A City of God: Afterlife Beliefs and Job Support in Brazil

Tiago Cavalcanti, Sriya Iyer, Christopher Rauh,
Christian Roerig and Maryam Vaziri*

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Abstract

Using primary data from Brazil, we quantify the link between religion, expectations and economic outcomes, suggesting a key complementarity that for religious networks to provide insurance in this life one also needs strong beliefs in the afterlife. Individuals invest more in their religious communities if they can also expect various forms of community support. The degree of this insurance channel varies across different religions and is highest for Pentecostals. Consistent with this, we build a lifecycle model with heterogeneous agents, imperfect insurance and afterlife beliefs. We discipline model parameters with our data and show that under certain parameterizations the job support channel exists as a by-product of coordinated beliefs in the afterlife. Our results provide evidence that insurance by the community would not be enough to induce religious investments. It is complementarity with beliefs in the afterlife which raises the returns of religious investments above the threshold. The community support and afterlife channel together provide an average value worth 9.6% of consumption in each year.

Keywords: Religiosity, Religion, Afterlife beliefs, Insurance, Unemployment, Hypothetical scenarios, Brazil

JEL Classifications: Z12

* *Cavalcanti: University of Cambridge, CEPR & Sao Paulo School of Economics; Iyer: University of Cambridge, CEPR & IZA; Rauh: University of Cambridge, CEPR & HCEO; Roerig: QuantCo; Vaziri: University of Cambridge.* *We are grateful to The Keynes Fund for Applied Economics for providing the funding to support this project. We are especially grateful to the Instituto de Estudos da Religião, Luna Rozenbaum and the research team who helped us conduct the survey.*

1 Introduction

Religious communities may provide a source of informal insurance for people in developing countries, often supplying services and extensive community support in environments which may be prone to risk (e.g., Iannaccone 1992; Chen 2010; Iyer 2016). In countries where the provision of welfare support by the state may be limited, religious communities often step in to provide mutual insurance. However, that insurance provision may also be linked closely to the complementarity between religious beliefs and religious networks, for the latter to function more efficiently. In this paper, we examine the role of religion as a form of insurance and community support in Brazil.

Brazil is an interesting context to study this issue as it is a multi-religious population with many different Christian and other denominations. It has a long history of deep religiosity, and as an emerging economy, it is a useful context within which to explore the interactions between religion and economic behavior. In a new survey which we designed as a part of this study conducted between 2019-2020, we collect primary data from individuals on their households' characteristics, their religiosity and perceptions about the future from individuals living in the metropolitan region of Rio de Janeiro, Brazil.

We document that people who invest more in their religious community, as measured by a variety of indicators, also receive more support from that community. This underlines the pervasiveness of religious communities as a form of informal insurance in this society. The support provided by the community may take various forms, and our survey questions extensively explore psychological help, shelter, or job support. There are interesting differences here across the religious groups. Pentecostals, for example, use the community support provided more than other groups. Our work highlights the role of beliefs in the afterlife and how this may interact with the community support provided by religious organizations. Strong beliefs support more efficient community networks.

The previously mentioned descriptive evidence suggest a relationship between religious investments and community support. In order to gauge whether respondents perceive a causal relationship, our survey also contains a range of hypothetical scenarios across which we exogenously vary the amount of time and financial investments hypothetical people make into their religious communities. We then ask respondents to guess how likely it is that, given the level of investments, the hypothetical person will receive community support to find a job. By exploiting within respondent variation and keeping all other aspects fixed across the scenarios, we can back out the perceived returns to donations and time investments.[1] We find

[1]The method of computing perceived returns through hypothetical scenarios has been used extensively

that respondents on average believe that both the amount of time and financial investments into religious communities significantly increase the likelihood of receiving community support to find a job. Moreover, we find that individual perceived returns significantly predict investments reported by religious respondents.

In order to rationalize our empirical findings, we construct a theoretical life-cycle model of consumption and saving with afterlife beliefs and in-kind goods provided by the community. Such goods help individuals to insure against employment shocks, introduced as in the Huggett-Aiyagari tradition (e.g. Huggett 1993, Aiyagari 1994). We show theoretically that for a certain range of parameters, the community support channel only arises if returns to investments in terms of afterlife value is great enough. We internally estimate model parameters to be consistent with moments from our survey data and from secondary data on employment transitions. We find that community support has an impact on the employment transition probabilities and it is heterogeneous across different religions. The insurance provided by the community is particularly important for low income individuals.

Our main findings are twofold. First, a finding that is arguably new to the literature on the economics of religion, is that the insurance motive is strongly coupled directly with religious beliefs. Particularly, when shutting down any beliefs in the afterlife in the model, the community support channel vanishes. Therefore, we suggest that, at least in this society, community support may be a by-product of the communities' deeply rooted religious beliefs in the afterlife. This finding is strengthened by the fact emerging from our survey data that non-religious respondents believe that there are large returns from investments into religious communities in the form of job finding support, but nonetheless tend not to invest into religious communities. Second, we find that the overall value of religion on average is equivalent to 9.6% of annual consumption and this is relatively more important for Pentecostals (12.7% of annual consumption). Also, a new finding in the literature.

The rest of the paper is organized as follows. Section 2 reviews the literature in the economics of religion which has relevance for our study. Sections 3 and 4 explore religion and religiosity in Brazil, presenting the basic findings from the World Value Survey and from our survey data, specifically discussing community support and beliefs in the afterlife. Section 5 presents our basic model and Section 6 fits the model to the data calibrating model parameters. Section 7 discusses the model's basic predictions and provide counterfactual exercises. Section 8 concludes.

in the parenting, health and education literature (e.g., Boneva and Rauh 2018, Cunha et al. 2022). For an overview of the elicitation of subjective expectations in developing countries see Delavande et al. (2011).

2 Related literature

In the theoretical literature on the economics of religion, religious communities are often viewed as clubs, demonstrating the characteristics of clubs with rules for members and privileges for those who belong to these clubs. One of the benefits of religion as a club good is that it offers positive returns, potentially in the form of a social insurance, to its members. These returns can be of a non-monetary, often emotional nature, or more monetary in nature, certainly enhancing the individual's utility (e.g., Iannaccone 1992, Berman 2000 and Abramitzky 2008). See Iyer (2016) for a comprehensive review of the literature on the economics of religion.

Related to our work, a growing strand of literature investigates empirically the role of religion in insuring individuals against negative shocks (Auriol et al. 2020). This strand of literature can be more or less divided into two perspectives. The first perspective examines economic or emotional outcomes of religious people in the aftermath of aggregate or idiosyncratic shocks, whereas the second takes an ex-ante view and investigates if people anticipate future adverse shocks by participating in religious organizations.[2] This may also be related to the services which religious organizations provide, for example, with respect to religious, social and welfare services as shown in a study of Indian religious organizations (Iyer 2018). Countries in which religiosity is high also demonstrate lower levels of welfare state spending, and individuals who are religious may in fact prefer lower levels of social insurance.[3]

Chen (2010) shows that religion, in contrast to formal insurance, can act as a form of ex-post insurance, effectively combining both perspectives. He investigates the religious participation in Indonesia during the Asian financial crisis. He finds that those who increase their religious activities are those who have been affected more by the crisis. Therefore, religion alleviates the negative impact of economic shocks and smooths consumption even ex-post. He also finds that those who had higher religious participation before the shock benefit more from the insurance provided by their religious institutions. In line with the feature of ex-post insurance, Ager et al. (2016) document a rise in church membership in regions affected by the Mississippi flood of 1927. Costa et al. (2022) investigate the effect of economic downturns on Pentecostal growth in Brazil.[4] They exploit the 1990's trade

[2]See, for instance, Scheve et al. (2006), Clark and Lelkes (2005), Dehejia et al. (2007), Popova (2014), Buser (2015), Ager and Ciccone (2017), Bentzen (2019), Bentzen (2020).

[3]Research in the economics of religion also examine more broadly the interactions between religion and economic growth (e.g., McCleary et al. 2003, Becker and Woessmann 2009, Cavalcanti et al. 2007, Benabou and Ticchi 2021).

[4]Pentecostals are a Protestant group within Christianity often described as charismatic churches. They do differ from other Evangelical churches. The main difference is that they emphasize speaking in tongues,

liberalization in Brazil as a natural experiment and show that a 10 percent decrease in expected earnings led to a roughly 1.5 percent increase in the share of Pentecostal individuals.

Our hypothesis is that given that religion can take the form of informal insurance, there could be different levels of insurance as a function of the individual's investment in the religious community. Our contribution to the literature is therefore twofold: First, we collected primary data in Brazil on household-specific religious activities and community level risk-sharing in a series of surveys with the help of the Institute for Religion Studies (ISER) in Rio de Janeiro. To the best of our knowledge, this is the first comprehensive dataset comprising information on religious activities of people and economic characteristics and expectations at the same time. Second, we expand a standard life-cycle model of consumption insurance by introducing religious investments and afterlife beliefs. We fit the model to match moments from our survey in order to disentangle why individuals make religious investments and how religious participation affects individuals decisions and outcomes, in the context of their beliefs in the afterlife. The integration of our survey, containing information on beliefs, religiosity, hypothetical scenarios and insurance, with our life-cycle model is unique in the literature of economics of religion. More specifically, we consider the links between religion in Brazil and employment outcomes, through an economic model and survey data, which we outline in more detail below.

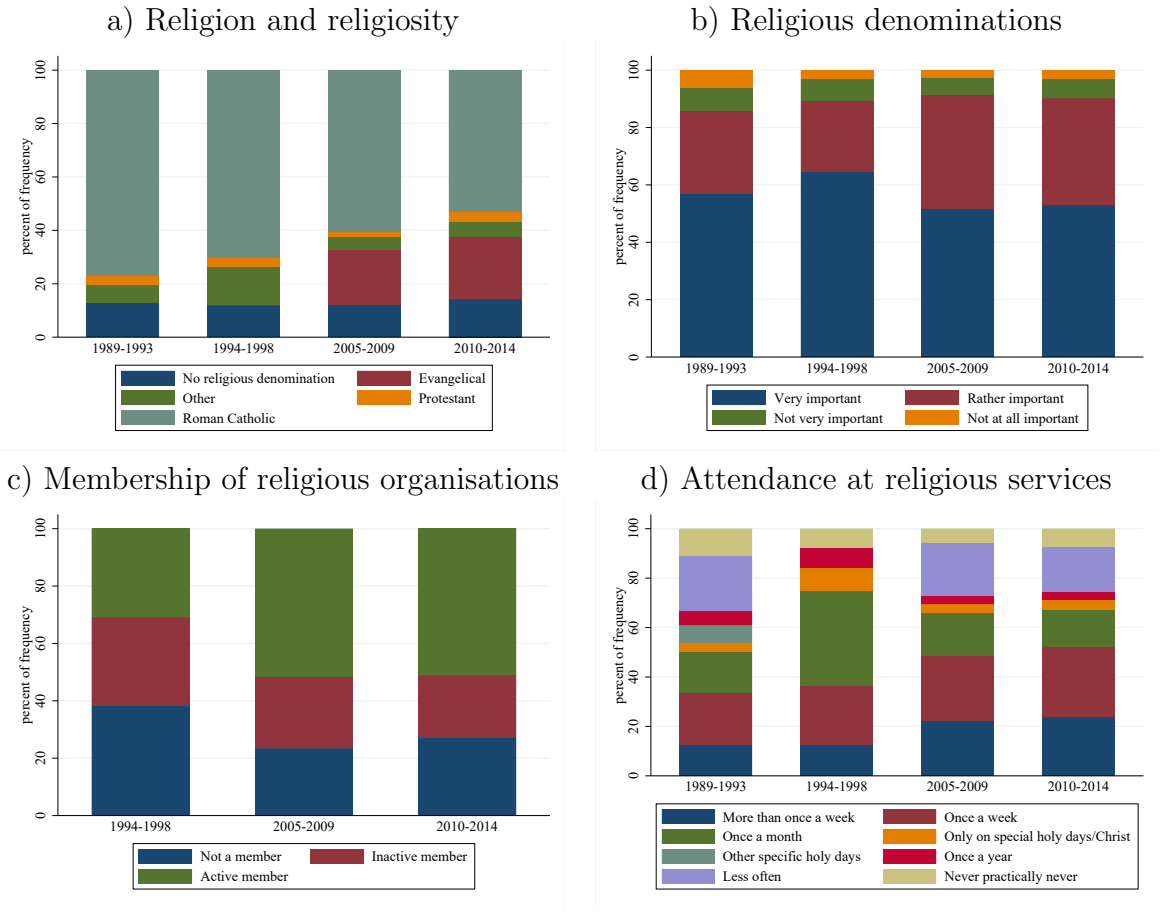
3 Religion and religiosity in Brazil

Due to its Portuguese colonial heritage, the predominant religion in Brazil is Roman Catholic. Three decades ago, the share of Catholics in the Brazilian population was almost 80%. Now approximately 50% of Brazilians say they are Catholics, as shown in Figure 1a). The country is still predominantly a Christian nation. According to the World Value Surveys (WVS), approximately 85% of all Brazilians say they are either Catholics, Evangelicals or Protestants, as shown in Figure 1a). The fall in Catholicism in the country has been followed by the rise of the Evangelicals. Nowadays, more than 20% of individuals in Brazil say they follow the Evangelical doctrine.

