00	
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.98)	(0.72)	-----	
UNEMP	-0.16***	-0.43***	-0.18***	-0.31***	-0.39***	-0.46***	-0.07	0.01	0.28***	1.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.11)	(0.90)	(0.00)	-----

P-value is in parenthesis. ***, **, * denote statistical significance at the 1%, 5% and 10% levels.

Source: Author's own work

4.3. Regression result

4.3.1. Effect of financial inclusion on economic welfare in majority religious countries

The results are reported in tables 5 and 6. In the full sample religious countries analysis, the FND variable is significant and negatively related to only the UNEMP dependent variable in column 4 of table 5. This indicates that a high level of financial inclusion reduces the unemployment rate in religious countries in the full sample. A possible explanation for this result is that religion promotes fairness and equity in access to financial services (Cox et al., 2014; Kim et al, 2020) and religion encourages its adherents to be their brother's keeper by using their access to finance to provide job opportunities for others, thereby contributing to reducing the rate of unemployment and improving the economic welfare of others.

In the majority Christian countries analysis in table 5, the FND variable has an insignificant effect on the GDPG, GDPC, INF and UNEMP variables. This result is consistent with our hypothesis (H2), and it indicates that the level of financial inclusion does not have a significant effect on economic welfare in majority Christian countries. In the majority Hindu countries analysis in table 6, the FND variable has an insignificant effect on the GDPG, GDPC, INF and UNEMP variables. This result is consistent with our hypothesis (H3), and it indicates that the level of financial inclusion does not have a significant effect on economic welfare in majority Hindu countries.

In the majority Muslim countries analysis in table 6, the FND variable is significant and positively related to the GDPG and GDPC dependent variables in columns 5 and 6. This indicates that a high level of financial inclusion leads to higher economic growth and higher GDP per capita growth in majority Muslim countries. The FND variable is also negative and significantly related to the UNEMP dependent variable in column 8. This indicates that a high level of financial inclusion reduces the unemployment rate in majority Muslim countries. A possible explanation for this result is that the Islamic religion is strict and introduces Islamic sharia law which compel adherents to strictly follow the principles of Islam and ensure fairness and equity in the distribution of financial resources to all people; therefore, the majority Muslim population will be strictly inclined to use formal financial services in ways that significantly improve their economic welfare and the welfare of others and such improvement in economic welfare would

reflect in improvements in economic growth, higher GDP per capita growth and decrease in the unemployment rate. This result supports the findings of Audretsch et al (2007) who show that religion is conducive for economic activity. Meanwhile, the FND variable is insignificant in relation to the INF dependent variable in column 7 of table 6. This indicates that financial inclusion does not have a significant effect on the inflation rate in majority Muslim countries.

Regarding the control variables, strong control of corruption improves economic growth and GDP per capita growth in majority Hindu countries in table 6 and reduces inflation in majority Muslim countries but worsens unemployment in majority Muslim countries as shown in table 6. Rapid population growth (PG) lowers unemployment in majority Christian countries, improves economic growth in majority Hindu countries but worsens unemployment in majority Muslim and Hindu countries. High level of political stability (POL) decreases the inflation rate in majority Christian countries while it decreases the unemployment rate in majority Christian, Hindu and Muslims countries. Contrary to our expectation, strong rule of law (RLW) diminishes economic growth in majority Christian and Hindu countries. Strong regulatory quality (RQ) reduces inflation in majority Muslim countries.

Table 5. Effect of financial inclusion on economic welfare in the full sample and the majority Christian countries sub-sample

(Two-stage least squares regression estimation)

Variable	Religious Countries: full sample estimation (1)-(4)				Majority Christian Countries: sub-sample estimation (5)-(8)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	GDPG	GDPC	INF	UNEMP	GDPG	GDPC	INF	UNEMP
c	4.158*	4.084***	4.011***	6.205***	2.822*	2.834*	-0.697	5.366***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.06)	(0.06)	(0.79)	(0.00)
FND	-0.179	-0.329	0.253	-0.699***	-0.422	-0.465	0.153	-0.334
	(0.86)	(0.76)	(0.72)	(0.00)	(0.36)	(0.32)	(0.85)	(0.23)
CC	8.966**	9.811**	-1.514	1.109*	1.618	1.757	5.722	-0.381
	(0.02)	(0.01)	(0.55)	(0.08)	(0.59)	(0.57)	(0.31)	(0.83)
PG	-0.371	-1.369***	0.492**	0.106**	0.432	-0.623	0.491	-1.186**
	(0.21)	(0.00)	(0.02)	(0.03)	(0.65)	(0.51)	(0.78)	(0.04)
POL	1.134	0.575	-3.388***	-1.336***	-0.209	-0.273	-11.254**	-3.777**
	(0.52)	(0.75)	(0.00)	(0.00)	(0.94)	(0.92)	(0.03)	(0.03)
RLW	-9.908**	-9.577**	5.994**	1.752**	-5.703*	-5.686*	4.397	2.217
	(0.03)	(0.04)	(0.04)	(0.02)	(0.08)	(0.08)	(0.46)	(0.26)
RQ	-4.514	-4.400	-5.447**	-0.289	2.569	2.561	2.909	1.421
	(0.19)	(0.21)	(0.02)	(0.61)	(0.37)	(0.37)	(0.57)	(0.39)
Country & Year Fixed Effect?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	17.40	17.27	59.65	93.47	77.75	73.34	58.87	81.48
Adjusted R^2	5.99	5.84	54.03	92.57	70.94	65.18	46.29	75.81
F-statistic	2.04	2.10	10.72	104.16	10.57	9.14	6.39	12.34

