Ensaio Econômico

EPGE

Escola

Brasileira de

Economia e

Finanças

Nº 804

ISSN 0104-8910

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Dezembro de 2018

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Stop Suffering! Economic Downturns and Pentecostal
Upsurge/ Francisco Costa, Angelo Marcantonio, Rudi Rocha - Rio
de Janeiro : FGV,EPGE, 2018

49p. - (Ensaio Econômico; 804)

Inclui bibliografia.

Stop Suffering!

Economic Downturns and Pentecostal Upsurge*

Francisco Costa[†] Angelo Marcantonio[‡] Rudi Rocha[§]

December 1, 2018

Abstract

This paper estimates the effects of economic downturns on religious conversion to Pentecostal Evangelicalism across Brazilian regions between 1991 and 2010. We find that regions more exposed to economic distress experienced an increase in Pentecostal affiliation during the 1990s, accompanied by a decrease in adherents to other Christian denominations. Our estimates show that this conversion persisted over the following decade. We also show that economic downturns are associated with the growth in the vote share of candidates explicitly connected to Pentecostal churches in national elections in both the short and long run. These results uncover a causal link between economic distress and the political entrenchment of more fundamentalist religious groups in a secular democracy.

Key Words: economic distress, religious conversion, Pentecostalism, elections.

JEL Codes: Z12, D72, O15.

*We would like to thank Francesco Amodio, Eli Berman, Filipe Campante, Rafael Dix-Carneiro, Claudio Ferraz, Fred Finan, Jason Garred, Paola Giuliano, Gordon Hanson, Dan Hungerman, Jonathan Medina, Torsten Persson, João Paulo Pessoa, Rodrigo R. Soares, Edson Severnini, Gabriel Ulyssea, and seminar participants at SBE 2016, CAEN-EPGE 2017, ASREC 2018 Conference, McGill University, University of Ottawa, Ridge/Lacea POL 2018, 4th REAP&SBE Workshop 2018. We are grateful to Vinicius Peçanha for providing excellent research assistance, and to Laura Barros and Manuel Santos Silva for sharing relevant data on electoral outcomes.

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1 Introduction

Economic distress and impoverishment have been generally associated with the rise of religiosity and religious fundamentalism in several contexts, even within developed countries.¹ More generally, expectations that religiosity would fade away in increasingly modern societies have given way to a renewed recognition of religions' influence on the world's social and political landscape. As shown by [Inglehart and Norris \(2004\)](#), religiosity has indeed eroded among the most prosperous social sectors living in the most affluent countries. Yet, this comes in tandem with the fact that the world has more people with traditional religious views than ever before, particularly in impoverished contexts. The growth of ethno-religious conflicts, of fundamentalist movements in Muslim communities, and the upsurge of Pentecostal Evangelicalism are some of the most prominent indicators of the vitality of religions in the world today.

The debate over how economic conditions affect religiosity has long been framed by the theory of secularization, which explains religion as an elaborate reflection of existential insecurity and a painkiller for frustration, deprivation, and suffering ([Fink and Stark, 2003](#)). In that sense, religiosity might be particularly responsive to economic downturns, with individuals being more susceptible to the influence of religious rhetoric in times of scarcity and risk. Decreased income and consumption during recessions may change the opportunity cost of religious participation ([Gruber and Hungerman, 2008](#)). At the same time, religious communities usually provide members with informal insurance to such adverse shocks, with more sectarian groups providing greater support for fellow members. By considering religious communities as social clubs, religious participation may be a mechanism to cope with adverse conditions ([Iannaccone, 1992](#); [Berman, 2000](#); [Dehejia et al., 2007](#); [Chen, 2010](#); [Ager and Ciccone, 2018](#)). Despite the conceptually dense debate in the social sciences, and its relevance for understanding ideological fundamentalism, causal evidence on the extent to which economic conditions affect religious participation and religiosity is rather scant and mixed, in particular regarding effects on religious conversion.

In this paper, we estimate the impacts of economic downturns on the expansion of Pentecostalism in Brazil. The share of Pentecostal adherents doubled throughout the 1990s, amidst a period of economic opening and poor economic performance. Brazilian Pentecostals belong either to historical Pentecostal denominations, or to newer independent churches, which are increasingly prevalent in developing countries ([The Pew Research Center, 2006](#)). These independent churches are often called Neopentecostal or Neo-Charismatic. In common, these churches generally stand out for being more religiously observant than

¹For instance, see the cases of Brussels (NYT, 2016) and Birmingham (The Guardian, 2015).

other Christians, for their belief in more literal and originalist interpretations of sacred texts, as well as for their convictions in more traditional moral values and doctrines.² We side with [Inglehart and Norris \(2004\)](#) in using the term *fundamentalist* “in a neutral way to refer to those with an absolute conviction in the fundamental principles of their faith, to the extent that they will not accept the validity of any other beliefs”. In that sense, affiliation to Pentecostal Evangelicalism has come apace with a rise in religiosity and religious fundamentalism in Brazil, a predominantly Catholic country.