Concomitantly with the surge of Evangelicalism in Brazil is the increase in religiosity and church attendance. In Figure 1b) we observe that approximately 50% of Brazilians state that

miracles and healing traditions and family and kinship as a provider of a social safety net (McCleary 2018). This movement also highlights the importance of the Bible and ways to transform lives through faith. It started in America around 1906 under pastor William Seymour and there are about 80 different Pentecostal denominations at present. See Chestnut 1997 and Chestnut and Kingsbury (2019) for the growth of the Pentecostal movement in Brazil.

Figure 1: Religion in Brazil



Source: Four waves of the World Value Survey.

religion is very important in their lives. In fact, there is a rise in past decades in the share of Brazilians who say religion is either very important or rather important in their lives. This is also corroborated by Figure 1c), which shows an increase in the share of individuals who say that they are an active member of a religious organisation. The share of individuals going to Church at least once per week has also risen in recent decades, as shown in Figure 1d).

Therefore, the evidence from the World Value Surveys suggests that Brazil is mainly a Christian country, but Evangelicalism and religiosity are on the rise. In order to understand the role of religion, religiosity and how different religious denominations shape individual decisions and outcomes, we first collect primary data in Brazil on households' socio-economic characteristics, religious activities, beliefs, perception about different individual idiosyncratic shocks and community level risk-sharing. This dataset is described in the next section.

4 Data facts and reduced-form evidence

In this section, we document some facts from Brazil that motivate our work and provide empirical support for some of our modelling strategies. We first present our primary data collected in the metropolitan area of Rio de Janeiro from 2019-2020 and then we provide some correlations between religious investments and community support. Further, we explore the underlying motivation behind religious investments. Are investments meant to improve the afterlife or are they mainly to insure against employment shocks?

4.1 Data description

We design and implement a novel survey to construct a comprehensive dataset comprising information on individual religious activities, socio-economic characteristics and perception about different risks individuals might face. Our survey questionnaire is divided into three parts. The first part contains basic household demographics and economic characteristics of respondents; the second section of the survey aims to capture individuals' perception about their future and different risks they face; and the third part encompasses questions about religion, religiosity and religious beliefs. Appendix C contains some of the questions from our survey.

The survey was implemented with the support of the Institute for Religion Studies (ISER) in Rio de Janeiro, a non-governmental organization. Working in partnership with us, ISER conducted two rounds of surveys, which consisted of approximately 600 field interviews in each round in the metropolitan area of Rio de Janeiro. The first round was implemented from January to February 2019 and the second round was conducted between April and May 2020. Figure 5 in Appendix A illustrates the geo-location of interviewees across the metropolitan area of Rio de Janeiro. We collected the data in Rio de Janeiro, the second largest city in Brazil, and its surroundings due to the religious diversity of the region. In order to cover all major religious groups, we ensure certain quotas are met for religious denominations in the data collection procedure. The final sample consists of 25% Catholics, 25% Pentecostals, 16.6% Protestants, 4.2% who believe in spiritualism, 3.2% Umbanda, 1.2% Candomblé and 25% who do not belong to a specific religion or religious denomination.

Table 1 lists descriptive statistics for selected variables. The average individual in our sample is 40 years old, non-white, married with children and has obtained a secondary education. The monthly household income of the average individual is R$ 2,000-2,500 (or approximately US$ 400-500). About 54% of the individuals have a formal job and the average number of hours worked per week is 26. Almost 58% of respondents consider themselves to

Table 1: Descriptive statistics of most relevant variables

	Mean	Sd.	Obs.
Panel A. Demographics			
Age	40.58	13.11	1197
Woman	0.47	0.50	1197
Non-white	0.64	0.47	1197
Married	0.53	0.50	1197
Children	0.70	0.46	1197
Primary school	0.25	0.43	1197
Secondary school	0.53	0.50	1197
Higher education	0.22	0.41	1197
Panel B. Economic situation and expectations			
Household's monthly income (1: < R$ 500; 12: > R$ 6,000)	5.96	3.38	1095
Employed	0.67	0.47	1198
Formal work	0.55	0.50	800
Hours worked per week	32	22	1008
Probability of job loss	0.16	0.29	979
Probability to find a job	0.50	0.39	435
Panel C. Religion			
Belong to religion	0.76	0.43	1198
Pentecostal	0.29	0.45	1055
Roman Catholic	0.28	0.45	1055
Religiousness (0: Non-religious; 3: Very religious)	1.97	0.97	1194
Donate	0.71	0.45	1198
Work voluntarily	0.33	0.47	1198
Frequency of going to church (0: Never; 6: More than once a week)	3.77	2.09	911
Time spent to pray in average week (1: 0h; 5: >5hs)	2.75	1.13	916
Time spent at religious festivities in average week (1: 0h; 5: >5hs)	1.77	1.21	908
Community support for finding a job	0.26	0.44	922
Probability of afterlife	0.58	0.45	1154

be religious of which almost one third described themselves as very religious.

Panel C of Table 1 summarizes our data on religious beliefs and investments. In particular, our survey results suggest that more than half of the respondents identify as an active member of a church or religious organization. As for religious investments 45% of the interviewees financially support their religious organization with donations and, approximately 20% of all respondents support their religious organization with voluntary work, yet most of them do less than 10 hours per month. Furthermore, almost 70% of the individuals invest their time by praying at least every day if not several times a day. According to the respondents, there is an 58% average chance of existence of an afterlife.

One of our goals is to understand the underlying motivations behind religious investments, and our survey data allows us to explore this channel in more depth. In particular, we try to understand whether people invest in religion, either financially or by volunteering, to improve their afterlife outcomes or whether they view these religious investments as a form of insurance in the face of financial hardships or unemployment. Additionally, religious communities often provide various other types of support (e.g. daycare support, support in finding a job) which may encourage people to participate more in the activities of their religious community. In this section, we provide descriptive statistics regarding these investments and later in the paper we further explore these questions both empirically and by using a structural model.

Our survey data suggests that although only 1.5% of respondents receive financial support from their community, many more appear to benefit from practical help. Almost a quarter of individuals report to receive support from their Church in finding a job either for themselves or for some family members, 35% receive some help when facing health issues, 20% get some type of educational support, 18% benefit from child care and 19% have some type of psychological (i.e. counselling) support. Thus in our sample, support is coming more through forms of in-kind benefits rather than from direct financial support.

In Table 1 it can be observed that approximately 25% of the respondents who are employed estimate the likelihood of losing their job within the next year at 50% or higher. While only 1% report a monthly income of less than R$ 500 if they keep their job, 18% see their monthly income falling below this threshold in case they lose their job. 75% of those who are looking for a job are convinced that there is at least a 50% chance of finding a job within a year.

4.2 Religious investment to insure against negative labor market outcomes

There is ample evidence for the insurance motive that religion provides through community support. In order to verify whether this channel might play a role for individuals in our sample, in Table 2 we regress a dummy for whether the respondent reports that he/she would receive community support to find a job on donations and time invested in the local religious community. Column (3) of this table shows that a one standard deviation increase in donations is associated with a 2.6 percentage point (pp) higher probability of receiving community support to find a job, while a one standard deviation increase in time investments is associated with a 11.1 pp higher likelihood of receiving community support. In Column (4) we find weak evidence that the two investments are perceived as substitutes as the interaction is negative (p-value= 0.116). These findings are summarized in stylized fact 1 below.

Stylized fact 1: *Higher donations and higher number of hours volunteered in the religious community are associated with a higher probability of receiving support from the religious community to find a job.*

Table 2: Relation between religious investments and community support to find a job

	(1)	(2)	(3)	(4)
Donations to religious community	0.0593***		0.0257*	0.0325**
	(0.0135)		(0.0145)	(0.0151)
Time invested in religious community		0.1204***	0.1107***	0.1174***
		(0.0146)	(0.0156)	(0.0161)
Donations × time				-0.0207
				(0.0132)
Constant	0.2550***	0.2661***	0.2615***	0.2681***
	(0.0145)	(0.0146)	(0.0148)	(0.0154)
Observations	922	853	853	853
R^2	0.0205	0.0741	0.0776	0.0802

Notes: Standard errors in parentheses; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Dependent variable: 1 if individual would receive community support to find a job; and zero otherwise.

Next, we investigate how individuals assess how community support helps them find a job. We regress the perceived probability of finding a job on a dummy indicating whether or not the respondent receives community support to find a job. In Column (1) of Table 3

we see that respondents who receive community support perceive the likelihood of finding a job to be 9.7 percentage points higher than those who do not receive support. In Column (2), we add individual controls and still find the perceived probability to be 8.3 pp higher.

Stylized fact 2: *A higher amount of community support is associated with a higher perceived probability of finding a job.*

Table 3: Relation between community support to find a job and perceived job finding probability

	(1)	(2)
Community support for finding a job	0.0974**	0.0834*
	(0.0479)	(0.0434)
Age		-0.0106***
		(0.0015)
Woman		-0.1190***
		(0.0393)
Secondary school		0.0256
		(0.0475)
University		0.1499**
		(0.0638)
Low risk area		0.0149
		(0.0411)
Constant	0.4559***	0.8918***
	(0.0254)	(0.0827)
Observations	322	320
R^2	0.0128	0.2043

Notes: Standard errors in parentheses; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Dependent variable: Perceived job finding probability.

In order to gain insights into whether respondents perceive a direct relationship between investments, in the form of time or donations, and community support, we present hypothetical scenarios to the respondents. In these scenarios we exogenously vary the amount of investments across the scenarios, while keeping everything else fixed, and ask respondents to predict the level of community support the hypothetical individual could enjoy.

More specifically, we present the following scenario:
Imagine a person named João who lives in your neighborhood. Imagine João donated 500 reais to the local church last year. How likely is he going to get community support? [0 means very unlikely and 100 means very likely]

In the subsequent scenario, we ask them to imagine Pedro, another common Brazilian name, in the same neighborhood who instead invests 100 reais. Then using the two predictions, we can run a regression of perceived community support on changes in donations and include individual fixed effects.