P-value is in parenthesis. ***, **, * denote statistical significance at the 1%, 5% and 10% levels respectively.

Two-stage least squares instruments are the one-year lag of the explanatory variables

Source: Author's own work

Table 6. Effect of financial inclusion on economic welfare in majority Hindu and Muslim religious countries sub-samples

(Two-stage least squares regression estimation)

Variable	Majority Hindu Countries: sub-sample estimation (1)-(4)				Majority Muslim Countries: sub-sample estimation (5)-(8)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	GDPG	GDPC	INF	UNEMP	GDPG	GDPC	INF	UNEMP
c	-1.189	-1.182	5.511***	5.404***	7.214	8.192*	-1.715	6.746***
	(0.61)	(0.61)	(0.00)	(0.00)	(0.12)	(0.08)	(0.59)	(0.00)
FND	-4.076	-4.025	0.218	-0.648	9.906**	9.177*	1.312	-2.199***
	(0.41)	(0.41)	(0.89)	(0.20)	(0.04)	(0.07)	(0.68)	(0.00)
CC	24.426**	24.405**	5.952*	3.099***	10.731	14.221	-19.34***	2.408**
	(0.02)	(0.02)	(0.08)	(0.00)	(0.31)	(0.18)	(0.00)	(0.04)
PG	5.206**	4.172*	-0.994	1.173***	-0.775	-1.716***	0.305	0.152**
	(0.04)	(0.10)	(0.25)	(0.00)	(0.15)	(0.00)	(0.41)	(0.01)
POL	6.497	6.447	-3.596*	-0.112	-3.934	-5.232	3.369	-0.813*
	(0.32)	(0.32)	(0.10)	(0.86)	(0.35)	(0.22)	(0.20)	(0.09)
RLW	-17.11**	-17.07**	-0.356	-0.783	-2.881	-0.461	11.086	-1.127
	(0.02)	(0.02)	(0.88)	(0.29)	(0.85)	(0.97)	(0.25)	(0.50)
RQ	-8.072	-8.067	-1.774	-0.634	-7.496	-7.865	-17.41**	1.191
	(0.13)	(0.13)	(0.33)	(0.25)	(0.44)	(0.43)	(0.01)	(0.27)
Country & Year Fixed Effect?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	84.52	10.77	64.79	96.53	12.17	13.45	60.50	96.58
Adjusted R^2	63.09	4.36	54.33	95.50	9.61	8.01	50.46	95.74
F-statistic	25.32	2.14	6.48	111.17	1.011	1.15	6.99	118.18

P-value is in parenthesis. ***, **, * denote statistical significance at the 1%, 5% and 10% levels respectively.

Two-stage least squares instruments are the one-year lag of the explanatory variables

Source: Author's own work

4.3.2. Effect of pre-existing economic welfare conditions on financial inclusion in religious countries

This section examines whether pre-existing economic welfare conditions have a significant effect on the level of financial inclusion in the three majority religious country groups. The study used the one-year lag of the four economic welfare indicators (GDPG, GDPC, INF and UNEMP) as shown in equations 2 and 3 and regress them on the financial inclusion index using the two-stage least squares regression estimation. The models are presented below.

$$FNDi,t = \beta o + \beta 1GDPGi,(t-1) + \beta 2GDPCi,(t-1) + \beta 3INFi,(t-1) + \beta 4UNEMPi,(t-1) + ei,t \ldots\ldots\ldots eq2$$

.

$$FNDi,t = \beta o + \beta 1GDPGi,(t-1) + \beta 2GDPCi,(t-1) + \beta 3INFi,(t-1) + \beta 4UNEMPi,(t-1) + \beta 5CCi,t + \beta 6PGi,t + \beta 7POLi,t + \beta 8RLWi,t + \beta 9RQi,t + ei,t \ldots\ldots\ldots eq3$$