We first examine the effects of economic downturns on religious affiliation. We use the Brazilian demographic censuses from 1980, 1991, 2000, and 2010 to get the share of Pentecostals, Catholics and affiliates to other religious denominations across local economies (i.e., microregions) within Brazil. We exploit the reduction of trade tariffs in the 1990s, during the process of economic liberalization, as a source of exogenous variation for local economic conditions. Between 1990 and 1995, the Federal Government progressively reduced the import tariffs of different products, with the most protected industries facing an increase in competition from the international markets. The variation in tariffs across industries interacting with the employment composition across regions led to exogenous trade-induced shocks to local labor markets across the country. As in [Kovak \(2013\)](#), we define these shocks as *regional tariff changes*. Relatively more affected regions experienced a larger decline in wages and in formal-sector employment ([Kovak, 2013](#); [Dix-Carneiro and Kovak, 2017a](#)), as well as a reduction in the provision of public goods, and an increase in crime rates ([Dix-Carneiro et al., 2018](#)). Taken together, the evidence indicates that local exposure to trade openness is associated with overall worsening of local economic and living conditions.

We find that economic downturns lead to religious conversions to Pentecostalism from other Christian denominations. Our benchmark specification indicates that a reduction of one standard deviation in regional tariffs increased the share of Pentecostals among the working age population in 6.1 log-points between 1991 and 2000. This corresponds to approximately 21% of a standard deviation of the growth of Pentecostals per capita across microregions. This result is robust to a series of specifications that allow for differential trends by state, baseline local demographic characteristics, local Pentecostal growth in the previous decade, and population weighting. In a falsification exercise, we find that the 1990s tariff change is not associated with the growth of Pentecostal affiliation between 1980 and 1990. Our results show that economic downturns affect the growth of the share of other Christians similarly, but in the opposite direction. Regions greatly affected by the trade

²Also in common, they are more likely to report having experienced manifestations of the Holy Spirit, experienced or witnessed divine healings, and received direct revelations from God ([Balmer, 2002](#); [The Pew Research Center, 2006](#)).

liberalization experienced a larger decrease in the share of Catholics and traditional Protestants. We observe no statistically significant effect of exposure to tariff changes on the share of people holding any religious beliefs. While we find evidence of conversion in response to tariff changes across different demographic groups, point estimates are smaller among the elderly, women, and the less educated – exactly those for which religious beliefs tend to be relatively more entrenched. Furthermore, effects persist throughout the following decade. A reduction of one standard deviation in regional tariffs during the early 1990s increased the share of Pentecostals in 4.6 log-points between 1991 and 2010. Adverse shocks to employment seem a relevant mediator of the relationship between economic downturns and Pentecostal affiliation, triggering demand-side determinants of religious conversion, with alternative mechanisms bearing little influence in both the short and long run.

We also examine whether the expansion of Pentecostalism in society has been associated with greater participation of Pentecostalism in politics. The link between religion and politics can be particularly salient as a mediator between non-secular beliefs, policy choices and institutions in new political equilibria. If this link is indeed active, initial impacts on religious affiliation could have deeper and long-lasting effects on society, even in secular democracies. In Brazil, Pentecostalism entered politics in the 1990s, with church leaders directly running for office. Since then, Pentecostal denominations have successfully leveraged their political structure and influence. Evangelical politicians currently hold 74 out of 513 seats in the Lower House of the Brazilian Federal Congress (DIAP, 2014), which is responsible for proposing and voting laws over a range of both constitutional and infra-constitutional topics – such as civil rights and regulation over social and moral issues, including abortion, drugs, and discrimination. More specifically, we use official electoral data, from different election years, to calculate the vote count of candidates for the Lower House of Congress that are connected to Pentecostal churches. We then analyze how the vote share of Pentecostal candidates has responded to economic downturns and to the expansion of Pentecostalism at the microregion level.

We find a robust association between trade-induced economic downturns and the vote share of Pentecostal candidates, in both the short and long run. Coefficients are statistically similar across different specifications within election years, long-term estimates being significantly higher than the short-term ones, by nearly twofold. Our benchmark estimate implies that a reduction of one standard deviation in regional tariffs in the early 1990s was accompanied by an increase of 2 percentage points in the vote share of Pentecostal candidates two decades later. This corresponds to approximately 30% of a standard deviation of the growth of the vote share of Pentecostal candidates across microregions over the last two decades. Together with the results on religious conversion, and additional OLS

and IV exercises, the overall picture provides supportive evidence of a positive association between a demand-side expansion of Pentecostalism in society and of Pentecostal participation in politics, as a response to economic downturns. This indicates that the conversion towards more fundamentalist religious beliefs in society has also been reflected in terms of political representation of religious leaders. We speculate that this process may eventually undermine the democratic endorsement of individual rights, such as freedom of speech and worship, which allow different sects to bloom.