Results are presented in Panel A of Table 4. In the first column, we use the entire sample and find that increasing donations from 100 to 500 reais, on average, is perceived to increase the probability of receiving community support to find a job by 3.5 pp. In the following columns we restrict the sample to each religious denomination, and find that within each denomination, the relationship is perceived to be positive and significant. Actually, it is highest for the non-religious who perceive the increase to be 5.2 pp.

Table 4: Effects of donation and time investment on community support to find a job in hypothetical scenario

Panel A: Effects of donations						
	(All)	(None)	(Cath)	(Pent)	(Prot)	(Other)
Donating 500 instead of 100	0.0352***	0.0523***	0.0306***	0.0291**	0.0335**	0.0216**
	(0.0058)	(0.0161)	(0.0083)	(0.0113)	(0.0134)	(0.0101)
Constant	0.6227***	0.4561***	0.6191***	0.7100***	0.7252***	0.6396***
	(0.0041)	(0.0114)	(0.0058)	(0.0080)	(0.0095)	(0.0072)
Observations	1086	264	257	273	189	103
R^2	0.0636	0.0744	0.0982	0.0467	0.0627	0.0832
Individual FE	Yes	Yes	Yes	Yes	Yes	Yes
Panel B: Effects of time investment						
	(All)	(None)	(Cath)	(Pent)	(Prot)	(Other)
Supporting 5h instead of 1h	0.0600***	0.0915***	0.0605***	0.0545***	0.0232	0.0613***
	(0.0071)	(0.0182)	(0.0140)	(0.0131)	(0.0145)	(0.0179)
Constant	0.6240***	0.4513***	0.6174***	0.6904***	0.7458***	0.6755***
	(0.0050)	(0.0129)	(0.0099)	(0.0092)	(0.0102)	(0.0126)
Observations	1106	264	264	282	190	106
R^2	0.1140	0.1614	0.1253	0.1109	0.0265	0.1850
Individual FE	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Standard errors in parentheses; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. The column headings indicate the religious denomination of the respondent. Dependent variable: Perceived probability of community support.

We then repeat a similar exercise for the impact of time investments (5h vs. 1h per week) on community support to find a job. Since in our survey we present these scenarios after the donation scenarios, we further specify that there are no donations in these cases. The results of the analog regressions can be found in Panel B of Table 4. The average perceived

increase in the probability of community support is 6 pp, and again is highest among those with no religious denomination (9.2 pp).

Table 5: Explaining individual fixed effects

	Donate (1)	Time (2)
Roman Catholic	14.7266***	13.4506***
	(4.2040)	(4.0624)
Protestant	22.0518***	19.5946***
	(4.0922)	(3.9409)
Pentecostal	25.4146***	24.9316***
	(4.4928)	(4.3641)
Other	17.0911***	20.6043***
	(5.4211)	(5.2296)
Age	-0.0310	0.1219
	(0.1143)	(0.1104)
Woman	4.5257	4.0362
	(2.8893)	(2.7947)
Secondary school	-5.3125	-5.3140
	(3.5559)	(3.4376)
University	-8.1489**	-8.6675**
	(4.0850)	(3.9474)
Low risk area	-0.9427	-3.9030
	(3.3467)	(3.2232)
Observations	541	548
R^2	0.0894	0.0955

Notes: Standard errors in parentheses; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. In Column (1) the dependent variable is the individual fixed effect from the regression in Column (1) of Panel A in Table 4, while in Column (2) it is the individual fixed effect from the regression in Column (1) of Panel B in Table 4.

We further look into perceived baseline levels of community support from the first column of Panel A and Panel B of Table 4. We retrieve the individual fixed effects from the regressions in the Column (All) of Table 4 and regress them on individual characteristics of the respondent. The results are displayed in Table 5. Relative to the non-religious, we see that the Pentecostal perceive the baseline level of support, i.e. when donating 100 reais a year or investing 1h per week, as 25 pp higher. For other religious denominations it is also higher than for the non-religious, whereas the difference is smaller for the Roman Catholic. In terms of other covariates, we only find a significant relationship for the university educated who perceive the probability of support at the baseline to be 8-9 pp lower than for those who did not finish secondary school.

Given the hypothetical scenarios, we can compute perceived returns to donations and time investments for each survey respondent by subtracting reported community support under the low investment scenario from the high investment scenario. In Table 6 we then regress self-reported investments on perceived returns. In the first column we use the whole sample, while in the second and third column we restrict the sample to the non-religious and religious, respectively. The first three columns refer to donations, while the last three to time investments. We find that respondents with higher perceived returns also invest more both in terms of donations and time. Most importantly, the relationship only holds for the religious respondents, indicating that it is not enough to believe in returns in terms of community support for the job search in order to induce investments.

Table 6: Relation between perceived returns and investments

	Donation			Time investment		
	All	Non-relig	Religious	All	Non-relig	Religious
	(1)	(2)	(3)	(4)	(5)	(6)
Perceived return donating	0.0168**	-0.0003	0.0276**			
	(0.0078)	(0.0057)	(0.0115)			
Perceived return time				0.0209***	-0.0202**	0.0305***
				(0.0066)	(0.0078)	(0.0074)
Probability of afterlife	0.0033	-0.0079***	0.0036	0.0100***	-0.0115	0.0115***
	(0.0025)	(0.0025)	(0.0032)	(0.0027)	(0.0066)	(0.0028)
Constant	0.0136***	0.0077***	0.0171***	0.0159***	0.0159***	0.0156***
	(0.0020)	(0.0017)	(0.0026)	(0.0022)	(0.0053)	(0.0023)
Observations	522	125	397	407	16	391
R^2	0.0124	0.0756	0.0171	0.0543	0.4959	0.0769

Notes: Standard errors in parentheses; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. In columns (1)-(3) the dependent variable is the standardized reported amount of donations, and in columns (4)-(6) the standardized amount of time investments. In columns (2) and (5) the samples are restricted to non-religious respondents, while in columns (3) and (6) the samples are restricted to non-religious respondents.

Stylized fact 3: *Religious investments are positively associated with perceived returns to community support. Receiving community support does not seem to be a sufficient motivation to induce religious investments.*

4.3 Religious investment and perceived afterlife outcome

Beyond returns to religious investments in the current life, one reason individuals have been found to engage in religious practices is an expected return upon death, or the afterlife. Us-

ing our data, we investigate the relationship between religious investments and the afterlife by regressing respondents' reported probabilities of believing in afterlife on the amount of donations, the time invested in the local religious community, and the time spent praying. In Column (1) of Table 7, we document that a one standard deviation increase in donations is associated with a 2.6 pp increase in the perceived likelihood of having an afterlife, while in Column (3) we see that a one standard deviation increase in donations is associated with a 2.8 pp increase.

Table 7: Relation between religious investments and the probability of afterlife

	(1)	(2)	(3)	(4)
Donations to religious community	0.0261*			0.0157
	(0.0133)			(0.0159)
Time invested in religious community		0.0053		-0.0193
		(0.0161)		(0.0185)
Time spent praying			0.0276*	0.0381**
			(0.0153)	(0.0180)
Age	0.0007	-0.0011	-0.0015	-0.0019
	(0.0010)	(0.0012)	(0.0012)	(0.0013)
Constant	0.5487***	0.6568***	0.6732***	0.6856***
	(0.0435)	(0.0544)	(0.0529)	(0.0551)
Observations	1154	819	882	813
R^2	0.0042	0.0010	0.0049	0.0093

Notes: Standard errors in parentheses; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Dependent variable: perceived probability of afterlife.

Stylized fact 4: *Higher perceived probability of afterlife is associated with higher donations and more praying.*

Having documented that religious investments systematically relate to returns in terms of community support and afterlife, we now turn to a model in order to shed light on the relationship between these different types of returns and how they shape individual decisions.

5 The model

In this section, we set up a model to understand the incentive of individuals in investing in religious activities and how such activities affect how individuals insure against shocks.

This is a life-cycle environment with consumption-savings decisions in which individuals face idiosyncratic shocks. In addition, individuals can donate to their community, provide voluntary work or pray. While all of these activities increase the value of afterlife, donations and voluntary work also insure the individual in face of adverse shocks. The model allows us to understand the relative importance of each channel and disentangle the effect of religious beliefs from insurance incentives.

5.1 Environment

Individuals age and die stochastically. They can be young adults (y), middle-aged adults (m) or old adults (o) and live either in high crime areas or low crime areas ($cr \in \{high, low\}$).[5] Both age and crime rate contribute to the probability of survival. Young adults survival probability is $\delta^y_{cr} \in (0,1)$. Individuals can die due to natural causes with probability δ^j_N with $j \in \{y, m, o\}$. There is also the probability that they will die due to getting hit by a crime shock. This is denoted by cr and $high$ refers to high crime areas and low to low crime areas, such that the probability of survival in high crime areas is lower than in low crime areas $\delta^j_{high} < \delta^j_{low}$. More specifically, the probability of dying for individual $j \in \{y, m, o\}$ can be denoted as:

$$1 - \delta^j_{cr} = (1 - \delta^j_N) + \delta^j_N(1 - \delta_{cr}).$$

The first term shows the probability of dying for individual j because of natural causes. The second part shows the probability of surviving the natural causes of death but dying due to crime.

If young individuals survive, then with probability $\gamma^m \in (0,1)$ they become middle-aged adults and with probability $(1 - \gamma_m)$ they remain as young adults. Similarly, middle-aged adults survive with probability $\delta^m_{cr} \in (0,1)$. Conditional on survival, then with probability $\gamma^o \in (0,1)$ they become old adults and with probability $(1 - \gamma_o)$ they remain middle-aged. Old agents survival probability is δ^o_{cr}.

Individuals have one unit of time endowment in each period. They face multiple decisions at any time period: consumption c, amount of donations d, assets a', hours worked h, time prayed p, time in community services t and leisure l. Individuals labor productivity is composed by three components:

i. A transitory component: $z \in \{z_0, z_1\}$;

[5]The assumption that individuals age stochastically simplies the analysis while keeping the tradeoffs individuals face during the life cycle.

ii. a permanent education component: $\rho \in \{\rho_1, \rho_2, \rho_3\}$; and

iii. an age-specific component: $\epsilon \in \{\epsilon^y, \epsilon^m, \epsilon^o\}$.

Let z_0 be the state when agents are unemployed and z_1 when agents are employed such that $z_1 > z_0$. Therefore, an unemployment shock lowers the productivity of the individual but still allows them to remain active. This can be interpreted for example as an individual engaging in home production and informal activities with low productivity. Religion and religiosity affect the transition probability of states. The probability of staying in unemployment depends on community support s_r, where subscript r denotes the individual religion denomination. Community support is a function of the amount donated d and time invested in the community t, such that

$$s_r(d,t) = [\zeta d^\theta + (1-\zeta)t^\theta]^{\frac{1}{\theta}},\ \zeta \in [0,1],\ \theta \leq 1. \tag{1}$$

The probability of staying unemployed is

$$\pi_0(x) - \rho_{cs}\phi_r(s_r),$$

with

$$\phi_r(s_r) = \frac{s_r}{\phi_0 + s_r},\ \phi_0 \geq 0, \tag{2}$$

where variable x denotes individual characteristics, such as age and education. Labor market shocks depend on observed worker characteristics. ϕ_r denotes the probability of receiving community support as a function of donation and time, with ϕ_0 being a religious specific scaling parameter. ρ_{cs} is the efficacy parameter, i.e. the degree to which community support impacts labor market outcomes.

The probability of transiting from unemployment to employment is

$$1 - (\pi_0(x) - \phi_r(s_r)\rho_{cs}).$$

Similarly, the probability of remaining employed is given by

$$\pi_1(x) + \phi_r(s_r)\rho_{cs},$$

where $\pi_1(x)$ is the exogenous component for remaining employed. We assume the effect of community support to be symmetric for unemployed and employed individuals. This assumption overstates the pure re-employment effect after having been laid off and finding

a new job through community support, $(1-\pi_1(x))\phi_r(s_r)\rho_{cs}$.