The results are reported in table 7. Only the significant results are interpreted and discussed. The lag UNEMP variable is significant and negatively related to the financial inclusion index in majority Christian and Muslim countries as shown in columns 2, 3 and 7. The implication of the result is that a low pre-existing unemployment rate is beneficial for financial inclusion in majority Christian and Muslim countries. This result is interesting because it suggests that majority Christian and Muslim countries that have a pre-existing low unemployment rate are more likely to experience a high level of financial inclusion in the current period compared to majority Hindu countries. A possible reason for this is that pre-existing macroeconomic conditions seem to be a major driver of financial inclusion in majority Christian and Muslim countries. However, the lag UNEMP variable loses its significance in majority Christian countries when the control variables are introduced into the model in columns 5 and 6.

Furthermore, the lag GDPG variable is significant and positively related to the financial inclusion index in majority Muslim countries as shown in column 3. The implication of the result is that a high pre-existing GDP growth rate is beneficial for financial inclusion in majority Muslim countries. However, the lag GDPG variable loses its significance in majority Muslim countries when the control variables are introduced into the model in column. Also, the lag GDPC variable

is significant and negatively related to the financial inclusion index in majority Muslim countries as shown in column 3. The implication of the result is that a high pre-existing GDP per capita growth rate is detrimental for financial inclusion in majority Muslim countries. However, the lag GDPC variable loses its significance in majority Muslim countries when the control variables are introduced into the model in column 7.

Regarding the control variables, strong control of corruption is significantly associated with a high financial inclusion index in column 5 in table 7. High population growth is significantly associated with a high financial inclusion index in column 7 in table 7. High political stability is significantly associated with a high financial inclusion index in columns 5 and 7 in table 7. Strong rule of law is significantly associated with a low financial inclusion index in column 5 in table 7. Strong regulatory quality is significantly associated with a high financial inclusion index in column 5 in table 7.

Table 7. Effect of pre-existing economic welfare conditions on financial inclusion in majority Christian, Hindu and Muslim countries (Two-stage least squares regression estimation)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Religious countries (Full sample)	Majority Christian countries (Sub-sample)	Majority Muslim countries (Sub-sample)	Majority Hindu countries (Sub-sample)	Religious countries (Full sample)	Majority Christian countries (Sub-sample)	Majority Muslim countries (Sub-sample)	Majority Hindu countries (Sub-sample)
	FND	FND	FND	FND	FND	FND	FND	FND
c	0.455*	1.929	0.229	-0.543**	-0.164	6.257	0.374*	-0.188
	(0.05)	(0.17)	(0.23)	(0.02)	(0.46)	(0.75)	(0.06)	(0.63)
$GDPG_{lag}$	-0.065	0.029	0.037**	-0.121	-0.056	0.652	0.001	-0.095
	(0.15)	(0.92)	(0.01)	(0.34)	(0.52)	(0.84)	(0.95)	(0.51)
$GDPC_{lag}$	0.136***	-0.149	-0.036***	0.122	0.067	-0.981	-0.003	0.065
	(0.00)	(0.67)	(0.00)	(0.19)	(0.43)	(0.81)	(0.89)	(0.67)
INF_{lag}	-0.037*	0.023	-0.010	0.006	0.064***	-0.482	-0.007	-0.014
	(0.06)	(0.91)	(0.19)	(0.86)	(0.00)	(0.78)	(0.49)	(0.84)
$UNEMP_{lag}$	-0.042*	-0.154**	-0.089***	0.034	0.022	-0.550	-0.093***	0.031
	(0.05)	(0.02)	(0.00)	(0.68)	(0.26)	(0.76)	(0.00)	(0.81)
CC					0.562**	-0.009	0.257	0.586
					(0.01)	(0.99)	(0.36)	(0.26)
PG					-0.035	-2.421	0.050*	-0.073
					(0.74)	(0.81)	(0.05)	(0.79)
POL					0.362***	-3.975	0.199**	0.159
					(0.00)	(0.78)	(0.03)	(0.67)
RLW					-0.951***	1.319	-0.328	0.072
					(0.00)	(0.86)	(0.39)	(0.89)
RQ					1.049***	1.319	0.011	-0.197
					(0.00)	(0.86)	(0.96)	(0.33)
Country & Year Fixed Effect?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	20.85	89.62	93.73	88.22	29.02	32.51	95.16	87.34
Adjusted R^2	19.32	86.61	92.19	85.13	27.33	21.69	93.69	83.21
F-statistic	8.29	31.94	58.13	28.75	23.32	29.01	60.37	27.38

