UNIVERSIDADE FEDERAL DO RIO DE JANEIRO
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Income Shocks and Pentecostal Upsurge in Brazil (1991-2000)

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Dissertação de Mestrado apresentada ao Programa de Pós-Graduação em Economia da Indústria e Tecnologia, Instituto de Economia, Universidade Federal do Rio de Janeiro, como requisito parcial à obtenção do título de Mestre em Economia

Orientador: Professor Rudi Rocha de Castro

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Antes, foram criadas apenas coisas eternas; eu, eternamente existo. Renuncia às esperanças, vós que entrais.

—Dante, *A Divina Comédia*

All religion, however, is nothing but the fantastic reflection of men's minds of those external forces which control their daily lives.

—Fink and Stark, *Handbook of the Sociology of Religion*

Income Shocks and Pentecostal Upsurge in Brazil (1991-2000)

Angelo Marcantonio Junior

Resumo

Esse trabalho estima os efeitos de deteriorações nos mercados de trabalho locais sobre o crescimento Pentecostal no Brasil, no período de 1991 a 2000. Observamos como o empobrecimento na forma de perdas de rendimentos esperados afeta a filiação Pentecostal nesses mercados de trabalho. Para lidar com a endogeneidade na relação entre rendimentos locais e filiação Pentecostal, exploramos a abertura comercial realizada no Brasil na década de 1990, usando reduções de tarifas como instrumentos para variações nos rendimentos. Encontramos que reduções de 10% nos rendimentos esperados levaram a aumentos de 1.5%, em média, no percentual de indivíduos Pentecostais nas microrregiões brasileiras. Aumentos no percentual de Pentecostais foram acompanhados por reduções no percentual de Católicos. Não encontramos qualquer evidência que corrobore a hipótese padrão da teoria da secularização – mudanças nos rendimentos esperados não tiveram quaisquer impactos sobre o percentual de indivíduos religiosos na população como um todo. Palavras-chave: Pentecostalismo, filiação religiosa, mercados de trabalho locais

Palavras-chave: Pentecostalismo, filiação religiosa, mercado de trabalho.

Abstract

This work estimates the effect of downturns in local labor markets on Pentecostal growth in Brazil, in the period from 1991 to 2000. We observe how impoverishment in the form of expected earnings losses affects Pentecostal affiliation in local labor markets. In order to handle endogeneity in the relationship between local earnings and Pentecostal affiliation, we explore 1990's trade liberalization in Brazil, using tariff reductions as an instrument for earnings changes. We find that a 10 percentage decrease in expected earnings led approximately to 1.5 percent increase, on average, in the share of Pentecostal individuals in Brazilian micro-regions. Increasing Pentecostal share was accompanied by a decreasing Catholic share. We find no evidence corroborating the standard secularization hypothesis - changes in expected earnings had no impact on the share of religious population in general.

Key Words: Pentecostalism, religious affiliation, labor market conditions.
JEL Codes: Z127, J31, F16.

Contents

1 Introduction

The debate over how income, as a facet of modernization, affects religiosity has been generally framed by the theory of secularization, which explains religion as an elaborate reflection of more basic realities and a painkiller for frustration, deprivation and suffering (Fink and Stark (2003)). The advocates of this thesis have ranked secularization together with urbanization, rationalization and bureaucratization as key historical factors that transformed agrarian societies (Inglehart and Norris (2004)). As one of the key components of modernity, secularization raised expectations that religions would fade away in increasingly urbanized and industrialized societies. Development would therefore necessarily lead to the "modern secular democratic state", a common endpoint to different societies. Empirical observation, however, has identified numerous exceptions to the secularization story in context-specific situations and in complex historical processes. In fact, while religion seems to have its position diminished in advanced industrialized societies, various countries have experienced an increase in its populations holding religious values and practicing religious habits (Inglehart and Norris (2004)). The rise and fall of religiosity at different periods, in different societies, could be otherwise fueled by specific factors other than economic downturns. As Inglehart and Norris (2004) argue, the charisma of particular leaders or mobilization of faith-based movements might determine the upsurge of religiosity. The authors claim that the popularity of pentecostal evangelicalism in Latin America is an example of this phenomenon. In this sense, the answer to whether religiosity upsurge is a result of either economic downturns or idiosyncratic triggers is still empirically wide open.

In this paper we study whether economic downturns have led to an expansion of pentecostal evangelicalism in Brazil. The country experienced a substantial growth of pentecostal affiliates during the 1990s, amidst a decade of poor economic and labor market performance. Brazilian localities experienced an average increase of 70% in the number of Pentecostal affiliates per capita, while pentecostal churches have grown in number and political influence. More specifically, we develop a two-stage least squares estimation using the reduction of trade tariffs in the 1990s, during the process of economic liberalization, as a source of exogenous variation for labor market expected earnings. Tariff reduction was a top-down decision by the federal government at the time, following a regional trend towards economic opening. The most protected sectors experienced the greatest tariff reductions, signaling that specific sectors were not specially benefited by this trade reform. Variation in tariffs weighted by sectoral employment composition at the micro-region level is thus an arguably valid instrument for changes in labor market conditions over the 1990s

(Hirata and Soares (2015), Dix-Carneiro et al. (2016)).

We use census data to construct both dependent (the number of Pentecostals, Catholics and other religious affiliates per capita) and independent (labor market outcomes and other covariates) variables, for 1991 to 2000. Kume et al. (2003) provides us with tariff information. We obtain data from the Brazilian National Accounts to construct aggregated industries that match with information available for tariff changes. Information regarding Brazilian geography and comparable areas across years was obtained from Reis et al. (2011).

We find no statistically significant effect of changes in expected earnings on the number of religious individuals per capita in general. On the other hand, economic downturns lead to an increase in the number of Pentecostals per capita, and a decrease in the number of Catholics per capita. In addition, we find a consistent pattern of substitution effects between Pentecostal and Catholic affiliation across different sub-samples. Alternative specifications reveal that the results are robust to different measures of trade opening and that the results are not driven by selective migration. Reduced form estimates resemble two-stage estimates. This indicates that labor markets are the main channel through which tariff changes affect religious affiliation.

We also find evidence on heterogeneity by gender groups and age. Pentecostal affiliation among women responds relative more, on average, to economic downturns than among men. The main age sample (15 to 64 years) also responds relatively more than the 64-years-old-or-more. We find no statistically different effects by race (black vs white). These findings corroborate to some extent the theoretical predictions that different opportunity costs determine distinct religious practices. Finally, we find no effects of economic downturns on the supply of Pentecostal preachers per capita. This finding suggests that economic downturns have had a non-trivial role in the Pentecostal upsurge in Brazil, irrespectively of any supply side effects.

The empirical literature on the relationship between income and religious affiliation is dense at various fronts, particularly in sociology and other branches of social science. However, there is extremely scant causal evidence. In fact, despite the great number of existing studies on the topic, only recently scholars started to explore exogenous shocks in order to claim causal identification. Chen (2010) explores the exogenous shock provided by the Indonesian financial crisis, as a kind of economic distress, on religious intensity, namely, communal study of Koran and Islamic school attendance. The results suggest that economic distress significantly increases religious intensity, whereas those that suffer less significantly decrease religious intensity. Buser (2015) analyses how quasi-exogenous government cash transfers explain the consumption of religious goods in Ecuador. The author

uses a sample households from poor neighborhoods, and a RDD strategy to estimate the effects of cash transfers on religiosity among beneficiaries and non-beneficiaries. The results indicate that recipients attend more religious services than non-recipients. In this paper we contribute to the literature in different ways. We provide some clear causal evidence by exploring macro shocks due to trade opening, which connects for the first time labor market conditions and religious affiliation. In particular, we do it so in a context of Pentecostal upsurge. We document a shift within religious affiliations, from a decline in the number of Catholic affiliates towards an increase in the number of individuals within the most devoted religious denominations, Pentecostal Evangelicals. These denominations offer the greatest rewards to faith against frustration, deprivation and suffering.

The remainder of this paper is structured as follows. Section 2 provides a literature review on the theory of secularization and the theoretical and applied literature on the relationship between income and religion. Section 3 presents the context of the growth of Pentecostal Evangelicalism and the trade liberalization process in Brazil, during the 1990s. In Section 4, we describe our empirical strategy. Section 5 contains a description of the data and samples. Section 6 presents the results, and Section 7 concludes.

2 Literature Review

2.1 The Secularization Theory

The debate over how income, as a facet of modernization, can determine the religiosity of a country dates back to earlier sociological literature. Since the 18th century, the study of religion among social scientists has been framed by the "Theory of Secularization" which explains religion as an elaborate reflection of more basic realities and a painkiller for frustration, deprivation and suffering (Fink and Stark (2003)). Secularization is defined as a "decline in the proportion of their time, energy and resources which [individuals] devote to super-empirical concerns" and would lead to a gradual "replacement of a specifically religious consciousness [...] by an empirical, rational, instrumental orientation." (Fink and Stark, 2003, p.97).

Secularization ideas have been otherwise challenged both theoretically and empirically. They implicitly embody the idea that development would necessarily lead to the "modern secular democratic state", an common endpoint to different societies. Empirical observation, however, has recognized in context-specific situations and in complex histori-

cal processes numerous exceptions to the secularization story. These processes would be more heterogeneous than what was first believed. In fact, while religion seems to have its position diminished in advanced industrialized societies, various countries have been experiencing growth of its populations holding religious values or increasing shares of its populations practicing intense religious habits (Inglehart and Norris (2004)).

As Inglehart and Norris (2004) argue, rise and fall of religiosity at different periods, in different societies, are fueled by specific factors. For example, the charisma of particular leaders, impact of contingent events or mobilization of faith-based movements might determine religious patterns. The authors claim that the popularity of Pentecostal Evangelicalism in Latin America is an example of this phenomenon.[1]

Although problematic, Inglehart and Norris (2004) propose a revision of the secularization thesis based on the concept of "existential security". The core idea of human, or existential, security denotes freedom from various risks and dangers. Risks concerning environmental degradation, natural and manmade disasters, threat of epidemics, violation of human rights, humanitarian crisis and poverty would threat human security. Regardless of the specific nature of the risks, the absence of existential security would be critical for religiosity.

Poor nations are susceptible to poverty and subject to limited access to basic survival conditions (potable water and adequate nutrition) and effective public services (health-care, schooling and security). The development of these societies towards more advanced and industrialized ones should improve the basic conditions of human security, lifting people out of poverty, reducing uncertainty and daily risks to survival. In this sense, as nations vary in levels of sustainable human development, socioeconomic inequality and, consequently, on living conditions and human security, individuals would be differently exposed to the influence of religious rhetoric. According to Inglehart and Norris (2004), all major religions assure that a higher power will guarantee that things work out well – during the lifetime period or afterlife (Azzi and Ehrenberg (1975)) –, if one follows the rules. Freud (1989) explains that in the face of danger and angst, individuals have the need to see a strong, benevolent and god-like authority, with whom they can bargain, and that can grant them safety. Under stressful situations, religion should truly bring relief to individuals because if they act accordingly to a set of established rules, this benevolent figure would grant them solutions to their problems. Developments in income, equality and in public welfare

[1] In fact, it is appropriate to frame Latin American Pentecostal Evangelicalism like that. Innovative forms of organization (captivating spiritual leaders and different rituals and approaches towards cult sessions) and contingent events, such as the process of Brazilian economic opening in the 1990s and its impacts on income, seem to explain this significant rise of Pentecostal Evangelicalism denominations.

state systems should thus diminish one's angst and consequently the appeal of religion.

Another idea brought up by Inglehart and Norris (2004) is that distinctive worldviews originally linked with religious traditions have shaped the cultures of each nation. Even though individuals might not adhere to specific faiths or frequently go to church, historic religious tradition will shape how individuals perceive the world and behave. Individuals end up inheriting cultural and religious knowledge (or religious capital, as in Iannaccone (1984)). This idea potentially explains why in Brazil, a country with Catholic tradition, individuals might convert more easily to Pentecostal Evangelicalism, and not to other religions, such as African "diasporan" religions – Catholics and Pentecostal Evangelicals share the same Christian background (Chesnut (2003)).

In this work, we use the concept of "existential insecurities" (Inglehart and Norris (2004)) as a potential connection between material conditions and Pentecostal Evangelical affiliation. We consider labor market conditions to be a good proxy for existential security. We thus hypothesize that, due to trade shocks, deteriorating material conditions might lead to Pentecostal growth and Catholic decline. We further develop this hypothesis in the next section.

2.2 Income and Religion: Theoretical Predictions

Azzi and Ehrenberg (1975) state three motives to explain why an individual takes part on religious activities. The "salvation" motive induces an individual to practice a religion due to utility obtained through expected afterlife consumption. The "consumption" motive poses that individuals would obtain utility during the lifetime by practicing religion because of inherent individual beliefs or social reasons. The last reason stated is the "social pressure" motive, according to which, religious membership and participation could increase the social network within a certain religious community. This would increase the probability of succeeding in local business, for example. Any of the three motives stated above yield similar predictions.