Therefore, the transition probability matrix of the transitory labor productivity component will be endogenous and religion specific such that:

$$\Pi_{zz'}(x, s_r) = \begin{bmatrix} \pi_0(x) - \rho_{cs}\phi_r(s_r) & 1 - (\pi_0(x) - (\rho_{cs}\phi_r(s_r)) \\ 1 - \pi_1(x) - \phi_r(s_r)\rho_{cs} & \pi_1(x) + \phi_r(s_r)\rho_{cs} \end{bmatrix}. \tag{3}$$

The income of individuals is given by their productivity $z\epsilon\rho$ times their labor supply $(1 - l - p - t)$: $z\epsilon\rho(1 - l - p - t)$ and the wage rate is normalized to one.

The one-period utility depends on consumption and leisure according to:

$$u(c, l) = U(c) + v(l), \tag{4}$$

where $U(c)$ an $v(l)$ are both twice differentiable, and strictly increasing and concave. Individuals discount the future and $\beta \in (0, 1)$ is the subjective discount factor.

Depending on religious beliefs, individuals might also believe in afterlife and in a heaven absorbing state. The perceived value of going to heaven is $V_{heaven} \geq 0$. The value of going to hell is normalized to zero. The probability of going to heaven is given by $\pi_{after,r} = prob_{after}(p, s_r)$, where

$$prob_{after}(p, s_r) = \pi_{after,r} = (1 - \zeta_h)\phi_r + \zeta_h \left(\frac{p}{\phi_1 + p} \right), \ \phi_1 \geq 0 \text{ and } \zeta_h \in [0, 1]. \tag{5}$$

Therefore, the probability of going to heaven is a weighted average of community services s_r given by (1) and praying time p. We could see both variables as also the effort choices for investing in afterlife.[6]

5.2 Optimal decisions

Now, we can define the value function of all agents and their optimal decisions.

Young individual problem. Let $V^y(a, z, \rho, r)$ denote the value function of a young individual with religion r, asset a, facing a current transitory productivity shock z and with a

[6]Related to this, Doepke and Zilibotti (2008) provide a theory of parental choices for investing in the child's taste for leisure and patience. See also Becker and Mulligan (1997). Our continuation value is afterlife utility.

permanent labor productivity ρ. This value function solves:

$$V^y(a,z,\rho,r) = \max_{c,a',d,l,p,t} u(c,l) + \beta\delta^y_{cr} E_{z'}[(1-\gamma^m)V^y(a',z',\rho,r) + \gamma^m V^m(a',z',\rho,r)] \\ +\beta(1-\delta^y_{cr})\pi_{after,r}V_{heaven},$$

subject to (1), (2),

$$c + a' + d = (1+i)a + z\epsilon^y\rho(1-l-p-t), \tag{6}$$

$$c \geq 0,\ a' \geq 0,\ d \geq 0,\ p,l,t \in [0,1]. \tag{7}$$

Equation (6) is the one-period budget constraint for young adults. The left-hand side is the sum of consumption, savings and donations. The right-hand side is the sum of income from asset holdings and labor income. The exogenous interest rate on financial assets is i. Equation (7) denotes the constraints on choice variables. Expectations are taken over the idiosyncratic productivity shock z', accordingly to the transition probability matrix given by (3).

Middle-aged individual problem. Middle-aged individuals solve a problem similar to the one of young individuals. The value function of a middle-aged individual with assets a, labor productivity $z\epsilon\eta$ and religion r is denoted by:

$$V^m(a,z,\rho,r) = \max_{c,a',d,l,p,t} u(c,l) + \beta\delta^m_{cr} E_{z'}[(1-\gamma^o)V^m(a',z',\rho,r) + \gamma^o V^o(a',z',\rho,r)] \\ +\beta(1-\delta^m_{cr})\pi_{after,r}V_{heaven},$$

subject to (1), (2),

$$c + a' + d = (1+i)a + z\epsilon^m\rho(1-l-p-t), \tag{8}$$

and conditions analogously to those described in Equation (7).

Old individual problem. A typical old individual with assets a, labour productivity $z\epsilon^o\rho$ and religion r solves the following problem:

$$V^o(a,z,\rho,r) = \max_{c,a',d,l,p,t} u(c,l) + \beta\delta^o_{cr} E_{z'}[V^o(a',z',\rho,r)] + \beta(1-\delta^o_{cr})\pi_{after,r}V_{heaven},$$

subject to (1), (2),

$$c + a' + d = (1+i)a + z\epsilon^o\rho(1-l-p-t), \tag{9}$$

and choice variables are constrained by the conditions described in Equation (7).

5.2.1 Decisions to invest in religion

As discussed in the previous section, there is weak evidence of individuals perceiving donations and voluntary time as substitutes. We set up the religious investment function as (1) and the following result holds:

Proposition 1 *The optimal trade-off between donation and time in community services is given by*

$$\left(\frac{d}{t}\right) = \left(\frac{\zeta}{1-\zeta}\right)^{1/(1-\theta)} (ze^y\rho)^{1/(1-\theta)},$$

and

$$\frac{d\ln\left(\frac{d}{t}\right)}{d\ln(ze^y\rho)} = \frac{1}{1-\theta} > 0.$$

Proof: Proof is provided in the Appendix.

This proposition states that the relative resource dedicated to donation as opposed to time depends on the productivity level, which itself depends on age, education and employment status. It also depends on ζ, the relative weight on donations in the production of community services. In addition, for any $\theta < 1$ donations increase by more with income than time invested in community services.

Let λ be the Lagrangian multiplier of the individual budget constraint. The next proposition shows the trade-off between leisure and pray.

Proposition 2 *The optimal trade-off between leisure and pray time is given by*

$$\frac{v'(l)}{\frac{\partial \pi_{after,r}}{\partial p}} = \beta(1-\delta^i_{cr})V_{heaven},$$

where $\frac{\partial \pi_{after}}{\partial p} = \zeta_h\phi_1(\phi_1+p)^{-2}$. *In addition, if the value of heaven* V_{heaven} *is not too high such that*

$$V_{heaven} > \frac{\lambda z e^i \rho \phi_1}{\beta(1-\delta^i_{cr})\zeta_h} \quad i \in \{y, m, o\},$$

then pray time will be zero.

Proof: Proof is provided in the Appendix.

Praying contributes to the probability of going to heaven but it is not an input for individuals to receive community support. Then, it can be that individuals still donate resources to the Church and participate in its activity but they do not believe in afterlife.

But observe from (5) that supporting the community also increases the probability of going to heaven.

Proposition 2 also shows that there is a cutoff for the value of heaven below which individuals will not pray. V_{heaven} has to be larger than the discounted, weight-adjusted intra-temporal marginal cost of praying. This cutoff will be different according to individual characteristics such as age, education, employment status and the crime rate in her neighborhood.

6 Fitting the model to the data

In order to disentangle the effects of religion on individual outcomes, we must assign values for the model parameters. We have prior information about some parameters, but other parameters are specific to the analysis at hand and little is known about their magnitudes. Therefore, values for these parameters will be internally estimated such that the model matches key moments of our survey data and from secondary data obtained for Brazil and the city of Rio de Janeiro.

6.1 Calibrated parameters

First, we assume the following parametric form for the one-period utility function:

$$u(c,l) = \frac{c^{1-\sigma}}{1-\sigma} - \psi\frac{L^{1+\eta}}{1+\eta},\ \sigma,\eta,\psi > 0,$$

where $L = 1 - l - p - t$ is labor.

Table 8 lists the values of those parameters which have been externally calibrated either using standard values from the literature or direct empirical counterparts in the data. The model period is assumed to be one year. The discount factor β and the risk-free real interest rate i are chosen to be equivalent to the annual real interest rate of a one-year bond from the Brazilian government in 2018. The parameters defining the shape of the utility functions for consumption, σ, and labour, η, are pretty common in the literature. The intertemporal elasticity is in line with most of the literature on consumption surveyed by Attanasio and Weber (2010) and also with the Brazil-specific literature that estimates σ in the range from 1 to 3 (e.g., Gandelman and Hernández-Murillo, 2014; Fajardo, Ornelas and Farias, 2012), as well as the inverse of the Frisch elasticity

Productivity levels for the different age brackets and education levels stem from the Na-

Table 8: Externally calibrated parameters and targeted values for theoretical model

Parameter	Value	Source	Description
β	0.975	Real interest rate	Discount factor
σ	2	Literature	Relative risk aversion
η	2	Literature	Inverse of the Frisch elasticity
i	0.025	Data	Risk-free real interest rate, 2018
ϵ	[1.01 0.96 1.07]	PNAD	Life-cycle component of productivity
ρ	[0.67 1.06 1.28]	PNAD	Schooling component of productivity
z_1	1.08	Data	Productivity level of employed
z_0	0.84	Data	Productivity level of unemployed
π_0^l (y m o)	[0.25 0.20 0.09]	PNAD	Prob. of finding a job, low education
π_0^m (y m o)	[0.33 0.26 0.10]	PNAD	Prob. of finding a job, mid education
π_0^h (y m o)	[0.43 0.27 0.09]	PNAD	Prob. of finding a job, high education
π_1^l (y m o)	[0.75 0.78 0.66]	PNAD	Prob. of remaining employed, low educ.
π_1^m (y m o)	[0.80 0.84 0.74]	PNAD	Prob. of remaining employed, mid educ.
π_1^h (y m o)	[0.87 0.88 0.80]	PNAD	Prob. of remaining employed, high educ.
δ^o	0.875	WHO data	Prob. of survival for the old
δ^m	0.973	WHO data	Prob. of survival for the middle-aged
δ^y	0.99	WHO data	Prob. of survival for the young
δ_{cr} (l h)	[0.99 0.97]	assumption	Prob. of survival in areas with different crime rates
γ^m	0.05	CENSUS	Prob. of ageing
γ^o	0.04	CENSUS	Prob. of ageing
ρ_{cs}	0.08	Our survey	Efficacy of community job support

tional Household Sample Survey (*Pesquisa Nacional por Amostra de Domicílios* - PNAD). In addition, the exogenous component of the employment transition probabilities are calculated from PNAD. Transition probabilities differ by education level and age. In Table 8 the superscript on the transition probability denotes the education level from low education to high education, whereas the values in the brackets are ordered by age group. Data on survival probabilities for the different age groups comes from the World Health Organization's (WHO) dataset on mortality. The probability of aging, i.e. jumping to the next age group is derived from demographic data from the latest Brazilian census. Given that our age groups span 20 years, it is very close to the probability of 5% of a uniform demographic distribution. The efficacy of community support for a job, i.e. how much more likely it is to find a job if the individual gets community support, is calibrated to the reduced form evidence in Table 3 amounting to roughly 8%. We assume that community support also reduces the risk of being laid off by the same amount (of which part could be interpreted as finding a job within the same period).

Table 9: Internally estimated parameters

Parameter	Value	Source	Description
ψ	14.076	Estimated	Labor disutility
V_{heaven}	20.000	Estimated	Value of heaven
$\phi_0^{Catholics}$	0.049	Estimated	Scale for (services) employment
$\phi_0^{Protestants}$	0.031	Estimated	Scale for (services) employment
$\phi_0^{Pentecostals}$	0.026	Estimated	Scale for (services) employment
ϕ_0^{Other}	0.045	Estimated	Scale for (services) employment
$\phi_0^{Non-religious}$	0.080	Estimated	Scale for (services) employment
$\phi_2^{Catholics}$	0.004	Estimated	Scale for (services) afterlife
$\phi_2^{Protestants}$	0.007	Estimated	Scale for (services) afterlife
$\phi_2^{Pentecostals}$	0.007	Estimated	Scale for (services) afterlife
ϕ_2^{Other}	0.007	Estimated	Scale for (services) afterlife
$\phi_2^{Non-religious}$	0.030	Estimated	Scale for (services) afterlife
ζ	0.617	Estimated	Afterlife services technology
ζ_h	0.282	Estimated	Community services technology
θ	0.707	Estimated	Community services technology (elasticity)

Note: The parameters are estimated using the simulated method of moments.