P-value is in parenthesis. ***, **, * denote statistical significance at the 1%, 5% and 10% levels respectively. The two-stage least squares instruments are the two-year lag of the GDPG, GDPC, INF and UNEMP variables and the one-year lag of the CC, PG, POL, RLW and RQ control variables

Source: Author's own work

4.3.3. Effect of financial inclusion on economic welfare in countries that have significant Islamic finance activity

This section addresses concerns that some countries in the sample have an advanced Islamic financial system, or they are a major Islamic finance hub. This characteristic may influence the relationship between financial inclusion and economic welfare. The study relied on the ranking provided by the Investment Monitor website[5] to determine the countries that are major Islamic finance hubs in the world. According to the Investment Monitor website, the United Arab Emirates (Dubai), Malaysia (Kuala Lumpur), the United Kingdom (London), Bahrain (Manama), Saudi Arabia (Riyadh), Qatar (Doha), Indonesia (Jakarta), Turkey (Istanbul) and Pakistan (Islamabad) are the major Islamic finance hub in the world. Another ranking by the Global Finance Magazine[6] shows that 10 countries account for 95% of the world's Islamic finance including Saudi Arabia, Iran, Malaysia, Kuwait, Qatar, Bahrain, Turkey, Indonesia, Pakistan, Jordan and Oman. Other countries where Islamic finance is emerging are Luxembourg, Germany, Switzerland, Egypt, Bangladesh, Brunei, Morocco, Iraq, Syria, Yemen Jordan, Tunisia and Sudan. Some countries listed in the two rankings above are already included in the sample used for this study while some countries listed in the two rankings are not included in the sample used for this study. The analysis in this section focuses only on the Islamic finance hub countries listed in the two ranking sources which are in the sample such as the United Kingdom, Bangladesh, Saudi Arabia, Iran, the United Arab Emirates, Pakistan, Qatar, Indonesia, Egypt and Sudan. **A dummy variable 'ISM'** is created which takes the value of 1 if a country in the sample is a major Islamic finance hub and zero if it is not a major Islamic finance hub. The 'ISM' variable is then interacted with the

[5] https://www.investmentmonitor.ai/features/where-are-the-global-islamic-finance-hubs/?cf-view
[6] https://gfmag.com/banking/islamic-finance-just-muslim-majority-nations/#:~:text=Saudi%20Arabia%20and%20Iran%20lead,industry%20standards%20and%20foster%20innovation.

FND variable to determine the effect of financial inclusion on economic welfare in countries that have significant Islamic finance activity. The model is modified and re-specified below in equation 4.

$$(GDPG, GDPC, INF\ and\ UNEMP)i,t = \beta o + \beta 1FNDi,t + \beta 2(FND * ISM)i,t + \boldsymbol{\beta 3ISMi,t} + \beta 4CCi,t + \beta 5PGi,t + \beta 6POLi,t + \beta 7RLWi,t + \beta 8RQi,t + ei,t \ldots\ldots\ldots\ldots\ldots\ldots\ldots eq4$$

The results are reported in table 8. In the full sample analysis, the FND*ISM variable is significant and negatively related to the INF dependent variable in column 3. This indicates that a high level of financial inclusion reduces the inflation rate in countries that have significant Islamic finance activity. A possible explanation for this result is that Islamic financial systems promote the use of low-cost financial services and prohibit charging interest on loans which reduces inflation and improves consumers' economic welfare. The FND*ISM variable is significant and positively related to the UNEMP dependent variable in column 4 of table 8. This indicates that a high level of financial inclusion is associated with a high unemployment rate in countries that have significant Islamic finance activity. Meanwhile, the FND*ISM variable is statistically insignificant in relation to the GDPG and GDPC dependent variables in columns 1 and 2.

Regarding the control variables, strong control of corruption leads to a low unemployment rate as shown in columns 4 and 8 in table 8. High population growth is significantly associated with low unemployment, high inflation and low GDP per capita growth rate as shown in columns 2, 3, 4, 6, 7 and 8 in table 8. High political stability is significantly associated with high unemployment and low inflation as shown in columns 3, 4, 7 and 8 in table 8. Strong rule of law is significantly associated with high unemployment and high inflation as shown in columns 3, 4, 7 and 8 in table 8. Strong regulatory quality is significantly associated with low unemployment and low inflation as shown in columns 3, 4, 7 and 8 in table 8.