In economics, models of religious behavior typically assume that individuals allocate time and money so as to maximize their utility obtained from religious and secular consumption. Households produce the religious and secular commodities they want to consume. In these models, as described by Iannaccone (1990), households are "quasi-firms" engaged in the production and consumption of "household commodities". Commodities can be concrete as meals or abstract as leisure time and can also be characterized as secular or religious ones. Religious practice is a productive process that generates religious commodities that

fulfill one's religious demands. The production of religious commodities depends on individual's and household's inputs such as time and money, just as in secular commodities, but also on past religious experience (Iannaccone (1984)).

Azzi and Ehrenberg (1975) consider a model in which the household is composed of the husband and his wife. Both household members derive utility from the household's consumption across time periods and from its expected value of afterlife consumption. The household consumption function transforms household's purchases of a composite market good and time into final consumption commodities. Supposing that both husband and wife are equally efficient in producing expected afterlife benefits and that the former earns more than the later, the model predicts that the wife will spend more time in religious activities. If the marginal product of additional hours of religious activity for an individual is the same in any two periods and if wage rates of all household members are constant over lifetime, it is optimal for individuals to concentrate their investments in religion in later stages of the life cycle. In particular, if for any subsequent time periods an individual's wage rate varies, the more rapidly the rate of wage increases, smaller will be the rate at which hours devoted to religious activity will increase with age. As age-earnings profile tends to be steeper for men than for women, hours devoted to religious activities profile will be steeper for women than for men. Given that expected afterlife consumption is a normal good, exogenous non-labor income variations will increase hours spent with religious activities. In short, there is a broad inverse relation between opportunity costs and hours spent in religious activities. Individuals with higher costs will spend less time in religious activities, or engage in forms of religious participation whose production is good-intensive, not time-intensive. This leads to the U-shaped pattern of the ratio of time and money spent in religious activities in function of age.

Iannaccone (1984) develops a similar model, in which the production of both commodities utilizes time, other goods and religious human capital as inputs. According to the author, the insertion of religious human capital in the model significantly broadens the scope of analysis, generating hypotheses about life-cycle variation in religious participation, the age distribution of conversions, religious intermarriage and denominational mobility. The religious human capital, or religious previous experience, is assumed to increase the output of religious commodity by magnifying the productivity of other inputs, such as secular commodities and time, employed in this commodity production. Further, Iannaccone (1990) highlights that religious human capital is an important determinant of one's ability to produce and appreciate religious commodities -– the more religious is an individual, the more she can appreciate a certain religion. "Religious capital is both a prerequisite for and a consequence of most religious activity. [...] [it] enhances the satisfaction one re-

ceives from participation in that religion, and so increases the likelihood and probable level of one's religious participation." (Iannaccone, 1990, p.299). Irrespectively of whether religious experience generates religious human capital (facilitating the production of religious commodities) or alters individuals preferences about religion (enhancing one's ability of appreciating religious commodities), or both, the predictions remain the same.

Also, religious human capital can be transmitted from parents to their children. In Iannaccone (1990), individuals may inherit religion from parents and institutions they support, therefore children are more likely to remain within their parent's denomination through their lives. It's also reasonable to assume that parents might exert pressure in order to convert their children. Nonetheless, low levels of religious capital accumulated (or inherited) by the children would not be characterized as a barrier for the children's conversion, especially if parents have converted too. Religion involves a specific worldview and considering that an individual adopted this view, we can suppose that they consider it the optimal one. Hence, it's plausible that parents wish to transmit, or impose, their worldview to their children, and specifically their religion.

We expect an inverse relation between lower opportunity costs and poor labor market conditions with more "time intensive" religious practices. Just as lower costs of opportunity might explain more time spent with religious practices, it can explain increasing affiliation with religious denominations that are more time-intensive than others. Given that Pentecostal worshippers tend to spend larger amounts of time on religious services (Buser (2015); Bowen (1996); The Pew Research Center (2006)) we would expect income shocks to have a larger role in explaining changes in Pentecostal affiliation than in other religions. Taking into account a generalized promise of life-time improvements by Pentecostal Evangelical denominations, we expect that negative income shocks and labor market downturns would provide further stimulus to Pentecostal affiliation in particular.

Indeed, the sociological literature treats the desire for increasing welfare through material prosperity and for physical wellbeing as key elements in explaining why Pentecostal Evangelicalism grew so rapidly in Latin America, especially among its impoverished urban population (Chesnut (2003)). Besides eternal salvation, Pentecostal churches promise relief from mundane problems. Thus, an individual that seeks to improve both life-time and after-life-time conditions should belong to a Pentecostal church.

2.3 Empirical Findings

There is only limited empirical evidence on the relation between income and religious affiliation. The existing studies vary greatly in scope and methodology. Azzi and Ehrenberg (1975) document correlations of demographic and socio-economic characteristics with religious variables in the US, testing their model's theoretical predictions. Soares de Oliveira et al. (2013) replicates Azzi and Ehrenberg (1975) paper using Brazilian data. Barro and McCleary (2003) build a panel data of countries to study the impacts of church attendance and religious beliefs on economic growth. Lipford and Tollison (2003) test the joint effect of economics and religions, estimating equations for income and church membership with US state-level data. Deaton (2011) explores cross-country patterns of religious practices and its correlates. More recently economists explored exogenous shocks to guarantee causal identification using foreign financial crises (Chen (2010)), and government cash-transfer programs (Buser (2015)).

Azzi and Ehrenberg (1975) regress population religious affiliation rates (percentage of individuals belonging to a certain religion) on variables such as age, gender, men and women wages, non-earned income measures, percentage of Catholics and Jews in state's population, percentage of non-white and the proportion of state's population living in rural areas. Annual median income of employed men has a negative correlation with affiliation rates. Nonetheless, gender and age effects are ambiguous. Soares de Oliveira et al. (2013) replicate this study in Brazil using 2004's *Pesquisa Social Brasileira* (PESB). The dependent variable chosen was the frequency to cults, or religious services. Household members' income, gender, age, race and if the household is in rural or urban areas are the independent variables. Estimating a Logit model the authors verify that race and location of household are not statistically significant. Women tend to have higher frequency rates to religious services and frequency increases according to age – as predicted and found in Azzi and Ehrenberg (1975). Income presents a marginal negative influence, as opposed to the theoretical model.

Nevertheless, in a cross-section income can determine religious practices (Azzi and Ehrenberg (1975)) just as religious practices can alter behavior and have impact on income. In fact, religion may affect criminal activity, rates of suicide, divorce, drug and alcohol use and premarital sex (Iyer (2016)). In this sense, Lipford and Tollison (2003) argue that religious participants place a relatively lower valuation for market earnings. The authors test the joint effect of income and religions, estimating equations for income and church membership, using US state-level data, from 1971, 1980 and 1990. Church membership is regressed on state's per capita personal income, a Herfindahl index measuring religious concentration, local government spending, local employment levels, education and urbanized population,

just as state's per capita personal income is regressed on the same variables. Simultaneous-equation estimation provides strong support for a bi-causal relationship between religion and income. Membership in religious bodies is negatively and significantly correlated with per capita income and per capita income is negatively and significantly correlated with religious membership. Although relatively vague, Lipford and Tollison (2003) helps providing results that corroborate to some extent the expected relation between income and religiosity.

Barro and McCleary (2003) estimate a panel in which the dependent variables are countries averages of answers on religious services and beliefs. Independent variables are economic, demographic, government policies, institutions and measures of religious pluralism. Variables such as years of schooling, percentage of population under 15 years, religious pluralism and presence of state religion are positively correlated with monthly frequency to religious cults, for the period of 1981 to 1999. The variable logged GDP per capita presents low correlation and absence of statistical significance.

Deaton (2011) models religion affiliation as a function of income, age, education and sex in a cross-country analysis, following Azzi and Ehrenberg (1975) model. The author also mentions the possibility that risk-taking behavior might explain religious gender gaps. Men are usually more risk taking than women and because not believing in a certain religion is a form of risk taking behavior, it's expected that men will employ lesser time on religious practices than women. This might explain why religions that do not threaten eternal punishment for nonbelievers, such as Bhuddism, for example, experience smaller gender gaps in religiosity, as well as a less pronounced age gradient, in comparison to Christians and Muslims.

Deaton (2011) cites few implications that religion might have in one's behavior. Imposition of religious rules on individuals might shape ethical conduct. The provision of networks that connect individuals and tangible economic and psychological support should enhance religious practices. Religious interpretative mechanisms should provide meaning and understanding to life that are especially worthy in times of suffering and distress. Analyzing cross-country patterns of religiosity, Deaton (2011) finds that the practice of religion, measured through the worship variable, is not significantly affected by income, conditional on regional effects. The absence of income effect might be due to the region fixed variables capturing most of the effects of income and education on religiosity. When excluding regional variables, income becomes relevant. Average levels of education are associated with lower religiosity and lower worship. The inclusion of majority religion dummies in each country, such as Muslim, for example, seems to increase the number of individuals that claim to be

religious. In a within-country analysis, the author finds that religiosity increases with age, that women are more religious than men, and that more educated people are less likely to be religious. People with higher income tend to be less religious, while income effects appear to operate in addition to the education effect and independently of it.

Despite the number of existing studies on the relationship between income and religiosity, only more recently economists started to explore exogenous shocks in order to claim causal identification. Chen (2010) explores the exogenous shock provided by the Indonesian financial crisis, as a kind of economic distress, on religious intensity, namely, communal study of Koran and Islamic school attendance. The author adopts a two-stage least squares estimates and the results suggest that economic distress significantly increases religious intensity, whereas those that suffer less significantly decrease religious intensity. The author finds that a one dollar decline in monthly non-food per capita expenditures leads to a 2 percent increase in Koran study. Despite the fact that Islamic schools are substantially more expansive than non-Islamic, Islamic school attendance of affected households increases relative to the attendance of less affected households. Jointly, these results suggest that religious intensity increases with economic distress. The reading of the author is that economic distress stimulates religious intensity, and religious intensity provides something distinctive than other social activities. When observing the household labor supply under these adverse situation, Chen (2010) finds that households suffering from economic distress work slightly more hours per week. Consequently, these households enjoy less leisure time. Increasing time dedicated to Koran study and decreasing leisure would thus reject the possibility that Koran study would be mere leisure activity. These results would be not consistent with opportunity cost of time models that do not account for social insurance, given that falling wages do not spur participation in other social activities, and that households have less time for religious activities.

Buser (2015) analyses how quasi-exogenous government cash transfers explain the consumption of religious goods in Ecuador. The author uses a sample households from poor neighborhoods, and a RDD strategy to estimate the effects of cash transfers on religiosity among beneficiaries and non-beneficiaries. The results indicate that recipients attended more religious services than non-recipients. The author observes the impacts on types of churches people attend and find that recipients are around 6.5 percent more likely to be evangelical (at 10 percent significance level).

Our methodology takes part on this recent stream of studies. We intend to contribute to the literature on the empirical economics of religion affiliation by focusing on more general labor market conditions during the late 20th century, and Pentecostal upsurge in Brazil.

Using trade shocks, we provide an estimate of how income variations affect Pentecostal, Catholic, and overall religious affiliation in Brazil.

3 Context

3.1 Pentecostal Evangelicalism in Brazil

Advanced industrialized countries and the less advanced ones have recently experienced shifts between and within major religions. Within Christian denominations, "renewalist" movements and Pentecostals denominations gained larger proportions.[2] Pentecostal Evangelicalism and its major strands account for one quarter of all Christians in the world; and Pentecostals, for approximately three-in-four Protestants in Latin America.

The Pew Research Center (2006) has classified Pentecostal individuals as the ones who belong to Pentecostal denominations and churches, such as the Assemblies of God, the Church of God in Christ or the Universal Church of the Kingdom of God. Pentecostal affiliates often declare experiencing manifestations of the Holy Spirit ("gifts of the Holy Spirit"), such as "speaking in tongues", prophesying, divine healing and other miraculous signs of the Holy Spirit – such as early Jesus' followers in the biblical event of the Pentecost feast. Pentecostal individuals interviewed were the ones who most often answered that people practicing the "gifts of the Holy Spirit", such as performing miracles and healing people, is a common feature of their cults and services. Pentecostal Evangelicals are usually the ones that read the Bible more literally and share their faith with non-believers more frequently. The majority of Pentecostals in sampled countries, including Brazil, agreed that God will grant good health, relief from sickness and material prosperity to the most faithful believers.

A common trait of Pentecostals around the world in the routinely experience divine healings, receiving revelations from God, witnessing exorcisms and attending religion services where people speak in tongues and display other signs of the Holy Spirit (The Pew Research Center (2006)). These experiences seem to be more common among Pentecostals, than overall Christians. Pentecostals, are more likely to say they go to church frequently, pray frequently and read the Bible often, than other Christians. For example, the survey pointed out that, in Brazil, 86 percent of Pentecostals interviewed said they attended religious services at least once a week, while only 38 percent of the whole sample answered the same.

[2]Renewalist is an "umbrella" term used to refer to both Pentecostals and to charismatics (The Pew Research Center (2006)).