6.2 Internally estimated parameters

Table 9 lists all the model parameters which are internally estimated. Since our aim is to quantify the community support channel and afterlife beliefs in shaping individual decisions, we use a minimum distance procedure that targets a set of data moments related to the unconditional and conditional averages of the various forms of religious investments, as well as the probability of receiving community support.

Using the simulated method of moments (SMM), the parameters are chosen such that the distance between model moments and their empirical counterparts are minimized. The system of moment equations is over-identified with 44 moments to discipline 15 parameters. The fit of the structural model is shown in Table 10 and Figure 2. Given the amount of model moments to match, the overall fit of the model is good though not perfect. It should be pointed out that the model is overestimating the amount of religious investment by the old generation relative to what we observe in the data. This is mainly driven by the fact that the likelihood to die for old individuals is naturally higher than for the rest of the population and hence they invest more in afterlife in our model. Our parsimonious model contains two dimensions of why individuals make religious investment: to insure against employment shocks and to increase the probability of going to heaven. In addition, we are considering the fact old individuals living face the same probability of dying conditional where they live.

Table 10: Model fit

Moment	Data	Model	Moment	Data	Model
Av. don. as share of hh income	0.015	0.010	Av. time inv. in comm. per week	0.026	0.017
Conditional av., Catholics	0.012	0.009	Conditional av., Catholics	0.017	0.017
Conditional av., Pentecostals	0.023	0.014	Conditional av., Pentecostals	0.030	0.023
Conditional av., Protestants	0.022	0.013	Conditional av., Protestants	0.029	0.022
Conditional av., other religion	0.022	0.010	Conditional av., other religion	0.032	0.017
Conditional av., no religion	0.004	0.005	Conditional av., no religion	0.010	0.008
Conditional av., young	0.011	0.006	Conditional av., young	0.025	0.010
Conditional av., middle-aged	0.019	0.014	Conditional av., middle-aged	0.026	0.020
Conditional av., old	0.018	0.041	Conditional av., old	0.032	0.063
Conditional av., low crime	0.015	0.009	Conditional av., low crime	0.024	0.014
Conditional av., high crime	0.015	0.016	Conditional av., high crime	0.027	0.026
Av. praying time per week	0.015	0.012	Av. community support for jobs		
Conditional av., Catholics	0.013	0.011	Conditional av., Catholics	0.164	0.173
Conditional av., Pentecostals	0.018	0.013	Conditional av., Pentecostals	0.320	0.383
Conditional av., Protestants	0.018	0.012	Conditional av., Protestants	0.353	0.327
Conditional av., other religion	0.013	0.013	Conditional av., other religion	0.250	0.198
Conditional av., no religion	0.011	0.011	Conditional av., no religion	0.050	0.058
Conditional av., young	0.013	0.009	Conditional av., young	0.272	0.165
Conditional av., middle-aged	0.017	0.013	Conditional av., middle-aged	0.258	0.293
Conditional av., old	0.019	0.025	Conditional av., old	0.260	0.571
Conditional av., low crime	0.014	0.010	Conditional av., low crime	0.184	0.215
Conditional av., high crime	0.017	0.014	Conditional av., high crime	0.353	0.358
Average working fraction	0.367	0.517			

Note: Time as percentage of active time per week, with 16 hours of active time per day.

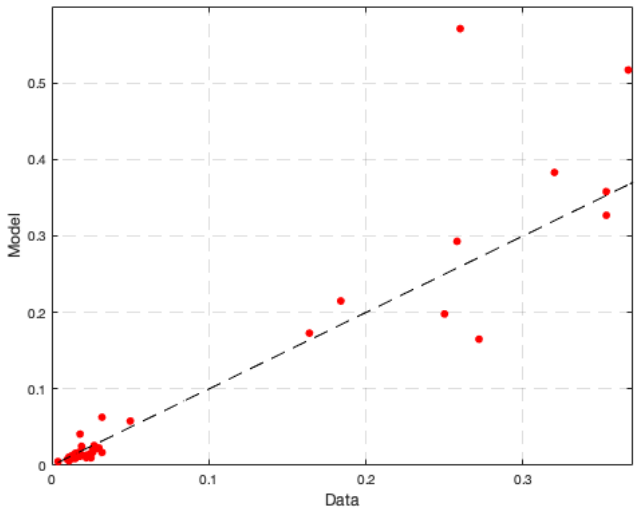
7 Structural model predictions

With all parameters calibrated and estimated we can now explore how religion affects individual decisions. More specifically, this section analyses different counterfactual scenarios and aims to quantify the extent to which religious beliefs affect economic behavior and outcomes.

7.1 Community support is a by-product of coordinated beliefs in afterlife

The two main incentives for religious investment in the model are returns in the form of community support and increasing the afterlife probability of enjoying the utility from afterlife. Table 11 compares the average level of religious investments for the entire sample to counterfactuals when shutting down specific channels. The first column documents the average

Figure 2: Data and model moments



Source: The figure contains a scatter plot of all data moments (x-axis) displayed in Table 10 and moments of our benchmark economy (y-axis), which are also displayed in Table 10. The dashed line represents the 45-degree line.

religious investments for the benchmark calibrated model. The second column considers the scenario in which there is no informal job insurance through religious communities. In this case, donations and time invested in the community go to zero, while people keep praying in the hope of afterlife.[7]

The third column documents the choices of religious investments in the case there is no belief in afterlife, or if the value of heaven is equal to zero. When setting the value of afterlife to zero, people not only stop praying – which is expected since this is the only motive of why individuals pray in our model – but also there doesn't seem to remain enough incentive for individuals to invest into community support. Our counterfactual results therefore suggest that there is a complementarity between afterlife belief and in-kind religious benefits which determines the incentives for individuals to engage in community activities.

In order to further investigate whether or not this is the case, we compute optimal religious investments for different values of heaven and for various degrees of efficacy of community support. Figure 3 plots the sensitivity of the various religious investments with respect to the value of heaven – Figure 3a) – and the efficacy of community support in

[7]Observe that theoretically shutting down the religious insurance channel for the labor market does not necessarily lead to a zero investment in donations and time since they also affect the probability of going to heaven. But in our estimated model, that would be the case.

Table 11: Counterfactual religious investments

	Benchmark	No community support	No afterlife	No community support, no afterlife
Donations	0.012	0	0	0
Time invested	0.020	0	0	0
Time praying	0.014	0.014	0	0

Note: Time is denoted as a percentage of active time per week, with 16 hours of active time per day. Donations are denoted as a percentage of mean income.

finding a job in case we shut down the afterlife channel – Figure 3b). All other parameters are kept at their baseline values. There exists an extremely high cutoff value for the efficacy of community support ρ_{cs} below which individuals do not invest at all if there is no additional incentive from beliefs in afterlife. The reduced form evidence from our survey suggests an efficacy of community support below this level. Therefore, the calibrated model indicates that informal insurance via support by religious communities is nested in coordinated beliefs of the communities. Or to put it differently, the expected returns of investing into community support are too little for individuals who do not believe in some greater value of afterlife.

Figure 3a) suggests that the three forms of investment in religion are increasing with the expected value of afterlife. Notice that the time investment in community services increases faster with the value of heaven than pray time and donations.

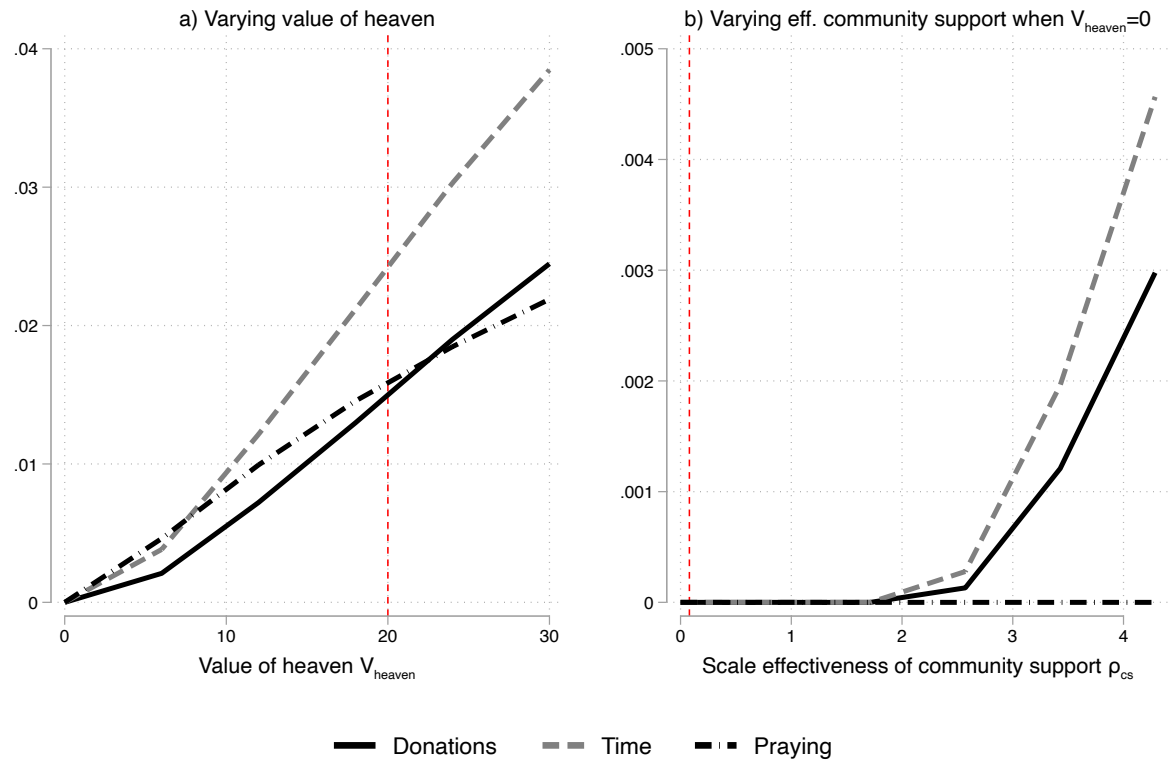
7.2 How are households affected across the distribution

Next we look at how consumption and its variability are affected for different households using different counterfactuals. In order to do so, we simulate the lifecycles of more than 20,000 individuals using the benchmark parameters, and under counterfactual scenarios under which we shut down different channels of religion. We then compute average log consumption and the standard deviation of log consumption for each household.

In Figure 4a) we present binned scatter plots of household level mean consumption in the benchmark (x-axis) versus the counterfactual with no community service on the y-axis. The dashed line represents the 45-degree line. We see that consumption levels are quite similar but are slightly higher in the counterfactual for households that rank towards the bottom and middle of the consumption distribution. This is because without community service, households invest less in religion, therefore freeing up time and money to consume directly.

So why do households invest in religion in the benchmark if it reduces their mean con-

Figure 3: Sensitivity of mean level of religious investments to changes in the value of heaven and the effectiveness of community support

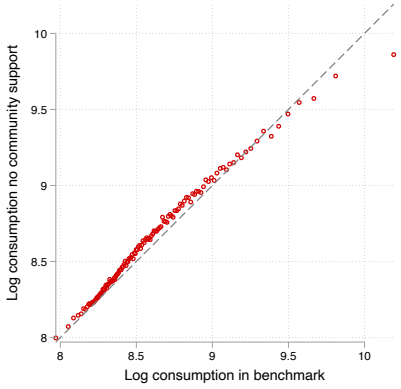


Note: The figure shows the sensitivity of religious investments to changes in the value of heaven V_{heaven} (left) and the effectiveness of community support ρ_{cs} (right) depending. In the panel on the right side the value of afterlife V_{heaven} is set to zero. The vertical red dashed line indicates the parameter value from the calibration. The black solid line indicates the average level of donations d, the grey dashed line the average level of time invested into the community t, and the black dashed-dotted line the average time prayed p.