Table 8. Full-sample analysis: Effect of financial inclusion on economic welfare in countries with significant Islamic finance activity

Variable	*(Two-stage least squares regression estimation)*				*(Panel Fixed effect regression estimation)*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	GDPG	GDPC	INF	UNEMP	GDPG	GDPC	INF	UNEMP
c	3.262***	3.249***	4..118***	6.881***	3.414***	3.392***	4.369***	6.926***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
FND	-0.741**	-0.733*	1.037***	0.309*	-0.567*	-0.549*	1.037***	0.345*
	(0.04)	(0.05)	(0.00)	(0.09)	(0.09)	(0.10)	(0.00)	(0.05)
FND*ISM	**0.566**	**0.379**	**-1.151***	**0.657***	**0.465**	**0.291**	**-0.979***	**0.648***
	(0.44)	**(0.61)**	**(0.05)**	**(0.07)**	**(0.49)**	**(0.66)**	**(0.07)**	**(0.06)**
ISM	-0.708	-0.617	0.804	-0.225	-0.538	-0.461	1.047*	-0.279
	(0.42)	(0.48)	(0.25)	(0.59)	(0.49)	(0.56)	(0.09)	(0.49)
CC	1.592	1.902	-1.515	-4.370***	0.095	0.119	-1.978**	-3.749***
	(0.26)	(0.18)	(0.18)	(0.00)	(0.93)	(0.92)	(0.03)	(0.00)
PG	0.305	-0.744***	0.368**	-0.206**	0.376**	-0.654***	0.266*	-0.223***
	(0.11)	(0.00)	(0.02)	(0.02)	(0.02)	(0.00)	(0.05)	(0.00)
POL	-0.748	-0.895	-2.511***	0.684**	-0.133	-0.189	-1.971***	0.592*
	(0.28)	(0.19)	(0.00)	(0.04)	(0.81)	(0.74)	(0.00)	(0.05)
RLW	-0.183	-0.404	6.129***	4.945***	0.953	1.025	5.743***	4.029***
	(0.92)	(0.83)	(0.00)	(0.00)	(0.52)	(0.49)	(0.00)	(0.00)
RQ	-1.285	-1.251	-6.048***	-3.954***	-1.398*	1.025	-5.708***	-3.610***
	(0.20)	(0.22)	(0.00)	(0.00)	(0.10)	(0.49)	(0.00)	(0.00)
Year Fixed Effect?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	4.55	6.003	32.93	35.33	12.77	13.97	40.59	34.68
Adjusted R^2	2.66	4.14	31.59	34.05	7.76	9.04	37.13	30.93
F-statistic	2.44	4.31	23.09	25.41	2.55	2.83	11.76	9.24

P-value is in parenthesis. ***, **, * denote statistical significance at the 1%, 5% and 10% levels respectively.

Two-stage least squares instruments are the one-year lag of the explanatory variables

Source: Author's own work

4.3.4. Robustness checks

The initial results obtained in tables 5, 6, 7 and 8 were estimated using the two-stage least squares regression method which addresses potential endogeneity in the dataset. In this section, the results are re-estimated using the panel fixed effect regression method which controls for country and year heterogeneity. The panel fixed effect regression method also controls for omitted variables in the model which are unobservable. Furthermore, the random effect panel estimation in the Hausman test (see appendix A) shows that the p-value of the chi-square is less than 0.05. This leads to the rejection of the null hypothesis that the random effect model is the appropriate model for the analysis. Therefore, the Hausman test shows that the fixed effect model is the appropriate model for the panel estimation. The results obtained from the panel fixed effect model are compared with the results obtained from the two-stage least squares regression estimation to verify the robustness of the empirical results. The results are reported in tables 9, 10 and 11.

In the full sample analysis, the FND variable has an insignificant effect on the GDPG, GDPC and INF variables both in the two-stage least squares estimation and in the panel fixed effect estimation in tables 5 and 9. This indicates robust evidence that the financial inclusion index does not have a significant effect on economic growth, GDP per capita growth and inflation in majority religious countries. Interestingly, the FND variable has a negative significant effect on the UNEMP variable both in the two-stage least squares estimation and the panel fixed effect estimation in tables 5 and 9. This indicates robust evidence that higher level of financial inclusion leads to a decrease in the total unemployment rate in majority religious countries.