They also displayed higher levels of private religious practices. In Brazil, 83 percent of Pentecostals said they prayed to God daily, while 67 percent of the overall sample answered the same. Also, 51 percent of Pentecostals said they read the Scripture daily in comparison to only 16 percent of the entire sample. Based on all those who identified themselves as belonging to a particular religion or believing in God, 64 percent agreed that God grants believers with material prosperity, while 74 percent said God grants with health. Pentecostal individuals answered the same in larger proportions: 83 percent said God grants material prosperity and 89 percent said God grants health. In almost all countries surveyed, Pentecostals agreed more with that.

Influence and size of the Pentecostal community in Brazil are remarkable. Brazil has the largest evangelical community among the developing countries and the second in the whole world, only behind the US (Freston (2001)). Brazilian Pentecostalism has had three major waves of growth. In 1910's, Christian Congregation and the Assembly of God arrived in Brazil, beginning the first wave. The second wave occurred in the 1950s and early 1960s, with the fragmentation of the Pentecostal field and a more dynamic relationship between Church and society and a formation of three large groups: Church of the Fourth-Square Gospel (*Igreja Quadrangular*), Brazil for Christ (*Igreja Brasil por Cristo*) and God is Love (*Deus é Amor*). The third wave began in late 1970s and gained strength in 1980s. Its main representatives are the Universal Church of the Kingdom of God (UCKG) and the International Church of the Grace of God (Freston (2001)).

Long term social, cultural and political transformations have favored Pentecostal growth during the 20th century. Significant migration to urban areas, led partially by the industrialization process, helped enlarging cities. However, sharp levels of income concentration and inefficiency of welfare systems, jointly with swelling poverty, created an environment favorable to the proliferation of Pentecostal churches.

The literature pointed out some factors that explain why Pentecostal churches have thrived in Latin America, specifically in Brazil (Chesnut (2003)). Given a series of poverty-related issues, a perennial shortage of clergy from traditional Christian denominations led afflicted individuals to the doors of Pentecostal temples. As Chesnut (2003) describes, Pentecostal churches were created by and for the poor people. "[...] Pentecostal doctrine and worship reflect the *Weltanschauung* and aesthetics of the popular classes in Latin America. Here there are no seminary-trained priests who make (self) conscious decisions to opt for the poor. Rather, there are mostly poor and uneducated Pentecostal preachers who minister easily to their impoverished brethren."(Chesnut, 2003, p.42).

Pentecostal churches offer specific "religious" services that respond to the impoverished

population, such as "faith healing", one of the main drivers of Pentecostal affiliation in Latin America (Chesnut (2003)). The author notices that two days of UCKG's weekly schedule are devoted to faith healing. Serious illness can threaten the existence of an impoverished household. Since members of the popular classes most often work in the informal economy, health problems can have detrimental effects on the household income.

Another likely reason for the Pentecostal upsurge resides on family conflicts. Daily financial struggle increases family conflicts leading unemployed, underemployed and underpaid men to express their rage in the "only locus they hold power – the home" (Chesnut, 2003, p.46). The author writes that "Domestic abuse, expressed both verbally and physically, compels millions of both perpetrators and victims to embrace the Pentecostal Jesus as a potent source of mending the frayed fibers of family life. In addition, parental and spousal abandonment and philandering rank among the principal family problems that lead afflicted religious consumers to acquire Pentecostalism's foremost product." (Chesnut, 2003, p.46).

A third reason that may lead vulnerable individuals to embrace Pentecostal faith is alcohol-related issues –"[...] there is no question that the liquor flows more freely in the slums, where men, in particular, seek to numb the pain of poverty through a bottle.[...] Thus, through its demonization of hard drink, Pentecostalism enjoys a major advantage over its religious rivals in recruiting millions of Latin Americans who suffer the consequences of one of the most virulent pathogens of poverty"(Chesnut, 2003, p.47).

Above all niches, Pentecostalism holds great appeal among impoverished Latin American women – "Pentecostalism is largely sustained and spread by sisters of faith." (Chesnut, 2003, p.42). Under this context, women should be the main group that seeks answers for these pathogens of poverty. For Pentecostal churches, mainly UCKG, failure is attributed to "evil forces". While failure remains as an attribute of such forces, individuals can maintain hope. Hence, the importance of exorcism in Pentecostal, and specially in Neo-Pentecostal, churches – it provides people a sense of expelling these forces of their lives a of stress relief from daily issues (Rocha and Torres, 2009).

The responses of Pentecostal churches to individuals struggles with financial matters, violence and other pathogens of poverty resides, for example, on the emblematic UCKG's slogan "Stop suffering!" ("*Pare de sofrer!*") in the front of its temples. Rocha and Torres (2009) describe how certain meanings of words are somehow changed in order to embed other meanings. For instance, the "faith" carries the idea of struggle against desperation, not only the notion of belief in a certain set of religious ideas an practices. In the religious vision proposed by UCKG, the word faith designates the optimism of desire and the trust

that, through all the church's rites, God will bring fortune and future luck.

Rocha and Torres (2009) provide an explanation for the Pentecostal religious practice among the impoverished stratum. The authors argue that faith and practices are part of a plausible "illusion" for those with improbable odds of ascending socially. "Magical bets", as written by the authors, on economic success through Pentecostal churches are a way of dealing with the low expectations of improving their situations and the low probability of obtaining the desired success. "These are the expression of real misery and the revolt against it [...] Entering to Universal Church means entering to a daily struggle against the corrosive effects of a social condition scared by the risk and complete uncertainty towards tomorrow." (Rocha and Torres (2009), 2009, p.228-229).[3] Rocha and Torres (2009) describe Pentecostal churches as providers of discipline, safety and "prospective thinking" for its affiliates. Individuals whose childhoods were shattered by poverty related afflictions would lack a kind of prospective thinking that would enable us to weight and think their actions today as having implications for their future. By not stimulating an unrestricted hedonist behavior, which children on the margin of society and in lower strata would experience, Pentecostal denominations would provide a source of resistance to this behavior.

3.2 1990s Trade Liberalization in Brazil

Tariff and commercial barriers have been drastically decreased in Latin America. The process of economic opening in Brazil and in the region was rapid and broad. It intended to, and effectively performed a, reduction in tariff levels and their dispersion across different industries.

Kovak (2013) argues that the process of economic liberalization was launched by the government and had little, if any, influence of private interest groups in the decision process. This hypothesis is corroborated by the fact that the economic opening process has been influenced by tariff reduction practiced in the Mercosur. Countries, such as Argentina, enacted very similar processes. Also, there is no sound evidence that tariff reductions privileged specific sectors based on their strength, competitiveness, or previous tariff levels. Figure 2 illustrates our hypothesis. There is a negative correlation between previous tariff levels and tariff changes practiced between 1990 and 1995 - sectors that experienced higher levels of tariff protection were the ones that faced larger tariff reductions. By taking a sim-

[3] Freely translated by the authors. "Estas são, a um só tempo, a expressão da miséria real e a revolta contra a miséria real [...] O ingresso na Igreja Universal significa o ingresso numa luta diária contra os efeitos corrosivos de uma condição social marcada pelo risco e pela total incerteza com relação ao amanhã." (Rocha and Torres, 2009, p.228-229).

ple average of the tariffs provided in Kume et al. (2003), we observe that the average tariff practiced in the sectors in 1990 was close to 30 percent. In 1995 it was reduced by more than a half (12 percent) and in 1998 it increased to 15 percent, approximately. The standard deviation also dropped by half in the 1990-1995. Besides the tariff reduction, other special regimes, additional taxes and non-tariff barriers were also eliminated. This eliminates possible concerns about using tariff reductions as an exogenous variable, given that other types of trade protection were not adopted. Following this idea and supported by previous works (Kovak (2013); Hirata and Soares (2015); Dix-Carneiro et al. (2016)) we adopt this idea of trade opening as an instrument variable to handle endogeneity issues in this work.

4 Empirical Strategy

Following the methodology developed by Topalova, Kovak (2013), Hirata and Soares (2015), Costa et al. (2016) and Dix-Carneiro et al. (2016), we adopt a two-stage least squares estimation to model changes in religious variables as a function of exogenous income variations, using the reduction in tariffs in the 1990's as an instrument variable. Our specification to estimate the impacts of income on pentecostal filiation is:

$$\Delta p_j = \alpha + \beta \Delta y_j + \lambda \Delta W_j + u_j \tag{1}$$

Where α, β and λ are parameters, u_j is an error term and j indexes the micro-region. The parameter of interest in this study is β. This parameter captures the average effect of local income changes on the variations of the number of Pentecostals per capita in local population, Δp_j, from 1991 to 2000. In other specifications we observe the impacts of these changes in income on different religious denominations (Pentecostal evangelicals and other religious denominations). We build the independent variable, local income changes, following the methodology developed in Dix-Carneiro et al. (2016). We create a variable called local labor market expected earnings, which captures not only changes in income, through variation in the average regional wage, but also the average regional probability of an individual being employed. This variable is detailed later in the text. ΔW_j is a vector of changes in covariates such as the percentage of white individuals, men, individuals living in urban areas, percentage of individuals classified in 5-age-years intervals, the average years of schooling, age, age squared and dummies for each Brazilian state. Our controls resemble the variables

supported by the standard literature on the topic (Inglehart and Norris (2004)).

Although simple OLS estimation of this equation may provide a clue of how these two variables might be related, a clear causal relation cannot be inferred from such estimates. As observed in previous empirical literature, religion might be a factor explaining income differences, therefore a simple OLS regression cannot provide answers about the influence of the former on the later.

We adopt an IV strategy to tackle the issues described above. The IV estimation strategy is implemented in two steps. First we regress changes in local labor markets expected earnings on an intercept, local tariff changes and covariates, obtaining an exogenous variation for income. In the second stage, we regress the changes in dependent variables on the predicted exogenous variation of expected earnings and covariates. The first stage follows the equation:

$$\Delta y_j = \mu + \theta \Delta tariff_j + \gamma \Delta W_j + v_j \tag{2}$$

Where the dependent variable Δy_j is the local variation in income, $\Delta tariff_j$ is our instrument and ΔW_j, the same set of controls used in equation 1. This instrument is constructed following previous papers (Topalova; Hirata and Soares (2015); Dix-Carneiro et al. (2016)). The variable $\Delta tariff_j$ measures changes in tariffs on different localities, weighted by the exposure of each locality to a sector J tariff change that is equal to all regions. We use tariff changes from 1990 to 1995 in the main specification. In robustness exercises, we consider tariff changes from 1990 to 1998, and obtain similar results. The local tariff variable $\Delta tariff_j$ is constructed as follows:

$$\Delta tariff_j = \sum_{r}^{R} \psi_{jr} [ln(1 + tariff_{rt}) - ln(1 + tariff_{rt-1})] \tag{3}$$

Where ψ_{jr} is the local exposure to changes in the tariffs of the r sectors between periods t and t-1. Following Dix-Carneiro et al. (2016) and Hirata and Soares (2015), ψ_{jr} captures the micro-region's exposition to broad tariff change to the r sectors:

$$\psi_{jr} = \frac{L_{jr}\epsilon_{jr}}{\sum_{r \neq R} L_{jr}\epsilon_{jr}} \tag{4}$$

Where L_{jr} represents the number of employed individuals in the sector r in the micro-region j and

$$\epsilon_{jr} = \frac{\sigma_{jr}}{\theta_{jr}} \tag{5}$$

is the elasticity of the demand for labor. The term σ_{jr} is the elasticity of substitution between inputs, and θ_{jr} is the share of capital in total capital cost. As in Hirata and Soares (2015), we assume certain features of the elasticity of substitution between inputs and share of capital cost. Technology is Cobb-Douglas, so

$$\sigma_{jr} = 1 \tag{6}$$

and the share of capital cost will only vary across sectors, not across localities. Therefore:

$$\theta_r = \frac{VA_r - LE_r}{VA_r} \tag{7}$$

Where VA_r and LE_r are, respectively, the value added and the labor earnings in sector r. The value of θ_r is calculated with the information provided by the National Accounts (IBGE), specifically the *Tabela de Usos e Recursos* for the year of 1991.

5 Data

5.1 Variables and sample

In this article we use Brazilian census data from 1991 and 2000 to construct dependent variables and regressors for both stages of the IV estimation. The census data were also used to build the exposition of the geographical units (micro-regions) to the aggregate shocks induced by the trade liberalization, ψ_{jr}, in equation 4. The procedure for constructing our sample is the same presented in Hirata and Soares (2015). We keep individuals with age between 15 and 64 years and drop those who held positions in Public Administration, National Security/Defense and Public Security. We then calculate the logged average expected earnings, religion variables and information about years of study, race, gender, schooling, age , percentage of urbanized population considering the sample weights provided by the

Census database. We classify individuals as pentecostal if he, or she, belonged to one of the churches listed on Table 1, in the Appendix.

We construct our instrument variable, trade shocks, using the compilation of average nominal tariffs by sector of activity presented in Kume et al. (2003) and the IBGE's 1991 National Accounts. We use the data provided by *Tabela de Recursos e Usos* (IBGE) for the year of 1991 to assess the value added by each sector and total labor earnings by sector. We obtain in Kume et al. (2003) the average tariffs faced by each sector. However, as the sectors compiled in Kume's (2003) differed from the census data, we rearrange them in order to make this dataset compatible with the others. Following Hirata and Soares (2015) methodology, we begin with 32 sectors and are left with 20 tradable sectors, plus a non-tradable sector. The sectoral classification used in Kume et al. (2003) is the same used in the Census data and in *Tabela de Recursos e Usos*. With this new sectoral categories, we classify individuals employed in one of these 20 sectors. We build the tariff of the new merged sectors with the information displayed at the *Tabela de Recursos e Usos* mentioned above. From that table we obtain the value aggregated by each sector that we use as weight for calculating the average tariff of these new merged sectors.