There exists well-known cross-country evidence on the relationship between economic conditions and religiosity. While [McCleary and Barro \(2006\)](#) show that higher per capita GDP leads to lower religiosity, as captured by different indicators, [Barro et al. \(2010\)](#) find no robust relationship between per capita GDP and religious conversion. More recently, scholars have started to explore subnational income shocks to elicit causality within countries (for an extensive review, see [Iyer, 2016](#)).³ Most notably, [Chen \(2010\)](#) estimates the impacts of the exposure to the 1998 Indonesian financial crisis on the intensification of religious practices, as measured by communal studies of the Koran and Islamic schools attendance. He finds that local economic distress increased religious intensity in the year following the crisis. [Buser \(2015\)](#), on the other hand, finds that cash transfers at the household level were positively associated with church attendance and with adherence to Evangelicalism in poor neighborhoods in Ecuador. As [Chen \(2010\)](#), we look at distressful economic shocks at the local level, but document the effects on religious conversion rather than on the intensification of religious practices. The conversion of beliefs rather than the intensification of practices within a common set of beliefs may have deeper social implications, as indoctrination may sway people's preferences ([Alesina and Fuchs-Schündeln, 2007](#)). We also characterize both the short- and long-run effects, over multiple layers of Census data, across hundreds of local economies. In particular, we find that economic distress can have persistent effects on religious affiliation.

This paper is also the first to document a causal link between economic distress and the political entrenchment of religious groups in contemporary democracies. [Chaney \(2013\)](#) documents in historical Egypt that abnormal Nile floods reduced the probability of dismissal of religious authorities, who used their control over popular support to political ends in times of scarcity and famine. These findings parallel ours, established in a contemporary democracy, thousands of years later, as the political power of Pentecostal leaders stems from the popular support of millions of Pentecostal voters. More generally, our

³On the opposite direction of causality, it has been shown that different religious proscriptions have causal effects on economic outcomes. [Campante and Yanagizawa-Drott \(2015\)](#) show that longer Ramadan fasting days have a negative impact on countries' economic growth. In a randomized evaluation, [Bryan et al. \(2018\)](#) show that teaching Protestant values increased the income of the ultra-poor in the Philippines.

results lend support to the view that religious conversion may lead to wider changes of attitudes, not only towards religion but also politics, and possibly with long-lasting implications for the public support of a religion-oriented policy agenda in a secular democracy.⁴

Finally, this paper contributes to the growing literature on the political consequences of globalization. Recent papers show that exposure to international competition has deepened political polarization in the United States (Feigenbaum and Hall, 2015; Che et al., 2016; Autor et al., 2016) and in Western Europe (Dippel et al., 2015; Colantone and Stanig, 2018b), as well as enhanced public support for *Brexit* in the UK (Colantone and Stanig, 2018a). As religious identity may influence political attitudes (Inglehart and Norris, 2004; Grzymala-Busse, 2012), our results suggest that religious conversion towards more fundamentalist beliefs, as a side effect of globalization, can be a relevant channel underlying political polarization.

The remainder of this paper is structured as follows. Section 2 characterizes the Pentecostal expansion and the trade liberalization in Brazil. Section 3 contains a description of the data and provides descriptive statistics. We describe our empirical strategy in Section 4. Section 5 presents the results on religious conversion. We analyze the political consequences of religious conversion in Section 6. Section 7 concludes.

2 Empirical Context and Conceptual Background

In this section, we first describe the Pentecostal movement in Brazil and conceptually discuss the triggers of the upsurge of Pentecostalism in impoverished contexts worldwide. We then characterize Pentecostals' values and attitudes towards public life and politics. Last, we describe the process of trade liberalization in Brazil during the 1990s, provide an overview of the existing evidence of its effects on local economies, and conceptually discuss the channels that link trade openness, local economic downturns, and religious affiliation.

2.1 Pentecostalism in Brazil

Pentecostalism is a renewal movement within Protestantism, with roots in the American religious revivals of the Azusa Street in the early 20th century. The movement has rapidly spread across the globe and fragmented into thousands of autonomous segments. Pentecostals are said to belong either to historical denominations, such as the Assemblies of God

⁴In that sense, our results complement Barro and McCleary (2005) findings. While the authors show that the effect of per capita GDP on the probability of state religion is unclear, we find that economic distress has increased the *de jure* political power of religious leaders in a non-state religion.

and the Church of God in Christ, or to newer, independent churches, often called Neopentecostal and increasingly prevalent in developing countries ([The Pew Research Center, 2006](#)). In common, these denominations or independent churches teach that all Christians should seek the baptism of the Holy Spirit, a religious experience that grants spiritual gifts and the abilities to practice physical healing and speak in tongues ([Balmer, 2002](#)).