In the majority Christian countries sub sample analysis, the FND variable reports mixed significance in relation to the UNEMP variable in tables 5 and 9. This indicates that the results are not robust. In the majority Hindu countries sub sample analysis, the FND variable is insignificant in relation to the GDPG, GDPC, INF and UNEMP variables in tables 6 and 10, indicating that financial inclusion does not have a significant effect on economic welfare in majority Hindu countries. In the majority Muslim countries sub sample analysis, the FND variable has a negative significant effect on the UNEMP variable both in the two-stage least squares estimation and the

panel fixed effect estimation in tables 6 and 10. This indicates robust evidence that higher level of financial inclusion leads to a decrease in the total unemployment rate in majority Muslim countries. Furthermore, the analysis in tables 7 and 11 show robust evidence that a pre-existing low unemployment rate is significantly associated with higher financial inclusion in majority religious countries especially in majority Christian and Muslim countries as shown in columns 1, 2 and 7 in tables 7 and 11. Finally, regarding the analysis on the effect of financial inclusion on economic welfare in countries that have significant Islamic finance activity, there is robust evidence that financial inclusion decrease the inflation rate but does not decrease the unemployment rate in countries that have significant Islamic finance activity as shown in columns 3, 4, 7 and 8 in table 8.

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Table 9. Effect of financial inclusion on economic welfare in the full sample and majority Christian countries sub-sample

(Two-stage least squares regression estimation)

Variable	Religious Countries: full sample estimation (1)-(4)				Majority Christian Countries: sub-sample estimation (5)-(8)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	GDPG	GDPC	INF	UNEMP	GDPG	GDPC	INF	UNEMP
c	4.124***	4.119***	4.393***	6.323***	2.029**	2.095**	2.849*	6.436***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.03)	(0.03)	(0.09)	(0.00)
FND	0.068	-0.0004	0.118	-0.603***	-0.074	-0.119	-0.334	-0.354*
	(0.93)	(0.99)	(0.84)	(0.00)	(0.82)	(0.71)	(0.55)	(0.07)
CC	3.496	3.417	-1.853	0.762*	0.521	0.479	1.351	-1.577*
	(0.12)	(0.14)	(0.24)	(0.09)	(0.73)	(0.75)	(0.61)	(0.08)
PG	0.015	-0.997***	0.417***	0.062*	1.018*	-0.043	-0.519	-1.446***
	(0.94)	(0.00)	(0.00)	(0.08)	(0.10)	(0.95)	(0.64)	(0.00)
POL	1.098	0.947	-2.761***	-0.795***	0.894	-0.970	-4.231**	-1.746***
	(0.33)	(0.40)	(0.00)	(0.00)	(0.39)	(0.35)	(0.02)	(0.00)
RLW	-2.949	-2.386	5.277***	0.931**	-5.941***	-5.866***	8.921**	1.294
	(0.28)	(0.39)	(0.00)	(0.04)	(0.00)	(0.00)	(0.02)	(0.30)
RQ	-2.242	-2.361	5.277***	-0.448	3.711**	3.694**	-1.077	1.412
	(0.30)	(0.28)	(0.00)	(0.23)	(0.03)	(0.03)	(0.71)	(0.16)
Country & Year Fixed Effect?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	20.87	20.71	58.70	93.62	79.78	75.87	62.24	81.61
Adjusted R^2	10.55	10.37	53.24	92.79	73.93	68.87	51.29	76.28
F-statistic	2.02	2.003	10.76	112.57	13.62	10.85	5.69	15.32

P-value is in parenthesis. ***, **, * denote statistical significance at the 1%, 5% and 10% levels respectively.

Source: Author's own work

Table 10. Effect of financial inclusion on economic welfare in majority Hindu and Muslim religious countries

(Two-stage least squares regression estimation)

Variable	Majority Hindu Countries: sub-sample estimation (1)-(4)				Majority Muslim Countries: sub-sample estimation (5)-(8)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	GDPG	GDPC	INF	UNEMP	GDPG	GDPC	INF	UNEMP
c	3.587**	3.588**	5.479***	5.829***	5.975	6.044*	0.574	6.444***
	(0.02)	(0.01)	(0.00)	(0.00)	(0.06)	(0.06)	(0.79)	(0.00)
FND	-2.211	-2.171	1.134	-0.193	5.477	5.111	-0.446	-1.682***
	(0.43)	(0.43)	(0.32)	(0.56)	(0.13)	(0.17)	(0.85)	(0.00)
CC	4.199	4.188	2.341	1.334***	3.178	3.198	-10.232***	0.975
	(0.24)	(0.24)	(0.11)	(0.00)	(0.58)	(0.59)	(0.00)	(0.14)
PG	-0.236	-1.263	-0.392	0.796***	-0.226	-1.204***	0.393	0.092**
	(0.85)	(0.30)	(0.44)	(0.00)	(0.52)	(0.00)	(0.11)	(0.02)
POL	2.653	2.651	-3.357***	0.026	-0.476	-0.666	1.448	-0.308
	(0.27)	(0.27)	(0.00)	(0.93)	(0.85)	(0.80)	(0.39)	(0.30)
RLW	-1.769	-1.782	1.152	0.327	0.901	2.518	7.865	-1.015
	(0.60)	(0.60)	(0.41)	(0.43)	(0.91)	(0.75)	(0.11)	(0.26)
RQ	-3.015	-3.015	-1.149	-0.479	-6.258	-6.980	-12.594***	0.104
	(0.26)	(0.13)	(0.30)	(0.14)	(0.28)	(0.23)	(0.00)	(0.87)
Country & Year Fixed Effect?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	28.51	26.73	68.87	97.02	16.96	18.98	63.24	96.75
Adjusted R^2	8.36	6.08	60.09	96.18	12.84	15.01	54.13	95.97
F-statistic	1.41	1.29	7.85	115.58	2.12	2.98	6.94	124.93