From 1991 to 2000 the Brazilian territory changed in such a way that it is difficult to develop a geographical comparison between two time periods. While some municipalities changed across time, and others were created, developing our analysis with this unit of observation was not an option. However, as IBGE categorized certain groups of contiguous municipalities with common geographic and socioeconomic features, the micro-regions, we have adopted this unit of observation, treating each micro-region as a local labor market. As a result, in the second stage of our identification strategy, we treat all the variables in aggregate terms (percentage or average) for the locality in question.

We use the methodology developed in Hirata and Soares (2015) to mach the Brazilian micro-regions across different censuses. We depart from 2000's census classification of micro-region and extend that to 1991's Census database. We identify each municipality with the micro-region it belonged in the year of 2000 and assemble this information to municipalities in 1991's census. We use the information provided by Reis et al. (2011) on Minimum Comparable Areas (MCA) - geographic units comparable between these two censuses - to guarantee consistency between the geographic disposition of the Brazilian territory. For example, if two municipalities belong to different micro-regions, but to the same MCA, the two micro-regions are merged into one. After aggregating the micro-regions following this criteria, we obtain 494 micro-regions, that previously amount to 558.

In the first stage of our estimation, equation 2, we observe the impact of tariff changes on

the earnings variable, following Dix-Carneiro et al. (2016). We perform other tests using different labor market outcomes such as average local log wage hour and Gini indexes and they corroborate our findings. Logged expected earnings take the following calculation procedure (Dix-Carneiro et al. (2016)). We calculate region-specific log earnings and employment rates after controlling for age, gender and education separately for the years of 1991 and 2000. First, we obtain region and year specific log earnings by estimating a Mincerian regression in which age, gender and education are dependent variables. We use census' sample weights and keep the estimates of the regional-year specific earnings estimates. Second, we perform the same regression estimating the linear probability model, in which whether an individual is employed or not is the dependent variable, and save the region-year specific employment rate estimate. Finally, we obtain the local labor market expected earnings by multiplying the region-year-specific log earnings to the region-year specific employment rate estimate and taking its log.

5.2 Descriptive Analysis

Table 3 presents descriptive statistics of all the variables used in this work, for 1991 and 2000. Based on our main sample, from 1991 to 2000, log expected earnings fell approximately 10 percent on average. The share of Pentecostal affiliates has grown more than 70 percent, from 1991 to 2000. In the meantime, the share of Catholics fell approximately 9 percent. Average religious individuals decreased 3 percent, while the percentage of religious people that are not Pentecostal fell close to 6 percent.

Major tariff reductions from 1990 to 1995 led to an average local tariff reduction of approximately 28 percent, on average. If we consider tariff reductions from 1990 to 1998 (our robustness exercise to a different tariff measure), average local tariff increased approximately 7 percent, however without changing results.

Figure 1 suggests that labor market outcomes, such as expected earnings, worsened in the localities more affected by tariff decreases; and that log expected income has decreased, while Pentecostal affiliation has greatly increased. In Panel A and B we observe a positive correlation between more protected regions and increases in log expected earnings, using both measures of tariff changes. On Panels C and D we notice, respectively, a negative correlation between log expected income and Pentecostal affiliation, and a positive relationship between Catholic affiliation and log expected income.

A brief look at the data corroborates the theoretical prediction that impoverishment is correlated with increases in Pentecostal affiliation – religions that promise improvements in

one's condition. The next section provides the results of our model's estimation and a causal interpretation to the observed correlation.

6 Results

We present the results for the first stage of the model in Table 4. We regress differences in log expected earnings, from 1991 to 2000, on local tariff changes, using weighted tariffs from 1990 to 1995, conditioned on the following set of controls: differences on the percentage of white individuals, on the percentage of men, the percentage of urban individuals and on the differences on the percentages of individuals in the local population in 5-years-old age intervals; and differences on the average years of study, age and age squared, by micro-regions, in the same time period. Local population in 1991 is used as a weight in the first stage.

We find the predicted relation between positive local tariff changes and expected earnings, resembling previous results found in the literature (Dix-Carneiro et al. (2016)). For all Columns (1 - 9), the results are robust to the inclusion of controls and state fixed-effects. Positive point estimates of the correlation between local tariff changes and log expected earnings reflect the expected relation of tariff reduction and worse labor market outcomes. Micro-regions that were more exposed to tariff reductions had worse labor market conditions, in comparison to those less exposed, as observed in other works (Dix-Carneiro (2014), Dix-Carneiro and Kovak (2015), Dix-Carneiro et al. (2016)).

Table 5 presents the main results. Panel A displays the results of dependent variables regressed on log expected earnings and controls, using OLS, and on log expected earnings instrumented by local tariff variation, using two-stage least squares. In Panel A, dependent variables are in per capita terms, where the denominator considers the entire population (e.g., in column 1 we consider the log of the change in the total number of Pentecostals divided by the entire population). Panel B considers the shares of affiliates given the total number of religious individuals.

In the 2SLS results of Panel A we observe that changes in log expected earnings affect only the number of Pentecostal and Catholic individuals per capita, which respond in opposite directions. While a 10% decrease in expected earnings leads to a 1.6% increase, on average, in the number of Pentecostals per capita, the same variation leads to a decrease of 1.52% in the share of Catholics. Log expected earnings variation instrumented by local tariff changes does not cause shifts in the overall number of religious individuals. Similarly it does not

affect other religious affiliates. Panel A results suggest a substitution effect between Pentecostal and Catholic affiliation. The results in Panel B, which consider changes within the group of religious individuals only, and confirms this finding.

Brazilian Catholic tradition may help explain the substitution between Catholic and Pentecostal Evangelical affiliations. A former Catholic looking for a new religion to adhere could find it easier to convert to a Christian one, taking into account that Christian denominations share, for example, a common theological background. Hence, it would be less costly to a Brazilian, on average, brought up under a Catholic tradition, to become a Pentecostal, than to convert into other non-Christian denominations. If we consider promises of relief from one's problems, it sounds even more likely that an individual, within this context, will become Pentecostal.

We present similar results in Tables 6, 7, 8 and 9. We observe that our estimates are remarkably stable across different specifications. In Tables 8 and 9 we observe that changes in the share of religious individuals and in the share of other religious individuals do not respond to economic downturns in any specification. Furthermore, across all the results in this work we observe the substitution between Pentecostal and Catholic affiliates.

Table 10 presents the reduced-form estimate of local tariff changes on changes in the previous dependent variables. The direction and the intensity of the relation found in the reduced form suggests that labor market is probably the main channel through which tariff changes might affect shifts in these religious variables. Furthermore, our reduced form estimates are quite similar to the IV estimates. This corroborates the use of local tariff changes as instruments in our specification - labor markets, or local expected earnings, are probably the only channel through which these trade shocks impact the dependent variables.

Table 11 corroborates this hypothesis. We find no impact of changes in log expected earnings on supply side variables of interest such as the log of Pentecostal preachers, by micro-regions (1); the percentage of Pentecostal preachers over the sum of all preachers, by micro-regions (2); and the the log of Pentecostal preachers per capita, by micro-regions (3). These results undermine the possibility that regions that suffered the most with trade shocks experienced an increase in Pentecostal affiliates because Pentecostal churches observed the impoverishment of these populations and focused their efforts on these places. We find no effort of these Pentecostal churches, as a whole, in increasing their number of preachers in more affected regions. In fact, despite any efforts by these churches, economic downturns lead individuals to seek for Pentecostal churches, migrating from the Catholic church's herd.

We notice different behaviors from distinct population groups through a heterogeneity analysis. Tables 12 and 13 provide the estimation results among different samples. Table 12 displays the results of the complete specification using all controls and fixed effects in the first and in the second stage estimations across gender (men vs women), color(black vs white) and locality (urban vs rural) samples. The results presented in these two tables are in line with previous findings in this work. We see that, in absolute values, men present lower point estimates of the impact of differences in expected earnings on changes in pentecostal affiliation. Differences in coefficients of other dependent variables between distinct gender samples are not statistically significant. For the locality sample (urban vs rural individuals) differences in point estimates are not statistically significant. The same happens with the different color samples. However, in Table 13 we find that expected earnings have different impact on the share of Pentecostal and Catholics in the main sample (considering individuals between 15 and 64 years old) and in the sample with only individuals older than 64 years. We see that the impact is significantly lower in the older-than-64 sample.

Theoretical predictions and anecdotal evidence are corroborated to some extent by our findings. Given different opportunity costs between men and women, women tend to practice more religious activities than men (Azzi and Ehrenberg (1975)). After negative income shocks, women have their opportunity costs lowered even more, leading to increasing time available to religious activities. This might explain why the point estimate of expected earnings coefficient on Pentecostal share of the population is larger, in absolute value, for women than it is for men. Even taking into account the impact that tariff reduction might have had on decreasing gender wage gaps (as pointed out by Hirata and Soares (2015)), we find different responses between gender groups. This finding can be explained by Chesnut's (2003) description of the role of women in Pentecostal denominations – "[...] Pentecostalism is largely sustained and spread by sisters in the faith."(Chesnut (2003), p.43). However, we find no statistically different estimates on the impact of expected earnings on Pentecostal share of individuals, or in any denomination.

The estimated coefficients for all specifications in Table 13 decline accordingly to older age profiles. The direction of coefficients' signs remains in the same direction as previously presented. The substitution observed between Pentecostal and Catholic affiliation keeps valid. The reason why younger and older age groups would be the one's that experienced the minor effects of income shocks could be because these groups are not that involved in the labor market, as in the main sample. Hence, they should feel less the income shocks.

Other reason that might explain the reduced coefficient among the elderly is the resilience in converting to a new religion, given previous religious capital accumulated during life-

time. However, this explanation should be carefully used. If we considerer an explanation involving religious capital accumulated, this would not explain children's low response to income shocks, because they possess negligible amounts of such capital. Our results suggest that accumulated religious human capital possibly has a role in explaining conversion from Catholicism to Pentecostal Evangelicalism in a broad sense. Still, the religious capital hypothesis apparently fails explaining different responses from younger and older samples.

On Table 15 and 16 we perform two robustness exercises in order to check if the results found appeared simply because of labor mobility between micro-regions and because of a well-suited time frame for tariff changes. First, we run the same specification excluding migrants from our sample in Table 15. We treat as migrant an individual who has lived in 2000's Census municipality for at least 10 years. This sample without migrants would take into account the role of migration in our results. Actually, keeping only the individuals that have not left their cities in the previous 10 years is a sufficient condition for testing migration. Our results could only be biased by migration if individuals have migrated across micro-regions, not municipalities. So, if we consider only the ones that have not left that municipality in the previous decade, we discard individuals that migrated within micro-region (what could not interfere in the results) and also for individuals that have migrated between micro-regions. Results remain very similar to previous ones, suggesting that migration did not have a significant role in explaining our findings.

Then, on Table 16 we run our standard specification using tariff changes from 1990-1998 instead of 1990-1995 changes. From 1995 to 1998 some sectors experienced some increases of their tariff levels, leading to an overall average increase in tariff levels. So, in order to test whether our results were obtained, or not, by an specific time period of tariffs variation, we run the same specification on local tariff changes built upon 1990-1998 tariff levels. The results are very similar to previous ones both in the 1st and in the 2nd stages.

7 Conclusion

In this paper we studied the causal relationship between income and Pentecostal affiliation in Brazil. We explored tariff reductions in the 1990s, as a quasi-experiment, which allows us to develop an instrument variable approach to gain exogenous variation in income. Tariff cuts resulted in an overall reduction of both average tariffs and tariffs dispersion across sectors. We develop a local tariff variation with tariff information by sector from Kume et al. (2003), other sectoral data from the *Tabela de Recursos e Usos* (IBGE) and

information about individual occupation in these sectors from 1991 and 2000 IBGE's Census survey. Combining these different sources of data we build a local exposure index for tariff reductions of different sectors of activities. We adopt expected labor market earnings (Dix-Carneiro et al. (2016)) as the income variable, which captures overall changes in wages and in the probability of being employed. Following previous literature (Dix-Carneiro (2014), Dix-Carneiro et al. (2016), Hirata and Soares (2015)), the local tariff variations is supposed to be orthogonal to the equation 1's error. Once we obtain exogenous income changes, we regress religious variables on the exogenous income variations.

The model's first stage estimates follow previous findings in literature – localities more exposed to tariffs reduction had worse labor market outcomes. We find that decreasing expected earnings leads to increasing Pentecostal affiliation, and decreasing Catholic affiliation of the same magnitude, on the whole local population. We observe the impact on the local religious population and find that Pentecostal share's growth in the local religious population was also due to decreases in the local catholic share of religious individuals. This corroborates the idea of a substitution effect between Catholic and Pentecostal affiliation.