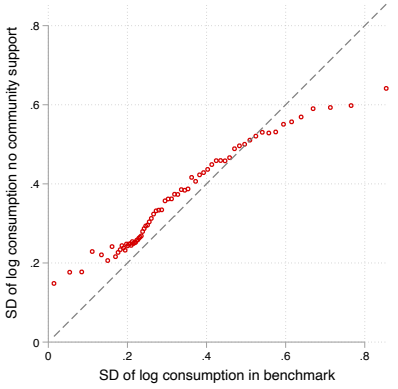
sumption levels? The answer to this question lies in Figure 4b), which plots the standard deviation of log consumption in the benchmark on the x-axis versus the same under no community support on the y-axis. We see that households that enjoy very little variation in consumption in the benchmark suffer from higher variability once community service is shut down. This point is further strengthened in Figure 4c) where the x-axis plots mean log consumption against the standard deviation within the household across the lifecycle. The red dots represent the benchmark, while the blue dots depict the situation without community support. In particular at the bottom of the consumption distribution households in the counterfactual economy have higher variation in their consumption over the lifecycle.

Figure 4: Benchmark consumption vs counterfactual with no community service

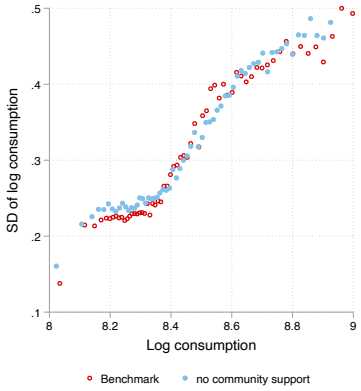
a) Consumption



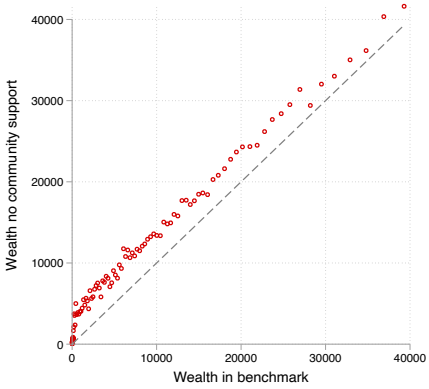
b) Standard deviation of consumption



c) Mean vs SD of consumption



d) Wealth



Note: Each panel contains a binned scatter plot of moments of household level moments computed using simulated longitudinal data. In panels a)-c) x-axis plots log consumption or the standard deviation (SD) of log consumption in the benchmark, while the y-axis plots these under the counterfactual simulation of no community service. Panel d) plots wealth in the benchmark against wealth under the counterfactual of no community support. The dashed line represents the 45-degree line.

The insurance effect of community support crowds out private insurance through savings. In Figure 4d) we show mean wealth levels in the benchmark plotted against the same under no community support. Across the wealth distribution household hold greater levels of wealth when they cannot rely on community support.

7.3 Heterogeneity across religious communities

By shutting down the community support channel we can quantify the degree to which community support affects labour market outcomes for different religious denominations. Table 12 documents the transition probabilities for employed and unemployed individuals for different scenarios and religion denominations. Comparing the second and the first columns for the entire sample, we observe that relative to the the benchmark without community support the average probability of staying employed is two percentage points lower and the probability to find a job decreases by three percentage points. The magnitude of the effect is determined by the efficacy of community support. Recall that the estimated change in the likelihood of finding job is only 8% higher when receiving community support compared to no support. Furthermore, the degree of economic insurance varies with religious investments and the probability of receiving community support. For instance, the community support channel appears to be slightly stronger in Pentecostal communities than in Catholic communities. Without community support, the unemployment rate would on average increase by more than 3 percentage points for Pentecostal individuals. Among the non-religious individuals the unemployment rate would increase by less than one percentage point without community support.

7.4 Welfare analysis

In this section we provide the welfare analysis, and investigate the effect of community support and belief in afterlife in agents' investment in their religious activities and the consequent impact on welfare. In our analysis, we shut down each channel (community support and afterlife) first separately, and then together, and compare the respective aggregate outcomes to our baseline case. Detailed calculations are discussed in the Appendix. The idea is that we compute ω, which is the consumption variation and it can be interpreted as the percentage of consumption lost during life without the respective religion channel. So, how much in percentage of consumption the individual would need to give up in order to have the same utility when some religion services are not in place (community support or expectation about afterlife).

Table 12: Counterfactual employment transition probabilities when shutting down religious channels

	Benchmark	No community support	No afterlife	No community support, no afterlife
Entire sample				
Probability to stay employed	0.83	0.81	0.81	0.81
Probability to find job	0.75	0.72	0.72	0.72
Unemployment rate (%)	18.48	20.88	20.88	20.88
Catholics				
Probability to stay employed	0.83	0.81	0.81	0.81
Probability to find job	0.74	0.72	0.72	0.72
Unemployment rate (%)	18.68	20.88	20.88	20.88
Pentecostals				
Probability to stay employed	0.84	0.81	0.81	0.81
Probability to find job	0.75	0.72	0.72	0.72
Unemployment rate (%)	17.58	20.88	20.88	20.88
Non-religious				
Probability to stay employed	0.82	0.81	0.81	0.81
Probability to find job	0.73	0.73	0.73	0.73
Unemployment rate (%)	19.78	20.65	20.65	20.65

Note: The table shows the impact of shutting down different channels in the model on the unemployment rate, and the probability to stay employed and to find a job. The rows indicate for which subsample the numbers apply where the first rows apply to the entire sample.

Table 13: Welfare analysis of shutting down religious channels

		By religion			By age		
Shutting down	All	Cath.	Pent.	None	Old	Middle	Young
Community support	-0.051	-0.042	-0.079	-0.019	-0.162	-0.063	-0.031
Afterlife	-0.096	-0.102	-0.127	-0.043	-0.264	-0.127	-0.072
Both	-0.096	-0.102	-0.127	-0.043	-0.264	-0.127	-0.072

Note: The table shows the impact of shutting down different channels in the model on the consumption equivalent variation ω as defined in Appendix B.3. The columns indicate for which subsample the numbers apply where the first column applies to the entire sample.

We calculate ω for all agents belonging to different age, education, religion, and employment status groups and use the underlying distribution of agents across all states to calculate the average welfare in percentage of consumption of the entire economy.

The values in the first column of Table 13 suggest that shutting community support reduces the average lifetime value by 5.1% in consumption per year. Shutting down the afterlife channel leaves an even larger welfare loss of 9.6% in consumption. Therefore, for our surveyed population in Rio de Janeiro, religious services and beliefs correspond to about 9.6% of consumption every year.

In the following columns of Table 13 we see that the aggregate welfare analysis masks a considerable amount of heterogeneity. The overall loss in consumption equivalent welfare when shutting down both channels is highest for Pentecostals (-12.7%) and for old individuals (-26.4%).

The fact that shutting down both channels delivers the same result as only shutting the afterlife channel highlights the complementarity between afterlife beliefs and community support. It suggests that in the absence of afterlife beliefs, community support alone does not lead to welfare-improving investments in religious activities because the returns on community investments are not high enough to warrant any investments.

8 Conclusion

In this paper we provide new evidence on the link between religiosity and economic outcomes. We collect primary data in the city of Rio de Janeiro, a community of high religiosity and religious diversity, on individuals' characteristics, their religiosity and perceptions about income shocks, afterlife and how religious institutions interact with individuals. We show the link between afterlife beliefs and community support by religions.

We document that people who invest more in monetary donations and time in their religious community expect more support from the community in finding a job and insuring against income shocks. This underlines the role of religious communities as a form of informal insurance.

Community support can take various forms from psychological help, shelter, or job support. We focus on the latter channel and construct a structural model to estimate the importance of this channel on individuals' economic behaviour and job market outcomes. We find that community support can have non-negligible impact on the employment transition probabilities and that such impact is heterogeneous across different religious denominations. However, this insurance motive seems to be strongly coupled with religious beliefs. Particularly, when shutting down any beliefs in the afterlife in the model, the community support channel vanishes. The community support and afterlife channel together provide an average value worth 9.6% percent of the value of consumption each year, and such a welfare measure is highest for the Pentecostals (-12.7%) and for older individuals (-26.4%). Therefore, our findings suggest that community support may be a key by-product of communities' deeply rooted religious beliefs.

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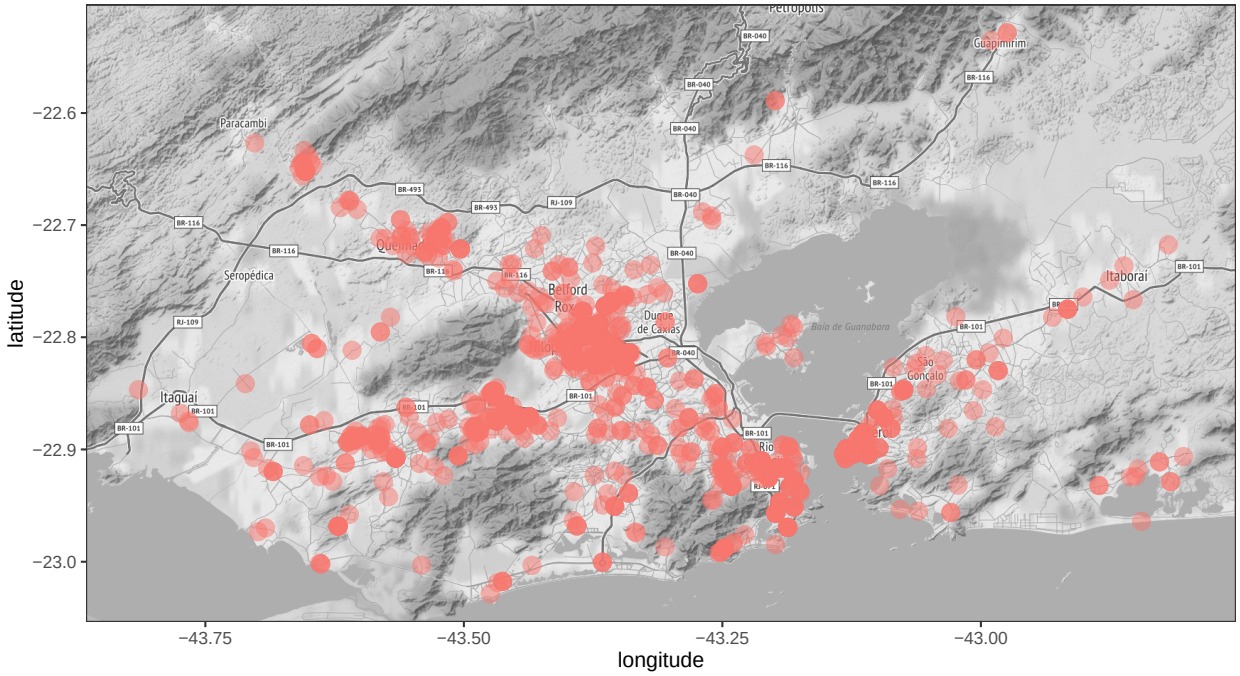
A Additional material

Figure 5: Geo-location of interviewees in the metropolitan area of Rio de Janeiro



B Model: First-order conditions

B.1 Proposition 1 - proof:

Recall the problem of the young individual (the problem of the middle-aged individual and old individual are similar) with assets a, labor productivity $z\epsilon\rho$, and religion r is to solve:

$$V^y(a,z,\rho,r) = \max_{c,a',d,l,p,t} u(c,l) + \beta\delta^y_{cr}E_{z'}[(1-\gamma^m)V^y(a',z',\rho,r) + \gamma^m V^m(a',z',\rho,r)] \\ +\beta(1-\delta^y_{cr})\pi_{after,r}V_{heaven},$$

subject to

$$c + a' + d = (1+i)a + z\epsilon^y\rho(1-l-p-t).$$

Let's $CV^y(a',z',\rho,r)$ denote the term in brackets (continuation value for the young indi-

vidual), then:

$$V^y(a,z,\rho,r) = \max_{c,a',d,l,p,t} u(c,l) + \beta\delta^y_{cr} E_{z'}[CV^y(a',z',\rho,r)] + \beta(1-\delta^y_{cr})\pi_{after,r}V_{heaven}.$$

For a young individual who is employed:

$$\begin{aligned} V^y(a,z=e,\rho,r) = \max_{c,a',d,l,p,t} u(c,l) + \beta\delta^y_{cr}[(\pi_1(x)+\phi_r(s_r)\rho_{cs})CV^y(a',z'=e,\rho,r) \\ +(1-\pi_1(x)-\phi_r(s_r))CV^y(a',z'=u,\rho,r)] \\ +\beta(1-\delta^y_{cr})\pi_{after,r}V_{heaven}. \end{aligned}$$

And for a young individual who is unemployed:

$$\begin{aligned} V^y(a,z=u,\rho,r) = \max_{c,a',d,l,p,t} u(c,l) + \beta\delta^y_{cr}[(1-(\pi_0(x)-(\rho_{cs}\phi_r(s_r))))CV^y(a',z'=u,\rho,r) \\ +(\pi_0(x)-\rho_{cs}\phi_r(s_r))CV^y(a',z'=e,\rho,r)] \\ +\beta(1-\delta^y_{cr})\pi_{after,r}V_{heaven}. \end{aligned}$$

Recall that:

$$\frac{\partial\phi_r}{\partial d} = \frac{\partial\phi_r}{\partial s_r}\frac{\partial s_r}{\partial d}; \quad \text{and} \quad \frac{\partial\pi_{after}}{\partial d} = \frac{\partial\pi_{after}}{\partial s_r}\frac{\partial s_r}{\partial d}.$$

Similarly for t:

$$\frac{\partial\phi_r}{\partial t} = \frac{\partial\phi_r}{\partial s_r}\frac{\partial s_r}{\partial t}; \quad \text{and} \quad \frac{\partial\pi_{after}}{\partial t} = \frac{\partial\pi_{after}}{\partial s_r}\frac{\partial s_r}{\partial t}.$$

We can set up the Lagrangian for the unemployed case:

$$\mathcal{L} = u(c,l)+$$

$$\beta\delta^y_{cr}[(1-(\pi_0(x)-(\rho_{cs}\phi_r(s_r))))CV^y(a',z'=u,\rho,r)+$$

$$(\pi_0(x)-\rho_{cs}\phi_r(s_r))CV^y(a',z'=e,\rho,r)]+$$

$$\beta(1-\delta^y_{cr})\pi_{after,r}V_{heaven} + \lambda[(1+i)a + ze^y\rho(1-l-p-t) - (c+a'+d)].$$

Then, taking first-order conditions, we have:

$$\begin{aligned}
\frac{\partial \mathcal{L}}{\partial c} &= u_c(c,l) - \lambda = 0, \\
\frac{\partial \mathcal{L}}{\partial l} &= u_l(c,l) - \lambda z e^y \rho = 0, \\
\frac{\partial \mathcal{L}}{\partial d} &= \beta \delta_{cr}^y \rho_{cs} [CV^y(a', z' = u, \rho, r) - CV^y(a', z' = e, \rho, r)] \frac{\partial \phi_r(s_r)}{\partial s_r} \frac{\partial s_r}{\partial d} \\
&\quad \beta(1 - \delta_{cr}^y) \frac{\partial \pi_{after,r}}{\partial s_r} \frac{\partial s_r}{\partial d} V_{heaven} - \lambda = 0, \\
\frac{\partial \mathcal{L}}{\partial t} &= \beta \delta_{cr}^y \rho_{cs} [CV^y(a', z' = u, \rho, r) - CV^y(a', z' = e, \rho, r)] \frac{\partial \phi_r(s_r)}{\partial s_r} \frac{\partial s_r}{\partial t} \\
&\quad \beta(1 - \delta_{cr}^y) \frac{\partial \pi_{after,r}}{\partial s_r} \frac{\partial s_r}{\partial t} V_{heaven} - \lambda z e^y \rho = 0, \\
\frac{\partial \mathcal{L}}{\partial p} &= \beta(1 - \delta_{cr}^y) \frac{\partial \pi_{after,r}}{\partial p} V_{heaven} - \lambda z e^y \rho = 0.
\end{aligned}$$

If we combine the first-order condition with respect to d and with respect to t, then we have an intratemporal trade-off between donation and voluntary time:

$$\frac{\frac{\partial s_r}{\partial d}}{\frac{\partial s_r}{\partial t}} = \frac{1}{z e^y \rho}.$$

Given the definition for aggregator s_r, we can show that the **donation-time trade-off:**

$$d = \left(\frac{1 - \zeta}{\zeta z e^y \rho} \right)^{1/(\theta - 1)} t.$$

B.2 Proposition 2 - proof:

Next to show the trade-off between leisure and pray we combine the first-order conditions with respect to leisure l and pray p:

$$\frac{u_l(c,l)}{\frac{\partial \pi_{after,r}}{\partial p}} = \beta(1 - \delta_{cr}^y) V_{heaven}.$$

In addition, we have that:

$$\frac{\partial \mathcal{L}}{\partial p} = \beta(1 - \delta_{cr}^y) \frac{\partial \pi_{after,r}}{\partial p} V_{heaven} - \lambda z e^y \rho = 0,$$

and

$$\frac{\partial \pi_{after,r}}{\partial p} = \zeta_h \frac{\phi_1}{(\phi_1 + p)^2}.$$

Therefore,

$$\frac{\pi_{after}}{\partial p} = \frac{\lambda z e^y \rho}{\beta(1 - \delta_{cr}^y) V_{heaven}}.$$

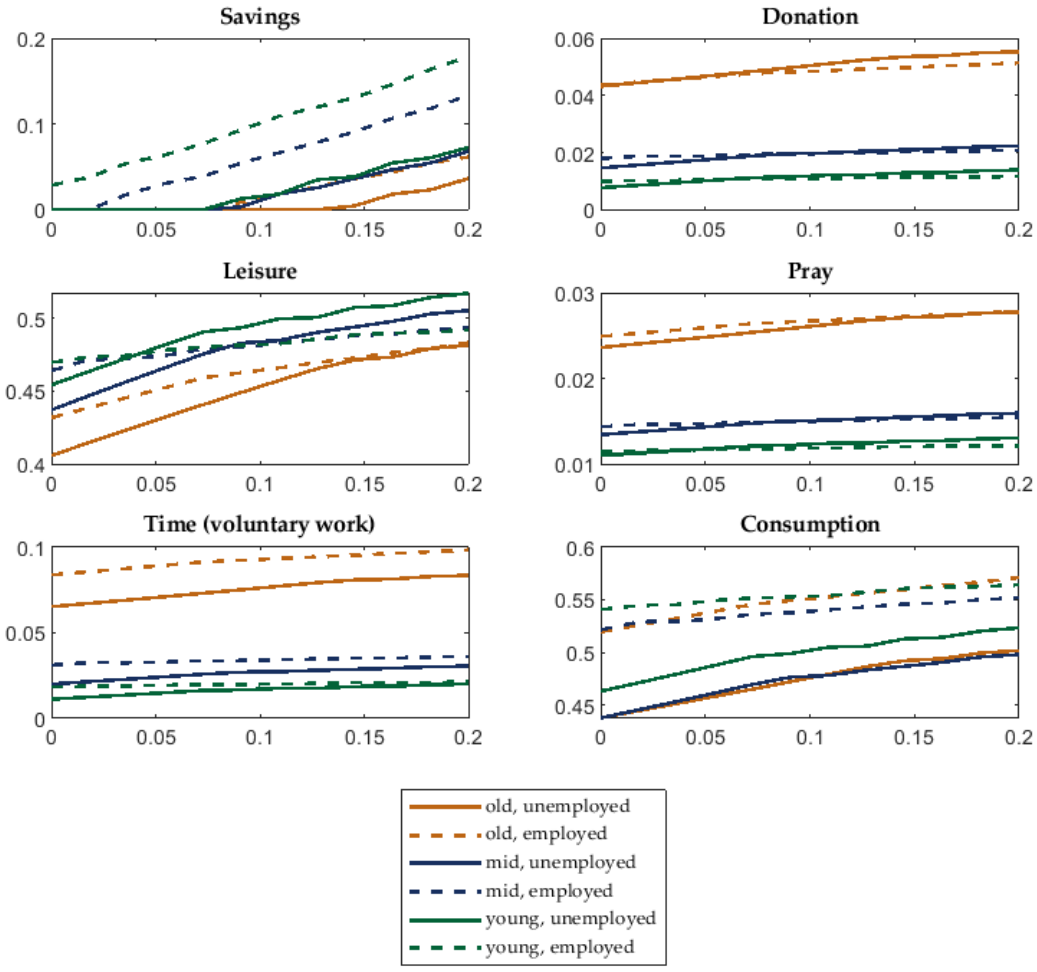
$$p = \sqrt{\frac{\zeta_h \phi_1 \beta (1 - \delta_{cr}^y) V_{heaven}}{\lambda z e^y \rho}} - \phi_1 \geq 0$$

With the non-negativity condition for p, we get the following boundary condition for V_{heaven} so people pray a positive amount of time:

$$V_{heaven} > \frac{\lambda z e^y \rho \phi_2}{\beta(1 - \delta_{cr}^y)\zeta_h}$$

Hence, V_{heaven} has to be larger than the discounted, weight-adjusted intra-temporal marginal cost of praying.