P-value is in parenthesis. ***, **, * denote statistical significance at the 1%, 5% and 10% levels respectively.

Source: Author's own work

Table 11. Effect of pre-existing economic welfare conditions on financial inclusion in majority Christian, Hindu and Muslim countries (Panel fixed effect regression estimation)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Religious countries (Full sample)	Majority Christian countries (Sub-sample)	Majority Muslim countries (Sub-sample)	Majority Hindu countries (Sub-sample)	Religious countries (Full sample)	Majority Christian countries (Sub-sample)	Majority Muslim countries (Sub-sample)	Majority Hindu countries (Sub-sample)
	FND	FND	FND	FND	FND	FND	FND	FND
c	0.520***	1.981***	-0.399**	0.102	0.634***	1.017**	0.250*	-0.123
	(0.00)	(0.00)	(0.02)	(0.50)	(0.00)	(0.03)	(0.09)	(0.49)
$GDPG_{lag}$	0.013	0.073	-0.095*	0.027***	-0.018	-0.162	-0.004	-0.073
	(0.27)	(0.65)	(0.05)	(0.00)	(0.25)	(0.46)	(0.72)	(0.21)
$GDPC_{lag}$	-0.012	-0.135	0.1003**	-0.024***	0.016	0.144	0.004	0.072
	(0.27)	(0.41)	(0.04)	(0.00)	(0.27)	(0.51)	(0.70)	(0.22)
INF_{lag}	-0.001	-0.008	0.003	-0.003	-0.002	-0.002	-0.004	0.005
	(0.78)	(0.62)	(0.68)	(0.34)	(0.59)	(0.89)	(0.24)	(0.54)
$UNEMP_{lag}$	-0.078***	-0.159***	0.007	-0.081***	-0.084***	-0.069	-0.078***	-0.026
	(0.00)	(0.00)	(0.81)	(0.00)	(0.00)	(0.19)	(0.00)	(0.37)
CC					0.637***	1.187	0.190	0.382***
					(0.00)	(0.00)	(0.16)	(0.00)
PG					0.054***	0.509*	0.049***	0.015
					(0.00)	(0.06)	(0.00)	(0.79)
POL					-0.014	-0.029	0.124**	0.173**
					(0.83)	(0.93)	(0.04)	(0.04)
RLW					0.551***	1.646***	0.023	0.007
					(0.00)	(0.00)	(0.91)	(0.96)
RQ					-0.339***	-1.733***	-0.059	-0.028
					(0.00)	(0.00)	(0.68)	(0.77)
Country & Year Fixed Effect?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	91.04	88.19	88.83	92.71	92.28	90.12	94.22	90.50
Adjusted R^2	89.66	84.95	85.94	91.00	91.15	86.77	92.55	87.46
F-statistic	8.29	31.94	58.13	28.75	81.66	26.82	60.37	29.75

P-value is in parenthesis. ***, **, * denote statistical significance at the 1%, 5% and 10% levels respectively.

Source: Author computation

5. Conclusion

This study investigated the effect of financial inclusion on economic welfare in three religious country groups: majority Christian countries, majority Hindu countries and majority Muslim countries. Financial inclusion was measured using a composite financial inclusion index comprising of the number of ATMs per 100,000 adults and the number of commercial bank branches per 100,000 adults. The data were analyzed using the two-stage least squares regression method.

The correlation analysis showed that financial inclusion is positively correlated with corruption control, political stability, rule of law and regulatory quality in religious countries while financial inclusion is negatively correlated with total population growth, economic growth, GDP per capita growth, inflation rate and unemployment rate in religious countries. The regression analyses showed that financial inclusion has an insignificant effect on economic growth rate, GDP per capita growth and inflation in majority Christian, Hindu and Muslim religious countries. Further regression results showed that high level of financial inclusion decreases the unemployment rate in majority Muslim countries. There is also evidence that a pre-existing low unemployment rate is significantly associated with higher financial inclusion in majority religious countries especially in majority Christian and Muslim countries. A high level of financial inclusion decreases the inflation rate in countries that have significant Islamic finance activity.