We analyze the heterogeneous impact of exogenous income changes on different population groups. However, the literature predictions are not entirely corroborated by the data. Men and women have distinct point estimates of the impact changes in expected earnings on Pentecostal share of the whole local population, but point estimates regarding the Catholic share do not differ. Black and white samples do not have statistically different responses to income changes. The older-than-64-years age group differs in relation to the main sample (15 to 64 years) in the response of Pentecostal and Catholic affiliation. Changes in expected earnings affect significantly less the former group than the later. Our results suggest that accumulated religious human capital possibly has a role in explaining conversion from Catholicism to Pentecostal Evangelicalism in a broad sense and that different costs of opportunity can play a role in determining religious affiliation among different population cohorts.

We use different time windows to construct local tariff changes, so we can test if the results are not generated by specific tariffs values. Using tariff variations from 1990 to 1998 we obtain the same results, as in Hirata and Soares (2015). Finally, the concern that migration could be driving our results is discarded when we exclude all migrants from the sample and practically find the same results. The reduced form estimates corroborate our hypothesis that the labor market is the main channel through which trade shocks can impact religious affiliation and that our IV strategy is appropriate. Furthermore, when regress-

ing supply side variables, such as the percentage of pentecostal preachers among all the preachers in the locality, we find no evidence of supply side effects, reinforcing one more time the role of labor markets and income in determining religious affiliation.

The evidence provided in this paper fills important gaps on both economics and on sociological literature. We use an appropriate identification strategy in a research field barely explored by economists, and we shed light on the role of income and labor markets as determinants of religious practices. We also provide new evidence on the by-products of trade shocks for Brazil. We contribute new evidence concerning the impacts of trade liberalization and globalization on religious behavior.

Appendix

Table 1: Church Classification

	Census' Classification		
Church	1991	2000	Religion
Not religious	0	0	Not religious
Roman Catholic Apostolic	11	110 - 112	Catholic
Brazilian Catholic Apostolic	12	120	Catholic
Orthodox Catholic	13	140 - 190	Catholic
Assembly of God	31	310 - 312, 319	Pentecostal Evangelical
Brazilian Christian Congregation	32	320, 329	Pentecostal Evangelical
Brazil for Christ	33	340, 349	Pentecostal Evangelical
Foursquare Gospel	34	340, 349	Pentecostal Evangelical
Universal Church of the Kingdom of God	35	350, 359	Pentecostal Evangelical
Blessing House	36	360, 369	Pentecostal Evangelical
House of Prayer	37	370, 379	Pentecostal Evangelical
God is Love	38	380, 389	Pentecostal Evangelical
Maranata	39	390, 399	Pentecostal Evangelical
Renewed Traditional Pentecostal	40	400, 401, 409	Pentecostal Evangelical
Pentecostal Evangelical not determined	41	410, 419	Pentecostal Evangelical
Other Pentecostal Evangelical	45	420, 429, 430, 439, 440, 449, 450, 460, 469, 480, 489	Pentecostal Evangelical
Religion not declared	99	990	Religion not declared

Notes: Table displays 1991 and 2000 IBGE Censuses' compatible codes for religious denominations/churches of interest for this work.

Table 2: Sector of activities, merged sectors and respective Census' classification and tariffs
- 1990, 1995 and 1998

	Nominal Tariffs			Weighted Tariffs						
Sector	1990	1995	1998	1990	1995	1998	Weight in the Aggregated Sector in 1990	Aggregated Sectors	Theta	1991 Census Classification
Agriculture	5.9	7.4	9,9	5.9	7.4	9.9	1	Agriculture	0.84	11-37, 41, 42, 581
Mineral extraction	9.6	2.8	6,4	9.6	2.8	6.4	1	Mineral extraction	0.84	50, 53-59
Oil and coal extraction	3.3	0	0	3.3	0	0	1	Oil and coal extraction	0.73	51, 52
Non-metallic minerals	31.5	10.2	13,6	31.5	10.2	13.6	1	Non-metallic minerals	0.90	100
Metals	14.5	7.1	10,2	24.7	11.5	14.6	0.35	Metals	0.81	110
Non-metallic manufacturing	17.6	8.9	11,7	24.7	11.5	14.6	0.17	Metals	0.81	110
Other non-metallic manufacturing	34.8	15.8	18,9	24.7	11.5	14.6	0.48	Metals	0.81	110
Machinery and equipment	37.2	16.5	17,7	37.2	16.5	17.7	1	Machinery and equipment	0.48	120
Eletric materials	44.1	21.3	19.5	42.1	20.2	18.3	0.45	Eletric material and equipment	0.64	130
Eletronic equipment	40.6	19.3	17.4	42.1	20.2	18.3	0.55	Eletric material and equipment	0.64	130
Automobile and transportation	78.7	41	38.1	61.9	31.6	30.1	0.60	Vehicles and vehicles parts	0.76	140
Vehicle parts and other vehicles	37.4	17.9	18.5	61.9	31.6	30.1	0.40	Vehicles and vehicles parts	0.76	140
Wood and furniture	25.4	10.7	14	25.4	10.7	14	1	Wood and furniture	0.55	150, 151, 160
Paper, publishing and printing	23.6	9.8	14.2	23.6	9.8	14.2	1	Paper, publishing and printing	0.68	170, 290
Rubber	46.6	12.6	14.8	46.6	12.6	14.8	1	Rubber	0.68	180
Chemicals	24.8	7.6	21.1	23	7.6	15.2	0.42	Chemicals	0.67	200
Petroleum refining	19.4	3.8	5.4	19.4	3.8	5.4	1	Petroleum refining	0.79	201, 202, 352, 477
Other chemicals	21.8	7.6	10.9	23	7.6	15.2	0.58	Chemicals	0.67	200
Pharma and perfume	31.5	8	10.8	31.5	8	10.8	1	Pharma and perfume	0.67	210. 220
Plastic	39	15.3	18.2	39	15.3	18.2	1	Plastic	0.70	230
Textile	31.8	14.9	19.4	31.8	14.9	19.4	1	Textile	0.71	240. 241
Apparel	51.1	19.8	22.8	51.1	19.8	22.8	1	Apparel	0.75	250
Footwear	29.6	17.9	17.2	29.6	17.9	17.2	1	Footwear	0.64	190, 251
Coffee	28.9	10	15	27.63	12	15.9	0.14	Food processing	0.71	260, 261, 270, 280
Vegetables	34.6	12.1	14.8	27.63	12	15.9	0.07	Food processing	0.71	260, 261, 270, 280
Animal slaughter	19.7	8.4	12.2	27.63	12	15.9	0.32	Food processing	0.71	260, 261, 270, 280
Dairy	32.7	18.1	23	27.63	12	15.9	0.18	Food processing	0.71	260, 261, 270, 280
Sugar	25.7	16	19	27.63	12	15.9	0.09	Food processing	0.71	260, 261, 270, 280
Vegetable oils	16.6	8.3	11.5	27.63	12	15.9	0.08	Food processing	0.71	260, 261, 270, 280
Other food processing	45	14.6	17.9	27.63	12	15.9	0.12	Food processing	0.71	260, 261, 270, 280
Other manufacturing	41.6	13.5	16.4	41.6	13.5	16.4	1	Other manufacturing	0.72	300

Notes: Nominal tariffs per year (Kume et al, 2003), tariffs weighted by their respective sector's weight in the aggregated sector classification. The aggregated sector's weight and Theta (share of capital in total cost) were obtained using IBGE's *Tabela de Usos e Recursos* for the year of 1990. In this table we have also provided how we classified individuals accordingly to their sector of activity in the 1991's Census (IBGE).

Table 3: Descriptive Statistics - 1991 and 2000

	1991		2000	
Variable	Mean	sd	Mean	sd
Pentecostal (pp)	0.0489	0.0313	0.0863	0.0460
Catholics (pp)	0.876	0.0773	0.798	0.101
Religious (pp)	0.968	0.0316	0.944	0.0412
Other Religious (pp)	0.0427	0.0396	0.0588	0.0436
Gender (pp)	0.493	0.0203	0.498	0.0158
White (pp)	0.475	0.254	0.507	0.226
Urban (pp)	0.615	0.198	0.691	0.177
Age	33.37	0.961	34.10	1.196
Years of Study	4.077	1.354	5.366	1.349
Log Expected Earnings	4.964	0.357	4.463	0.328
Micro-region Population(mean)	166,306		210,139	
Micro-regions	494		494	
Tariff measures				
Tariff I (1990-1995)	-0.0321	0.371	-0.145	0.011
Tariff II (1990 - 1998)	-.007	0.036	-0.129	0.034

Notes: Means of the average log expected earnings, years of study and age and percentage of Pentecostal, Catholics, Religious, Religious Non-Pentecostal, white individuals and men across micro-regions to 1991 to 2000. Numbers based on census data from 1991 and 2000. Sample weights provided by the Census data were used to measure the average and percentage variables for each micro-region. No weights were using for the mean of these variables.

Table 4: 1st Stage - Differences in log expected earnings on local tariff changes, from 1991 to 2000, by Brazilian micro-regions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Tariff I	1.111	1.130	1.141	1.148	1.145	1.102	0.826	1.120	1.195
	(0.097)***	(0.097)***	(0.091)***	(0.120)***	(0.119)***	(0.143)***	(0.201)***	(0.259)***	(0.252)***
Δ White		-0.273	-0.310	-0.306	-0.293	-0.299	-0.261	-0.287	-0.199
		(0.158)*	(0.157)**	(0.158)*	(0.151)*	(0.151)**	(0.146)*	(0.147)*	(0.144)
Δ Gender			2.566	2.542	2.059	2.072	1.659	1.624	1.628
			(0.933)***	(0.989)**	(0.987)**	(0.985)**	(0.932)*	(0.924)*	(0.871)*
Δ Years of Study				-0.004	0.001	-0.000	-0.017	-0.029	-0.026
				(0.043)	(0.041)	(0.041)	(0.039)	(0.040)	(0.039)
Δ Age					0.334	0.308	0.269	0.193	1.357
					(0.099)***	(0.101)***	(0.100)***	(0.105)*	(0.734)*
Δ Age Squared					-0.005	-0.004	-0.004	-0.003	-0.019
					(0.001)***	(0.001)***	(0.001)***	(0.001)*	(0.011)*
Δ Urban						0.088	0.087	0.202	0.174
						(0.132)	(0.129)	(0.143)	(0.136)
Log Pop in 1991							-0.012	-0.080	-0.044
							(0.005)**	(0.034)**	(0.034)
Log Urban Pop in 1991								0.068	0.034
								(0.034)**	(0.034)
State FE	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Age Intervals	*No*	*No*	*No*	*No*	*No*	*No*	*No*	*No*	*Yes*
Observations	494	494	494	494	494	494	494	494	494
R-squared	0.713	0.715	0.721	0.721	0.731	0.731	0.735	0.739	0.756

Notes: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. This table reports respectively the OLS results of variation in log expected earnings on the variable Tariff I (tariff changes from 1990 to 1995) and the following controls: differences in the percentage of white individuals and women; variation in the average years of study, age and age squared; difference of the percentage of urban population; logged total population and urban population, by micro-region; difference on the percentage of individuals in each of 5-years-old interval. State-specific fixed effects are included. 1991's micro-regions populations size were used as weights. Census data from 1991 and 2000.

Table 5: 2nd Stage - Differences in the share of specific denominations on local population and local religious population on instrumented expected earnings changes, from 1991 to 2000, by Brazilian micro-regions

Panel A: Dep. Var. Religious variables on local population

	OLS				**2SLS**			
	Δ Pentecostals	Δ Catholics	Δ Religious	Δ Others	Δ Pentecostals	Δ Catholics	Δ Religious	Δ Others
Δ Expected Earnings	-0.029	0.030	0.005	-0.005	-0.164	0.152	0.020	-0.017
	(0.007)***	(0.009)***	(0.005)	(0.006)	(0.042)***	(0.045)***	(0.015)	(0.026)
Observations	494	494	494	494	494	494	494	494
R-squared	0.679	0.689	0.567	0.559	0.339	0.502	0.551	0.553

Panel B: Dep. Var. Religious variables on local religious population

	OLS			**2SLS**		
	Δ Pentecostals	Δ Catholics	Δ Others	Δ Pentecostals	Δ Catholics	Δ Others
Δ Expected Earnings	-0.041	0.069	-0.259	-1.006	0.344	-0.351
	(0.100)	(0.016)***	(0.116)**	(0.430)**	(0.089)***	(0.397)
Observations	494	494	494	494	494	494
R-squared	0.472	0.753	0.500	0.341	0.530	0.499

Notes: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. This table reports respectively the 2SLS results of variation of log of share of Pentecostals , Catholics and other religious individuals that are neither Pentecostal, nor Catholic, on the local population (Panel A) and on the religious population (Panel B) of a micro-region on log expected earnings instrumented by Tariff I (tariff changes from 1990 to 1995) and the following controls: difference in the percentage of white individuals and women; variation in the average years of study, age and age squared; difference of the percentage of urban population; logged total population and urban population, by micro-region; difference in the percentage of the local population comprehended in 5-age-year intervals. State-specific Fixed Effects are included. 1991's micro-regions populations size were used as weights. Census data from 1991 and 2000.