Figure 6: Policy functions for simulated model: Catholic, low educated, low crime



B.3 Compensating variation

In order to compute ω, the measure for the value of lifetime value lost, we need to consider first the old agent. We will solve this recursively. The value function for the old agent is:

$$V^o(a,z,\rho,r) = \max_{c,a',d,l,p,t} u(c,l) + \beta\delta^o_{cr}E_{z'}[V^o(a',z',\rho,r)] + \beta(1-\delta^o_{cr})\pi^o_{after,r}V_{heaven}.$$

This will have two components: a component which depends on consumption and leisure only and another component which depends on the afterlife. This is similar as we could write our utility in the following way:

$$U = E_0 \left(\sum_{t=0}^{\infty} (\beta \delta_{cr}^o)^t u(c_t, l_t) + \sum_{t=0}^{\infty} (\beta(1-\delta_{cr}^o))^{t+1} \pi_{after,r,t+1}^o V_{heaven} \right)$$

For the baseline, we could write:

$$V_b^o(a, z, \rho, r) = V_b^{o,life} + V_b^{o,afterlife}.$$

Notice that

$$V_b^{o,afterlife} = \beta(1-\delta_{cr}^o)\pi_{after,r} V_{heaven} +$$

$$\beta \delta_{cr}^o E_{z'}[\beta(1-\delta_{cr}^o)\pi_{after,r} V_{heaven} + \beta \delta_{cr}^o E_{z''}[\beta(1-\delta_{cr}^o)\pi_{after,r} V_{heaven}] + ...]$$

Let's assume that the expected value for $\pi_{after,r}^o$ is the same as the actual value of $\pi_{after,r}^o$ - notice that they depend on state variables since policy functions depend on state variables, then this series converges to:

$$V_b^{o,afterlife} = \frac{\beta(1-\delta_{cr}^o)\pi_{after,r}^o V_{heaven}}{1-\beta\delta_{cr}^o}.$$

If the agent receives $(1+\omega)$ in consumption permanently this will affect only the component which depends on consumption and leisure or $V_b^{o,life}$ and the compensating variation could be calculated from

$$(1+\omega)^{1-\sigma} V_b^{o,life} + V_b^{o,afterlife} = V_a^o(a, z, \rho, r),$$

and

$$(1+\omega)^{1-\sigma}(V_b^o(a, z, \rho, r) - V_b^{afterlife}) + V_b^{afterlife} = V_a^o(a, z, \rho, r).$$

Therefore,

$$(1+\omega) = \left(\frac{V_a^o(a, z, \rho, r) - V_b^{afterlife}}{V_b^o(a, z, \rho, r) - V_b^{afterlife}} \right)^{\frac{1}{1-\sigma}},$$

where

$$V_b^{o,afterlife} = \frac{\beta(1-\delta_{cr}^o)\pi_{after,r}^o V_{heaven}}{1-\beta\delta_{cr}^o}.$$

Now, for middle age agents, we have that

$$V^m(a,z,\rho,r) = \max_{c,a',d,l,p,t} u(c,l) + \beta\delta^m_{cr}E_{z'}[(1-\gamma^o)V^m(a',z',\rho,r) + \gamma^o V^o(a',z',\rho,r)] \\ +\beta(1-\delta^m_{cr})\pi_{after,r}V_{heaven},$$

Again you can split this value function into two components:

$$V^m(a,z,\rho,r) = V^{m,life} + V^{m,afterlife}.$$

We could write:

$$V^{m,afterlife} = \beta(1-\delta^m_{cr})\pi^m_{after,r}V_{heaven}+$$

$$\beta\delta^m_{cr}E_{z'}[(1-\gamma^o)\beta(1-\delta^m_{cr})\pi^m_{after,r}V_{heaven} + \gamma^o V^{o,afterlife} + ...$$

$$\beta\delta^m_{cr}(1-\gamma^o)E_{z'}[(1-\gamma^o)\beta(1-\delta^m_{cr})\pi^m_{after,r}V_{heaven} + \gamma^o V^{o,afterlife}] + ...].$$

Collecting terms and assuming that expected value of $\pi^m_{after,r}$ is the same as the actual $\pi^m_{after,r}$, then

$$V^{m,afterlife} = \frac{\beta(1-\delta^m_{cr})\pi^m_{after,r}V_{heaven}}{1-\beta\delta^m_{cr}(1-\gamma^o)} + \frac{\beta\delta^m_{cr}\gamma^o V^{o,afterlife}}{1-\beta\delta^m_{cr}(1-\gamma^o)},$$

and recall that

$$V^{o,afterlife}_b = \frac{\beta(1-\delta^o_{cr})\pi^o_{after,r}V_{heaven}}{1-\beta\delta^o_{cr}}.$$

But observe $\pi^o_{after,r}$ is not necessarily the same as $\pi^m_{after,r}$. Given that, a permanent consumption would imply that

$$(1+\omega)^{1-\sigma}V^{m,life}_b + V^{m,afterlife}_b = V^m_a(a,z,\rho,r),$$

and

$$(1+\omega)^{1-\sigma}(V^m_b(a,z,\rho,r) - V^{m,afterlife}_b) + V^{m,afterlife}_b = V^m_a(a,z,\rho,r).$$

Therefore,

$$(1+\omega) = \left(\frac{V^m_a(a,z,\rho,r) - V^{m,afterlife}_b}{V^m_b(a,z,\rho,r) - V^{m,afterlife}_b}\right)^{\frac{1}{1-\sigma}},$$

and

$$V^{m,afterlife} = \frac{\beta(1-\delta^m_{cr})\pi^m_{after,r}V_{heaven}}{1-\beta\delta^m_{cr}(1-\gamma^o)} + \frac{\beta\delta^m_{cr}\gamma^o}{1-\beta\delta^m_{cr}(1-\gamma^o)}\frac{\beta(1-\delta^o_{cr})\pi^o_{after,r}V_{heaven}}{1-\beta\delta^o_{cr}}.$$

The welfare calculation for young agents is similar. Recall the value function for the young agent

$$V^y(a,z,\rho,r) = \max_{c,a',d,l,p,t} u(c,l) + \beta\delta^y_{cr} E_{z'}[(1-\gamma^m)V^y(a',z',\rho,r) + \gamma^m V^m(a',z',\rho,r)] \\ +\beta(1-\delta^y_{cr})\pi_{after,r}V_{heaven},$$

Then, it can be show that

$$V^{y,afterlife} = \frac{\beta(1-\delta^y_{cr})\pi^y_{after,r}V_{heaven}}{1-\beta\delta^y_{cr}(1-\gamma^m)} + \frac{\beta\delta^m_{cr}\gamma^m V^{m,afterlife}}{1-\beta\delta^m_{cr}(1-\gamma^m)},$$

where

$$V^{m,afterlife} = \frac{\beta(1-\delta^m_{cr})\pi^m_{after,r}V_{heaven}}{1-\beta\delta^m_{cr}(1-\gamma^o)} + \frac{\beta\delta^m_{cr}\gamma^o}{1-\beta\delta^m_{cr}(1-\gamma^o)}\frac{\beta(1-\delta^o_{cr})\pi^o_{after,r}V_{heaven}}{1-\beta\delta^o_{cr}}.$$

Compensating variation would be given by:

$$(1+\omega) = \left(\frac{V^y_a(a,z,\rho,r) - V^{y,afterlife}_b}{V^y_b(a,z,\rho,r) - V^{y,afterlife}_b}\right)^{\frac{1}{1-\sigma}}.$$

C Numerical algorithm

This section describes the algorithm used to solve and estimate the model. There are 15 parameters to be internally calibrated as discussed in table 9. To solve the problem of the household we use value function iteration method and the state variables are asset level, employment status religion, education, and crime level. Assets are defined over 12 grid points resembling the monthly income bins of the survey. The lower and upper bound of the asset grid adjusts endogenously to generate a more precise distribution over the assets. Employment status changes according to the transition matrix provided in the model section. Given the survey results, we group individuals into 5 main religion groups: Catholics, Protestants, Pentecostals, other religions and non-religious. There are 3 levels of education indication primary school, secondary school or higher education and crime level can be high or low. As it is an overlapping generations model agents are either young, middle-aged or old.

We solve the problem of the households using value function iteration. The resulting policy functions are savings, leisure, donation, voluntary time, pray and consumption. Once we derive the policy functions of each agent, we simulate an economy of 1000 individuals to ensure the aggregate savings rate in the economy is stable over time and we burn in the initial

20 time periods and calculate the aggregate saving rate and distribution using the remaining data points. The initial draw for education, age, religion, crime rate and employment is according to the observed distribution of the survey data. Employment status then changes with probabilities given by the employment transition matrix and individuals age from young to middle aged and middle aged to old with probabilities γ^m and γ^o respectively. If an individual dies a new person is born with similar education, age and religion level. Once the aggregate saving rate becomes stable, we save the asset distribution resulting from the simulations[8]. Once at a stable state, we calculate 44 moments that are targeted to match their respective counterparts in the data. The parameters of the model then change and adjust to provide the best fit to the data.

[8]Note that it is not necessary to track the distribution over the other state variables as they remain unchanged from the initial distribution observed in the survey data

Online Material

Survey

- What is your household's current monthly income?
    1. Less than R$ 500
    2. R$ 500 - R$ 1.000
    3. R$ 1.000 - R$ 1.500
    4. R$ 1.500 - R$ 2.000
    5. R$ 2.000 - R$ 2.500
    6. R$ 2.500 - R$ 3.000
    7. R$ 3.000 - R$ 3.500
    8. R$ 3.500 - R$ 4.000
    9. R$ 4.000 - R$ 4.500
    10. R$ 4.500 - R$ 5.000
    11. R$ 5.000 - R$ 6.000
    12. R$ 6.000 or more
- What is the highest degree or level of school you have completed?
    1. Literacy class
    2. Literacy for youth and adults
    3. Primary school
    4. Secondary school
    5. Higher Education
    6. Higher level specialization, masters or doctorate
- Do you have any work, now?
    1. no.
    2. yes.
- How many hours do you work per week?

- ___ hours. (Fill in with 99 for not responding)

- How likely do you think it is that you will lose your job within the next year? [0 is very unlikely and 100 is very likely]
  - ___ (0-100). (Fill in with 999 for not responding)

- How likely do you think you are going to find a job within the next year? [0 means very unlikely and 100 means very likely]
  - ___(0-100). (Fill in with 999 for not responding, with 800 for not looking for a job)

- How would you describe yourself?

1. Very religious
2. Religious
3. Slightly religious
4. Non-religious

2. Do you belong to a religion or religious denomination? If yes, please tick all that apply.

1. No, I do not belong to a denomination
2. Yes, please check the options below.
   (a) Roman Catholic
   (b) Pentecostal
   (c) Protestant
   (d) Orthodox
   (e) Jewish
   (f) Muslim
   (g) Umbanda
   (h) Candomblé (African origin)
   (i) Spiritism
   (j) Hindu
   (k) Buddhist

(l) Other

- Do you financially support any of the above organizations? If so, approximately how much do you donate per year?

  1. Nothing
  2. ¡100 Reais
  3. 100-500 Reais
  4. 500-2000 Reais
  5. >2000 Reais

- Apart from financial support, do you do voluntary work for any of the above organizations? If so, how many hours per month do you usually allocate to voluntary work?

  1. 0h
  2. <5h
  3. 5-10h
  4. 10-20h
  5. >20h

- Apart from weddings and funerals, about how often do you attend religious services these days?

  1. More than once a week
  2. Once a week
  3. Once a month
  4. Only on special holidays
  5. Once a year
  6. Less often
  7. Never, practically never

- How likely do you think it is that life after death exists? [0 means very unlikely and 100 means very likely]

- In an average week, how much time do you usually spend on religious activities:

    1. 0h
    2. <1h
    3. 1-3h
    4. 3-5h
    5. >5h

- With respect to religious activities how much time do you spend for the following activities in an average week?

    1. Church service
        (a) 0h
        (b) <1h
        (c) 1-3h
        (d) 3-5h
        (e) >5h
    2. Praying at home
        (a) 0h
        (b) <1h
        (c) 1-3h
        (d) 3-5h
        (e) >5h
    3. Religious festivities
        (a) 0h
        (b) <1h
        (c) 1-3h
        (d) 3-5h
        (e) >5h

- Does your religious community help you with finding a job for you or members of your family?

- Imagine a person named João is living in your neighborhood. Imagine João donated 500 reais to the local church last year. How likely is he going to get community support to help him find a job? [0 means very unlikely and 100 means very likely]
- Now imagine a person named Pedro who is also living in your neighborhood. Imagine Pedro donated 100 reais to the local church last year. How likely is he going to get community support to help him find a job? [0 means very unlikely and 100 means very likely] (0-100)
- Now imagine a person named Antonio. Antonio doesn't donate any money to the local church but instead spends 5 hours every week supporting the church. How likely is he going to get community support to help him find a job? [0 means very unlikely and 100 means very likely]
- Now imagine a person named José. José also doesn't donate any money to the local church but instead spends 1 hour every week supporting the church. How likely is he going to get community support to help him find a job? [0 means very unlikely and 100 means very likely]
- What is your date of birth?
- What is your age?
- What is your gender?
    1. Female
    2. Male