The implication of the findings is that the type of religion matters in understanding the relationship between financial inclusion and economic welfare in majority religious countries. The results confirm that the effect of financial inclusion on economic welfare in religious countries depends on the type of religion practiced and the size of Islamic finance activity occurring in the country. This means that the moral or spiritual principles espoused by a specific religion can influence the progress made towards financial inclusion and its linkages to economic welfare. Furthermore, our results support the findings documented in Ozili et al (2023) which

establish a direct link between financial inclusion and economic growth in religious and secular countries. They find that high levels of financial inclusion, in the midst of a widening poverty gap, significantly increase economic growth in religious countries. Although our study did not examine secular countries, what our study and Ozili et al's (2023) have in common is that they both show that financial inclusion significantly influence aggregate economic variables in religious countries. The implication is that financial inclusion has an undeniable significant effect on aggregate economic variables in religious countries. This also signals that religion plays an important role in influencing the level of financial inclusion. Hassan et al (2018) and Kim et al (2020) confirm this in their study which showed that Islamic religious factors influence the level of financial inclusion in religious countries. Therefore, it is recommended that policy makers in religious countries should pay attention to the ways in which religious practices affect access to basic financial services so that religious barriers can be removed through reorientation or policy intervention in order to increase the pass-through from financial inclusion to economic welfare. Policymakers in majority religious countries should enlighten citizens about the benefits of financial inclusion and its positive effect on economic welfare. This will make it easier for religious people to support national financial inclusion efforts and use formal financial services in ways that deliver positive economic growth, low unemployment, low inflation and better standard of living.

A limitation of the study is that the selected religious countries are significantly heterogenous in terms of population growth, technology, regulation, political system, Islamic banking practices and financial structure, among others. All these heterogenous factors were not incorporated in this study due to the difficulty in finding accurate proxies to measure many of the heterogenous factors. Only some of the heterogenous factors were controlled for in the regression analyses**.** Another limitation of the study is the financial inclusion index used in the study. Two individual financial inclusion indicators were used to construct the composite financial inclusion index. It is possible that using three or more financial inclusion indicators to construct the composite financial inclusion index may provide additional insights to enrich the analysis. Another limitation of the study has to do with the way religiosity was measured. The study used the religion of majority of the population to measure religiosity. This approach may not capture religiosity

inherent in people's way of life or culture. These limitations create some fruitful areas for future research.

Future research can re-examine this topic by using another type of financial inclusion index. Future studies can also re-examine this topic at a micro-level by using questionnaires to obtain responses from deeply religious people about their perceptions of financial inclusion and their opinions on the use of formal financial services to improve economic welfare. Future studies can also examine whether inherited religion or culture has a significant effect on financial inclusion in religious countries. Other studies can examine the determinants of supply-side and demand-side financial inclusion in religious countries.

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Appendix A

Correlated Random Effects - Hausman Test

Equation: Untitled

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	18.011523	6	**0.0062**

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
FND	-0.558592	-0.507427	0.000861	0.0812
CC	0.616619	0.386768	0.010973	0.0282
PG	0.028008	0.014731	0.000018	0.0020
POL	-0.787298	-0.720084	0.001266	0.0588
RLW	0.927832	0.677178	0.016842	0.0534
RQ	-0.433670	-0.534846	0.007774	0.2512

Cross-section random effects test equation:

Dependent Variable: UNEMP

Method: Panel Least Squares

Date: 10/19/24 Time: 18:06

Sample: 2004 2020

Periods included: 17

Cross-sections included: 30

Total panel (unbalanced) observations: 443

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.376577	0.110119	57.90613	0.0000
FND	-0.558592	0.136141	-4.103027	0.0000
CC	0.616619	0.392293	1.571832	0.1168
PG	0.028008	0.034082	0.821777	0.4117
POL	-0.787298	0.190182	-4.139707	0.0000
RLW	0.927832	0.467469	1.984798	0.0478
RQ	-0.433670	0.370321	-1.171067	0.2423

Effects Specification			
Cross-section fixed (dummy variables)			
R-squared	0.931930	Mean dependent var	6.638298
Adjusted R-squared	0.926076	S.D. dependent var	4.309623
S.E. of regression	1.171743	Akaike info criterion	3.232633
Sum squared resid	558.8031	Schwarz criterion	3.565293
Log likelihood	-680.0281	Hannan-Quinn criter.	3.363831
F-statistic	159.2031	Durbin-Watson stat	0.487589
Prob(F-statistic)	0.000000		