Table 6: 2nd stage - Changes in log of the share of Pentecostals on instrumented differences in log expected earnings, from 1991 to 2000, by Brazilian micro-regions

Dep. Variable	Δ Log Share of Pentecostals										
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Δ Expected Earnings	-0.186	-0.182	-0.184	-0.153	-0.155	-0.154	-0.166	-0.181	-0.105	-0.110	-0.164
	(0.056)***	(0.048)***	(0.043)***	(0.027)***	(0.026)***	(0.026)***	(0.030)***	(0.036)***	(0.018)***	(0.020)***	(0.042)***
Δ White		-0.015	-0.072	-0.045	-0.040	-0.055	-0.070	-0.079	-0.018	0.014	-0.003
		(0.055)	(0.050)	(0.036)	(0.036)	(0.034)	(0.038)*	(0.038)**	(0.024)	(0.026)	(0.029)
Δ Gender			0.771	0.243	0.279	0.189	0.278	0.360	-0.045	0.054	0.062
			(0.407)*	(0.225)	(0.232)	(0.231)	(0.281)	(0.369)	(0.193)	(0.197)	(0.181)
Δ Years of Study				-0.024	-0.023	-0.023	-0.024	-0.027	-0.020	-0.018	-0.003
				(0.009)***	(0.010)**	(0.010)**	(0.011)**	(0.012)**	(0.007)***	(0.007)**	(0.008)
Δ Age					0.008	0.061	0.062	0.060	0.015	0.098	0.201
					(0.003)**	(0.020)***	(0.022)***	(0.023)**	(0.017)	(0.134)	(0.144)
Δ Age Squared						-0.001	-0.001	-0.001	-0.000	-0.001	-0.003
						(0.000)***	(0.000)**	(0.000)**	(0.000)	(0.002)	(0.002)
Δ Urban							0.026	0.025	0.074	0.051	0.079
							(0.035)	(0.038)	(0.022)***	(0.022)**	(0.024)***
Log Pop 1991								-0.001	-0.031	-0.020	-0.019
								(0.002)	(0.005)***	(0.005)***	(0.006)***
Log Urban 1991									0.030	0.018	0.016
									(0.005)***	(0.005)***	(0.006)***
State FE	*No*	*No*	*No*	*No*	*No*	*No*	*No*	*No*	*No*	*No*	*Yes*
Age Intervals	*No*	*No*	*No*	*No*	*No*	*No*	*No*	*No*	*No*	*Yes*	*Yes*
Observations	494	494	494	494	494	494	494	494	494	494	494
R-squared									0.333	0.352	0.339

Notes: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. This table reports respectively the 2SLS results of variation of religious variables on Log Expected Earnings instrumented by Tariff I (tariff changes from 1990 to 1995) and the following controls: difference in the percentage of white individuals and women; variation in the average years of study, age and age squared; difference of the percentage of urban population; logged total population and urban population in 1991; differences in the percentage of the local population comprehended in 5-age-year intervals. State-specific Fixed Effects are included. 1991's micro-regions populations size were used as weights. Census data from 1991 and 2000.

Table 7: 2nd stage - Changes in log of the share of Catholics on instrumented differences in log expected earnings, from 1991 to 2000, by Brazilian micro-regions

Dep. Variable	Δ Log Share of Catholics										
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Δ Expected Earnings	0.159	0.184	0.185	0.145	0.146	0.145	0.145	0.140	0.060	0.078	0.152
	(0.057)***	(0.053)***	(0.049)***	(0.028)***	(0.027)***	(0.027)***	(0.028)***	(0.037)***	(0.025)**	(0.024)***	(0.045)***
Δ White		-0.089	-0.051	-0.084	-0.087	-0.069	-0.070	-0.072	-0.137	-0.140	-0.034
		(0.056)	(0.060)	(0.042)**	(0.042)**	(0.041)*	(0.040)*	(0.038)*	(0.034)***	(0.029)***	(0.032)
Δ Gender			-0.528	0.143	0.124	0.227	0.230	0.252	0.683	0.419	0.402
			(0.483)	(0.252)	(0.258)	(0.254)	(0.287)	(0.387)	(0.243)***	(0.212)**	(0.205)**
Δ Years of Study				0.031	0.030	0.029	0.029	0.028	0.021	0.020	0.001
				(0.011)***	(0.012)***	(0.011)***	(0.011)***	(0.012)**	(0.008)***	(0.008)***	(0.007)
Δ Age					-0.004	-0.065	-0.065	-0.065	-0.018	-0.264	-0.100
					(0.003)	(0.025)***	(0.025)**	(0.024)***	(0.023)	(0.152)*	(0.159)
Δ Age Squared						0.001	0.001	0.001	0.000	0.003	0.001
						(0.000)**	(0.000)**	(0.000)**	(0.000)	(0.002)	(0.002)
Δ Urban							0.001	0.001	-0.051	-0.017	-0.063
							(0.033)	(0.032)	(0.022)**	(0.026)	(0.029)**
Log Pop 1991								-0.000	0.031	0.019	0.024
								(0.002)	(0.006)***	(0.006)***	(0.006)***
Log Urban 1991									-0.031	-0.018	-0.021
									(0.005)***	(0.005)***	(0.006)***
State FE	*No*	*No*	*No*	*No*	*No*	*No*	*No*	*No*	*No*	*No*	*Yes*
Age Intervals	*No*	*No*	*No*	*No*	*No*	*No*	*No*	*No*	*No*	*Yes*	*Yes*
R-squared									0.409	0.451	0.502

Notes: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. This table reports respectively the 2SLS results of variation of religious variables on Log Expected Earnings instrumented by Tariff I (tariff changes from 1990 to 1995) and the following controls: difference in the percentage of white individuals and women; variation in the average years of study, age and age squared; difference of the percentage of urban population; logged total population and urban population in 1991; difference in the percentage of the local population comprehended in 5-age-year intervals. State-specific Fixed Effects are included. 1991's micro-regions populations size were used as weights. Census data from 1991 and 2000.

Table 8: 2nd stage - Changes in log of the share of religious individuals on instrumented differences in log expected earnings, from 1991 to 2000, by Brazilian micro-regions

Dep. Variable	Δ Log Share of Religious										
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Δ Expected Earnings	-0.001	0.016	0.015	0.007	0.006	0.005	0.005	-0.004	-0.011	-0.002	0.020
	(0.010)	(0.010)	(0.011)	(0.008)	(0.009)	(0.008)	(0.008)	(0.014)	(0.013)	(0.012)	(0.015)
Δ White		-0.061	-0.072	-0.079	-0.076	-0.073	-0.073	-0.079	-0.085	-0.067	-0.015
		(0.013)***	(0.013)***	(0.013)***	(0.013)***	(0.014)***	(0.014)***	(0.016)***	(0.018)***	(0.015)***	(0.012)
Δ Gender			0.148	0.292	0.311	0.327	0.328	0.380	0.417	0.339	0.383
			(0.136)	(0.106)***	(0.108)***	(0.109)***	(0.103)***	(0.124)***	(0.115)***	(0.104)***	(0.071)***
Δ Years os Study				0.007	0.007	0.007	0.007	0.005	0.004	0.006	0.006
				(0.003)**	(0.003)**	(0.003)**	(0.003)**	(0.004)	(0.004)	(0.004)	(0.002)**
Δ Age					0.004	-0.005	-0.005	-0.006	-0.002	-0.067	0.069
					(0.001)***	(0.009)	(0.009)	(0.009)	(0.011)	(0.071)	(0.066)
Δ Age Squared						0.000	0.000	0.000	0.000	0.001	-0.001
						(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)
Δ Urban							0.000	-0.000	-0.005	0.000	-0.015
							(0.006)	(0.006)	(0.008)	(0.010)	(0.012)
Log Pop 1991								-0.001	0.002	0.002	0.005
								(0.001)	(0.002)	(0.002)	(0.002)*
Log Urban 1991									-0.003	-0.003	-0.004
									(0.002)	(0.002)	(0.002)*
State FE	*No*	*No*	*No*	*No*	*No*	*No*	*No*	*No*	*No*	*No*	*Yes*
Age Intervals	*No*	*No*	*No*	*No*	*No*	*No*	*No*	*No*	*No*	*Yes*	*Yes*
R-squared		0.122	0.134	0.144	0.175	0.178	0.178	0.143	0.097	0.218	0.551

Notes: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. This table reports respectively the 2SLS results of variation of religious variables on log expected earnings instrumented by Tariff I (tariff changes from 1990 to 1995) and the following controls: difference in the percentage of white individuals and women; variation in the average years of study, age and age squared; difference of the percentage of urban population; logged total population and urban population in 1991; difference in the percentage of the local population comprehended in 5-age-year intervals, by micro-regions. State-specific Fixed Effects are included. 1991's micro-regions populations size were used as weights. Census data from 1991 and 2000.

Table 9: 2nd stage - Changes in log of the share of other religious individuals on instrumented differences in log expected earnings, from 1991 to 2000, by Brazilian micro-regions

Dep. Variable	Δ Log Share of Other Religious Individuals										
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Δ Expected Earnings	-0.031	-0.050	-0.051	-0.048	-0.049	-0.048	-0.041	-0.038	-0.003	-0.012	-0.017
	(0.020)	(0.021)**	(0.020)**	(0.015)***	(0.015)***	(0.014)***	(0.018)**	(0.023)*	(0.020)	(0.019)	(0.026)
Δ White		0.069	0.060	0.062	0.065	0.057	0.067	0.068	0.096	0.091	0.031
		(0.024)***	(0.026)**	(0.023)***	(0.022)***	(0.021)***	(0.022)***	(0.022)***	(0.022)***	(0.017)***	(0.017)*
Δ Gender			0.126	0.080	0.097	0.055	-0.001	-0.014	-0.201	-0.061	-0.020
			(0.221)	(0.149)	(0.150)	(0.151)	(0.172)	(0.207)	(0.166)	(0.152)	(0.099)
Δ Years of Study				-0.002	-0.002	-0.001	-0.001	-0.000	0.003	0.005	0.014
				(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.005)	(0.004)	(0.004)***
Δ Age					0.004	0.028	0.028	0.028	0.007	0.252	0.080
					(0.002)*	(0.016)*	(0.016)*	(0.016)*	(0.018)	(0.098)***	(0.078)
Δ Age Squared						-0.000	-0.000	-0.000	-0.000	-0.002	-0.001
						(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)
Δ Urban							-0.017	-0.017	0.006	-0.008	-0.003
							(0.024)	(0.024)	(0.026)	(0.028)	(0.024)
Log Pop 1991								0.000	-0.014	-0.008	-0.011
								(0.001)	(0.003)***	(0.004)**	(0.003)***
Log Urban 1991									0.014	0.008	0.011
									(0.003)***	(0.004)**	(0.003)***
State FE	*No*	*No*	*No*	*No*	*No*	*No*	*No*	*No*	*No*	*No*	*Yes*
Age Intervals	*No*	*No*	*No*	*No*	*No*	*No*	*No*	*No*	*No*	*Yes*	*Yes*
R-squared									0.150	0.222	0.553

Notes: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. This table reports respectively the 2SLS results of variation of religious variables on log expected earnings instrumented by Tariff I (tariff changes from 1990 to 1995) and the following controls: difference in the percentage of white individuals and women; variation in the average years of study, age and age squared; difference of the percentage of urban population; logged total population and urban population in 1991; difference in the percentage of the local population comprehended in 5-age-year intervals, by micro-regions. . State-specific Fixed Effects are included. 1991's micro-regions populations size were used as weights. Census data from 1991 and 2000.

Table 10: Reduced Form - Differences in religious variables on local tariff changes, from 1991 to 2000, by Brazilian micro-regions

	Δ Pentecostals (1)	Δ Catholics (2)	Δ Religious (3)	Δ Other (4)
Tariff I	-0.197	0.181	0.024	-0.020
	(0.036)***	(0.045)***	(0.019)	(0.033)
Δ White	0.030	-0.064	-0.019	0.034
	(0.022)	(0.027)**	(0.012)	(0.017)**
Δ Gender	-0.206	0.649	0.415	-0.048
	(0.117)*	(0.144)***	(0.071)***	(0.089)
Δ Years of Study	0.002	-0.003	0.005	0.014
	(0.005)	(0.006)	(0.003)*	(0.005)***
Δ Age	-0.022	0.106	0.096	0.057
	(0.095)	(0.117)	(0.061)	(0.074)
Δ Age Squared	0.000	-0.002	-0.001	-0.000
	(0.001)	(0.002)	(0.001)	(0.001)
Δ Urban	0.051	-0.037	-0.012	-0.006
	(0.014)***	(0.022)*	(0.012)	(0.023)
State FE	*Yes*	*Yes*	*Yes*	*Yes*
Age Intervals	*Yes*	*Yes*	*Yes*	*Yes*
Observations	494	494	494	494
R-squared	0.699	0.698	0.567	0.559

Notes: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. This table reports respectively the 2SLS results of variation of religious variables on log expected earnings instrumented by Tariff I (tariff changes from 1990 to 1995) and the following controls: difference in the percentage of white individuals and women; variation in the average years of study, age and age squared; difference of the percentage of urban population; logged total population and urban population in 1991; differences in the percentage of the local population comprehended in 5-age-year intervals. State-specific Fixed Effects are included. 1991's micro-regions populations size were used as weights. Census data from 1991 and 2000.

Table 11: Supply Side - Local religious variables on instrumented log expected earnings changes, from 1991 to 2000, by Brazilian micro-regions

	Log Pentecostal Preachers	Percentage Pentecostal Preachers	Religious Preachers per capita
	(1)	(2)	(3)
Δ Expected Earnings	-3.470	0.245	-2.229
	(2.421)	(0.430)	(2.206)
Δ White	-2.970	-0.127	-1.828
	(2.163)	(0.440)	(2.045)
Δ Gender	18.723	5.221	20.414
	(10.685)*	(3.328)	(11.139)*
Δ Years of Study	-0.274	-0.126	-0.315
	(0.433)	(0.102)	(0.426)
Δ Age	2.136	-3.534	0.377
	(9.369)	(2.278)	(9.310)
Δ Age Squared	-0.115	0.034	-0.067
	(0.140)	(0.033)	(0.139)
Δ Urban	2.353	0.622	2.200
	(1.230)*	(0.247)**	(1.156)*
Log Pop in 1991	-0.661	-0.117	-0.451
	(0.349)*	(0.070)*	(0.338)
Log Urban Pop in 1991	0.541	0.117	0.359
	(0.332)	(0.067)*	(0.321)
State FE	*Yes*	*Yes*	*Yes*
Age Intervals	*Yes*	*Yes*	*Yes*
Observations	494	494	494
R-squared	0.073	0.105	0.075

Notes: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. This table reports respectively the 2SLS results of variation of religious variables on log expected earnings instrumented by Tariff I (tariff changes from 1990 to 1995) and the following controls: difference in the percentage of white individuals and women; variation in the average years of study, age and age squared; difference of the percentage of urban population; logged total population and urban population in 1991, by micro-region. difference in the percentage of the local population comprehended in 5-age-year intervals. State-specific Fixed Effects are included. 1991's micro-regions populations size were used as weights. Census data from 1991 and 2000.

Table 12: Heterogeneity Analysis - Instrumented changes in log expected earnings, from 1991 to 2000, by Brazilian Micro-regions, across different samples

Samples		Δ Pentecostals (1)	Δ Catholics (2)	Δ Religious (3)	Δ Others (4)
Gender	Men	-0.134	0.129	0.029	-0.006
		(0.035)***	(0.043)***	(0.020)	(0.023)
	Women	-0.194	0.174	0.013	-0.026
		(0.050)***	(0.050)***	(0.012)	(0.030)
Color	Black	-0.186	0.180	0.017	-0.040
		(0.050)***	(0.053)***	(0.019)	(0.028)
	White	-0.138	0.121	0.010	-0.019
		(0.037)***	(0.039)***	(0.012)	(0.029)
Locality	Rural	-0.240	0.265	0.015	-0.140
		(0.072)***	(0.086)***	(0.025)	(0.058)**
	Urban	-0.168	0.143	0.016	-0.014
		(0.044)***	(0.044)***	(0.016)	(0.026)

Notes: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. This table reports respectively the 2SLS results of variation of religious variables on log expected earnings instrumented by Tariff I (tariff changes from 1990 to 1995) and the previous controls, by micro-regions, on different samples classified by gender, colour and urban or rural individuals. State-specific Fixed Effects are included and differences in the percentage of individuals classified in various 5-year groups are included. 1991's micro-regions populations size were used as weights. Census data from 1991 and 2000.

Table 13: Heterogeneity Analysis - Instrumented changes in log expected earnings, from 1991 to 2000, by Brazilian Micro-regions, across different age samples

Samples	Δ Pentecostal (1)	Δ Catholics (2)	Δ Religious (3)	Δ Others (4)
$<$ 15 Years	-0.226	0.216	0.021	-0.036
	(0.057)***	(0.063)***	(0.022)	(0.029)
Main Sample	-0.164	0.152	0.020	-0.017
	(0.042)***	(0.045)***	(0.015)	(0.026)
$>$ 64 Years	-0.100	0.062	0.010	0.029
	(0.038)***	(0.035)*	(0.011)	(0.028)

Notes: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. This table reports respectively the 2SLS results of variation of religious variables on log expected earnings instrumented by Tariff I (tariff changes from 1990 to 1995) and the previous controls, by micro-regions, on different samples classified by age. State-specific Fixed Effects are included and differences in the percentage of individuals classified in various 5-year groups are included. 1991's micro-regions populations size were used as weights. Census data from 1991 and 2000.

Table 14: Coefficient Analysis

		Δ Pentecostals	Δ Catholics	Δ Religious	Δ Others
Panel A			**Men vs Women**		
	Difference	0.060	-0.045	0.016	-0.032
Main Sample	T - Statistic	1.714	-1.046	0.800	-1.391
	Significant	*Yes*	*No*	*No*	*No*
Panel B			**Age**		
15 years	Difference	-0.612	0.064	0.001	-0.019
vs	T - Statistic	-1.088	1.016	0.045	-0.731
Main Sample	Significant	*No*	*No*	*No*	*No*
64 years	Difference	0.064	-0.090	-0.010	0.046
vs	T - Statistic	1.684	-2.571	-0.909	1.643
Main Sample	Significant	*Yes*	*Yes*	*No*	*Yes*
Panel C			**Urban vs Rural**		
	Difference	-0.072	0.122	-0.010	0.000
Main Sample	T - Statistic	-1.000	1.419	-0.400	0.000
	Significant	*No*	*No*	*No*	*No*
Panel D			**Black vs White**		
	Difference	-0.486	-0.059	0.007	0.021
Main Sample	T - Statistic	-0.960	1.113	0.368	0.724
	Significant	*No*	*No*	*No*	*No*

Notes: This table presents a comparison (difference) between different coefficient estimates among distinct samples, the respective t-statistic and if its significant at 5 pp significance level. Panel A presents the difference of coefficients estimated for Men and Women sample, for, respectively, Pentecostal, Catholic, Religious and Religious Non-Pentecostal individuals. Panel B presents the difference of these coefficients estimated in the less than 15 years sample and the main one, and the difference between the 64 years or more sample and the main one. Panel C presents the difference between coefficients estimated in the urban and rural samples. Panel D presents the differences between black and white groups.

Table 15: Robustness Exercise: 2nd Stage - Differences in religious variables on instrumented log expected earnings changes without migrants, from 1991 to 2000, by Brazilian micro-regions

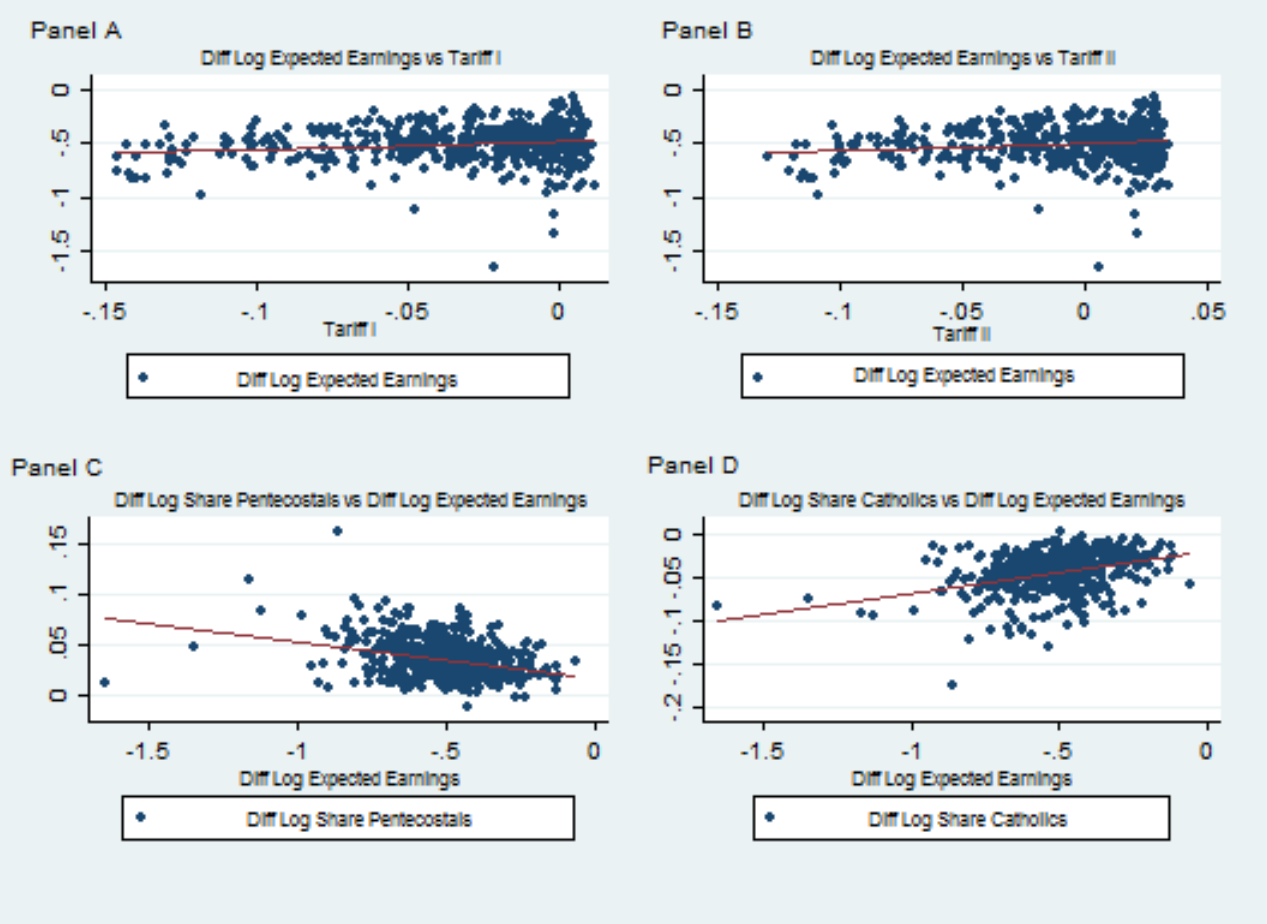
	Δ Pentecostals (1)	Δ Catholics (2)	Δ Religious (3)	Δ Other (4)
Δ Expected Earnings	-0.161	0.153	0.025	-0.016
	(0.042)***	(0.048)***	(0.016)	(0.026)
Δ White	0.018	-0.027	-0.004	0.014
	(0.029)	(0.031)	(0.012)	(0.017)
Δ Gender	-0.057	0.341	0.294	0.071
	(0.154)	(0.183)*	(0.065)***	(0.090)
Δ Years of Study	-0.011	0.010	0.005	0.008
	(0.008)	(0.008)	(0.003)*	(0.004)*
Δ Age	0.195	-0.046	0.093	0.044
	(0.137)	(0.158)	(0.068)	(0.075)
Δ Age Squared	-0.003	0.000	-0.001	-0.000
	(0.002)	(0.002)	(0.001)	(0.001)
Δ Urban	0.067	-0.072	-0.028	0.003
	(0.022)***	(0.028)**	(0.013)**	(0.022)
Log Pop in 1991	-0.017	0.024	0.006	-0.010
	(0.005)***	(0.006)***	(0.002)**	(0.003)***
Log Urban Pop	0.016	-0.022	-0.006	0.009
	(0.005)***	(0.006)***	(0.002)***	(0.003)***
State FE	*Yes*	*Yes*	*Yes*	*Yes*
Age Intervals	*Yes*	*Yes*	*Yes*	*Yes*
Observations	494	494	494	494
R-squared	0.413	0.531	0.522	0.531

Notes: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. This table reports respectively the 2SLS results of variation of religious variables on Log Expected Earnings instrumented by Tariff I (tariff changes from 1990 to 1995) and the following controls: difference in the percentage of white individuals and women; variation in the average years of study, age and age squared; differences of the percentage of urban population; logged total population and urban population in 1991; differences in the percentage of the local population comprehended in 5-age-year intervals. State-specific Fixed Effects are included. 1991's micro-regions populations size were used as weights. Census data from 1991 and 2000.

Table 16: Robustness Exercise: 2nd Stage - Differences in religious variables on log expected earnings, instrumented by Tariff changes from 1990 to 1998, from 1991 to 2000, by Brazilian micro-regions

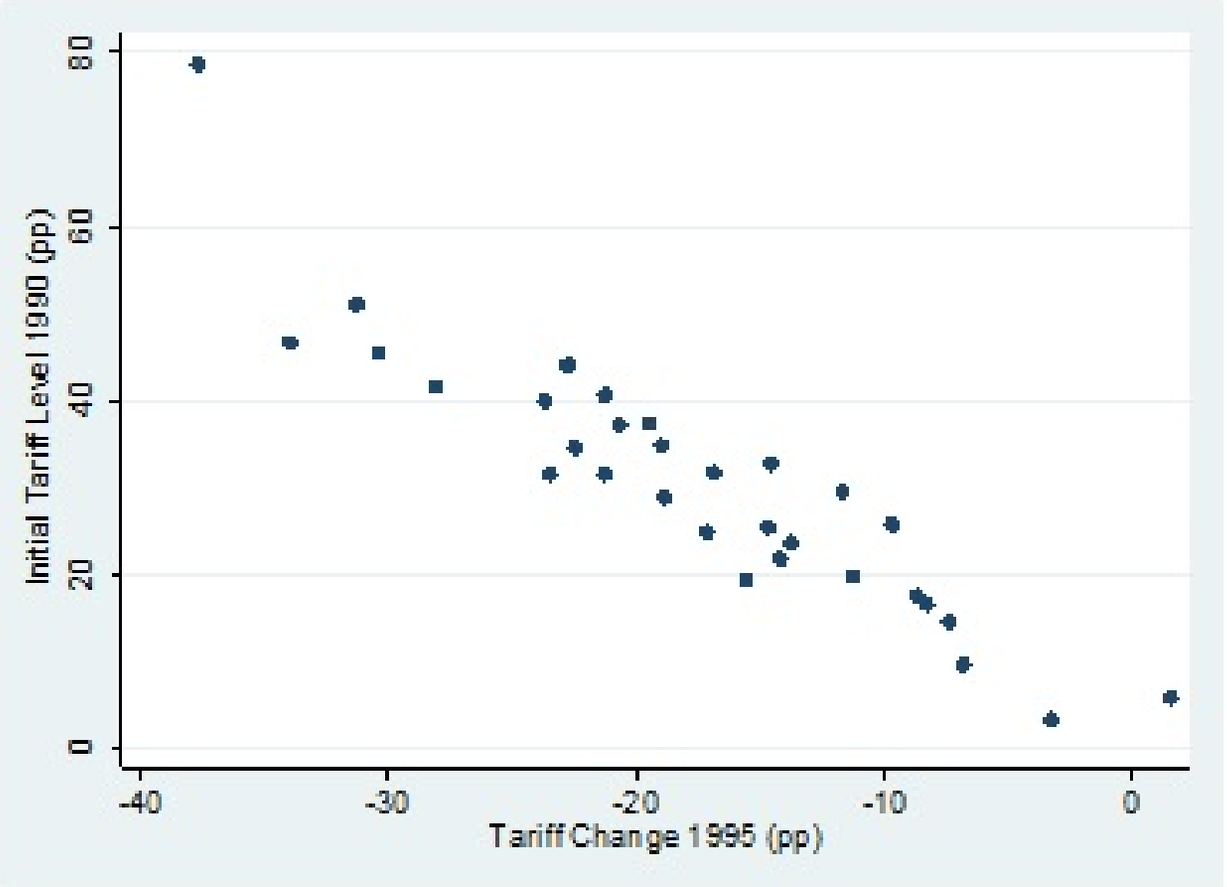
	Δ Expected Earnings (1)	Δ Pentecostals (2)	Δ Catholics (3)	Δ Religious (4)	Δ Other (5)
Tariff II	1.074				
	(0.265)***				
Δ Expected Earnings		-0.178	0.151	0.017	-0.006
		(0.049)***	(0.049)***	(0.016)	(0.029)
Δ White	-0.188	-0.005	-0.034	-0.015	0.032
	(0.145)	(0.030)	(0.032)	(0.012)	(0.016)**
Δ Gender	1.578	0.079	0.403	0.386	-0.034
	(0.872)*	(0.193)	(0.207)*	(0.071)***	(0.099)
Δ Years of Study	-0.021	-0.002	0.001	0.006	0.013
	(0.039)	(0.008)	(0.007)	(0.002)**	(0.004)***
Δ Age	1.374	0.222	-0.098	0.073	0.064
	(0.739)*	(0.155)	(0.161)	(0.066)	(0.081)
Δ Age Squared	-0.019	-0.003	0.001	-0.001	-0.000
	(0.011)*	(0.002)	(0.002)	(0.001)	(0.001)
Δ Urban	0.164	0.081	-0.063	-0.015	-0.005
	(0.140)	(0.027)***	(0.029)**	(0.012)	(0.025)
Log Pop 1991	-0.035	-0.018	0.024	0.005	-0.011
	(0.035)	(0.006)***	(0.006)***	(0.002)*	(0.003)***
Log Urban 1991	0.023	0.016	-0.021	-0.004	0.011
	(0.035)	(0.006)***	(0.006)***	(0.002)*	(0.003)***
State FE	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Age Intervals	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Observations	494	494	494	494	494
R-squared	0.753	0.271	0.505	0.556	0.559

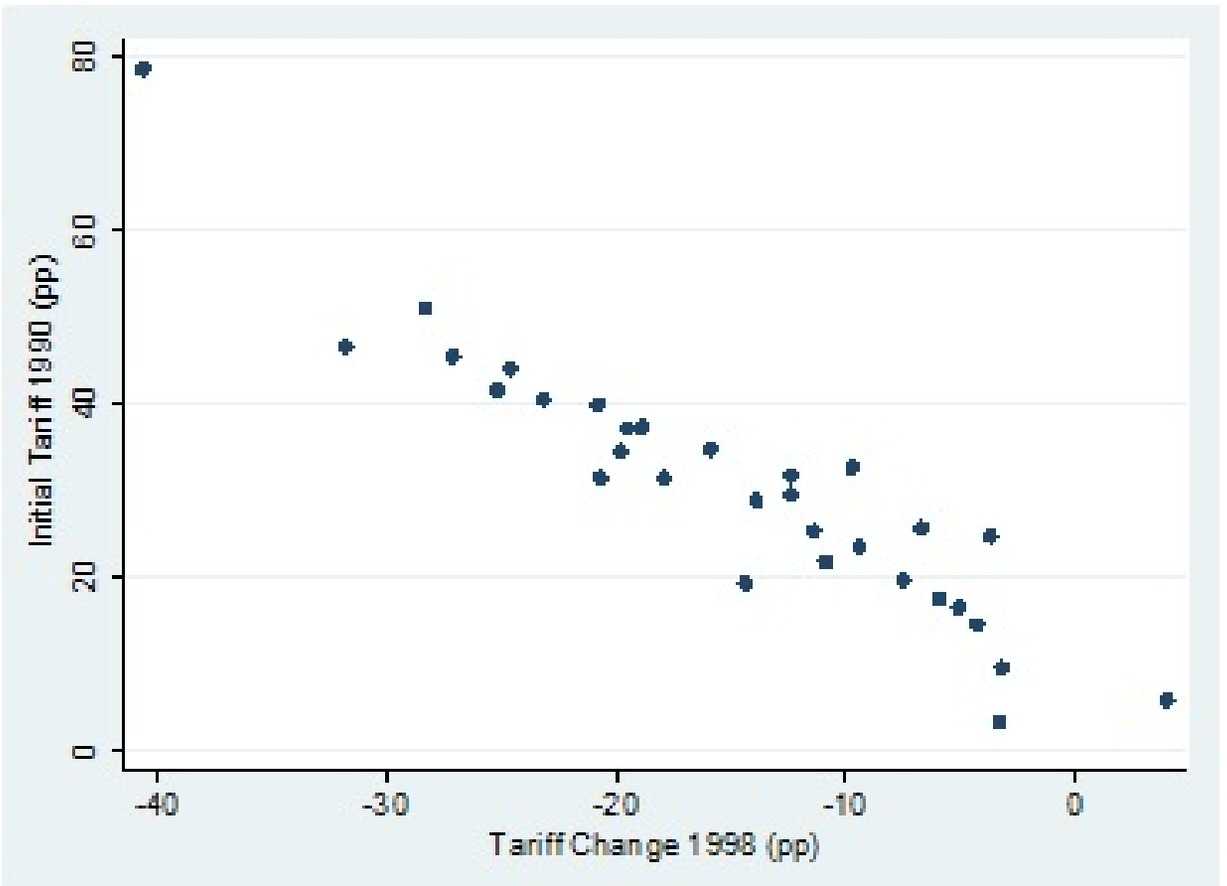
Notes: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. This table reports respectively the 2SLS results of variation of religious variables on Log Expected Earnings instrumented by Tariff I (tariff changes from 1990 to 1995) and the following controls: difference in the percentage of white individuals and women; variation in the average years of study, age and age squared; difference of the percentage of urban population; logged total population and urban population, in 1991; differences in the percentage of the local population comprehended in 5-age-year intervals. State-specific Fixed Effects are included. 1991's micro-regions populations size were used as weights. Census data from 1991 and 2000.



Notes: Differences on log expected earnings, by Brazilian micro-regions plotted against local tariff changes (Tariff I and II) and the difference in the log share of Pentecostal and Catholics affiliates plotted against changes in log expected earnings, from 1991 to 2000, by Brazilian micro-regions.

Figure 1: Difference on Log Expected Income vs Local Tariff





Notes: Initial tariff Levels by activities plotted against tariff changes until 1995 and 1998.

Figure 2: Average Initial Tariff Levels vs Tariff Changes in 1995 and 1998

References

Azzi, C. and Ehrenberg, R. (1975). Household allocation of time and church attendance. *Journal of Political Economy*, 2(85):pp. 409–413.

Barro, R. and McCleary, R. (2003). Religion and economic growth across countries. *American Sociological Review*, 68(5):pp. 760–781.

Bowen, K. D. (1996). *Evangelism and Apostasy: The Evolution and Impact of Evangelicals in Modern Mexico*. McGill's University Press.

Buser, T. (2015). The effect of income on religiousness. *American Economic Journal: Applied Economics*, 7(3):pp. 178–95.

Chen, D. L. (2010). Club goods and group identity: Evidence from islamic resurgence during the indonesian financial crisis. *Journal of Political Economy*, 118(2):pp. 300–354.

Chesnut, R. A. (2003). *Competitive Spirits Latin America's New Religious Economy*. Oxford University Press.

Costa, J. M. F., Garred, J., and Pessoa, J. (2016). Winners and losers a commodities-for-manufactures trade boom. *Journal of International Economics*, 102:pp. 50–69.

Deaton, A. (2011). Aging, religion and health. In Wise, D. A., editor, *Handbook of econometrics*. NBER, University of Chicago Press.

Dix-Carneiro, R. (2014). Trade liberalization and labor market dynamics. *Econometrica*, (82).

Dix-Carneiro, R. and Kovak, B. (2015). Trade liberalization and the skill premium: A local labor markets approach. *American Economic Review Papers and Proceedings*.

Dix-Carneiro, R., Soares, R., and Ulyssea, G. (2016). Local labor market conditions and crime: Evidence from the brazilian trade liberalization. *IZA Discussion Paper*, (9638).

Fink, R. and Stark, R. (2003). The dynamics of religious economies. In Dillon, M., editor, *Handbook of Sociology of Religion*. Cambridge University Press.

Freston, P. (2001). *Evangelicals and Politics in Asia, Africa and Latin America*. Cambridge University Press.

Freud, S. (1928/1989). *The Future of an Illusion*. W. W.Norton & Co.

Hirata, G. and Soares, R. (2015). Competition and the racial wage gap: Testing becker's model of employer discrimination.

Iannaccone, L. R. (1984). Consumption capital and habit formation with an application to religious participation. *PhD Thesis, U.Chicago*.

Iannaccone, L. R. (1990). Religious practice: A human capital approach. *Journal for the Scientific Study of Religion*, 29(3).

Inglehart, R. and Norris, P. (2004). *Sacred and Secular Religion and Politics Worldwide*. Cambridge University Press, NY.

Iyer, S. (2016). The new economics of religion. *Journal of Economic Literature*, 54(2):625–646.

Kovak, B. (2013). Regional effects of trade reform: What is the correct measure of liberalization? *American Economic Review*, 103(5):1818–1820.

Kume, H. G., Piani, G., and Souza, C. F. B. (2003). A política brasileira de importação no período 1987-1998: Descrição e avaliação. In Courseil, C. H. and Kume, H., editors, *A Abertura Comercial Brasileira nos anos 1990: Impactos sobre Emprego e Salário*. IPEA, Rio de Janeiro.

Lipford, J. W. and Tollison, R. D. (2003). Religious participation and income. *Journal of Economic Behavior and Organization*, 51(4):pp. 249–260.

Reis, E., Pimentel, M., Isabel, A. A., and Horácio dos Santos, M. C. (2011). Áreas mínimas comparáveis para os períodos intercensitários de 1872 a 2000. *Anais do I Simpósio Brasileiro de Cartografia Histórica, Paraty*.

Rocha, E. and Torres, R. (2009). O crente e o delinquente. In Souza, J., editor, *A Ralé Brasileira*. Editora UFMG.

Soares de Oliveira, L. L., Cortes, R. X., and Neto, G. B. (2013). Quem vai à igreja? um teste de regressão logística ordenada do modelo de azzi-ehrenberg para o brasil. *Estudos Econômicos*, 43.

The Pew Research Center (2006). Spirit and Power A 10-Country Survey of Pentecostals. http://www.pewforum.org/2006/10/05/spirit-and-power/.

Topalova, P. Trade liberalization, poverty, and inequality evidence from indian districts. In Harrison, A., editor, *Globalization and Poverty*. NBER, University of Chicago Press.