According to [The Pew Research Center \(2011\)](#), Pentecostalism is comprised of nearly 280 million people in the world today, and is one of the fastest-growing segments of Christianity. It has reached about 15% of the Sub-Saharan population, and 11% of the population in the Americas. Brazil is considered a frontrunner. As shown in the upper graphic of [Figure 1](#), over the last half-century, Catholicism's historical dominance has continuously decreased in the country alongside an expansion of Protestantism, with Pentecostalism being the overwhelmingly fastest growing Protestant community. The latest figures indicate that 29% of the Brazilian population is Protestant, 72% of which being Pentecostal ([Datafolha, 2016](#)). Brazil now has the largest Pentecostal community across developing countries, and the second largest in the entire world, behind only the US ([Freston, 2001](#)).

Brazilian Pentecostalism has experienced three major waves of growth. The beginning of the first wave occurred in the 1910s, when the Christian Congregation and the Assemblies of God arrived in the country, just after the Azusa Street revivals in 1906. The second wave came in the 1950s and early 1960s, with the fragmentation of the existing Pentecostal field into new independent churches. At that time, three major denominations consolidated their presence in the country: 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 came in the late 1970s and the 1980s, with the foundation and rapid expansion of Neopentecostal churches. Its main representatives were the Universal Church of the Kingdom of God (UCKG) and the International Church of the Grace of God.

While second-wave churches reduced the rigid behavioral codes and asceticism, typically found in historical denominations, third-wave churches further extended these innovations and embraced a higher entrepreneurial profile, marketing faith as something compatible with middle-class values and upwardly mobile lifestyles ([Kramer, 2005](#)). These churches have intensively incorporated elements of ordinary daily life into religious rituals, relying on exorcism to guide the process of self-transformation and empowerment, and making extensive use of a range of media channels to promote evangelization campaigns. Also notable, this model of religious entrepreneurship has been successfully replicated by third-wave Brazilian churches in other Latin American countries, as well as in Africa and in developed countries ([Levine, 2009](#)).

2.2 Stop Suffering!

There is some qualitative evidence that help to explain why Pentecostalism has thrived, and why particularly so in impoverished contexts. According to [Chesnut \(2003\)](#), Pentecostal churches have offered some of the most authentically popular religious services through successful methods of delivery to the popular classes. This claim is rather consistent with the emblematic UCKG's slogan "Stop suffering!". On the one hand, this slogan reflects the way religious services are marketed by Pentecostal denominations, in close communication with the local popular culture and often targeted at those in pressing situations. In fact, Pentecostal churches were created by and for the poor people. As [Chesnut \(2003, p.42\)](#) notes: "Pentecostal doctrine and worship reflect the *Weltanschauung*⁵ and aesthetics of the popular classes (...). 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". In particular, Neopentecostal churches have moved a step forward in marketing communication. As noted by [Lehmann \(2001, p.9\)](#), the kitsch-like interior design of UCKG's temples "contrasts sharply with the austerity of contemporary Catholic church architecture: neon signs, uniforms for different categories of church activists and preachers, electronic keyboards, and decorated Christmas trees. The sense of being in another world, and of being part of that other world is surely strengthened by the use of television as a vehicle of evangelization. The use of a microphone held in the same style as a television performer, the use of marketing and communication techniques drawn from business and thrust into a religious sphere (which for decades and centuries has been dominated by priestly gravitas and monotonous intonation) has to be understood as an evocation of and an invitation to share in the originating context of these practices. The church is saying to its followers that they too can join in that other world of consumption and accumulation."

On the other hand, the slogan also comes attached to religious services aimed at overcoming various types of suffering, faith healing and conversion being some of the most appealing practices. As noted by [Chesnut \(2003\)](#), while Catholic Masses offer little liturgical space for the healing of believers' afflictions, Pentecostal churches have made faith healing a centerpiece of both doctrine and practice, attracting particularly those seeking the cure for illness, domestic conflict, and alcoholism. Hence the importance of exorcism, which provides people with a sense of expelling those evil forces from their lives ([Rocha and Torres, 2009](#)). The practice of conversion refers to a process of spiritual rebirth, which allows the believer to be born again into an environment free of the afflictions of the old life. This is attractive among those seeking to turn away from poverty.

⁵German word meaning *worldview*.

More generally, existential insecurity might raise susceptibility to religious rhetoric (Inglehart and Norris, 2004). The core idea of human, or existential, security denotes freedom from various risks and dangers. In this sense, regardless of the specific nature of the risks, the absence of existential security should be instrumental for religiosity no matter time or place. Religiosity might be thus responsive to economic downturns and living conditions, and individuals might be particularly more susceptible to the influence of religious rhetoric in times of scarcity and risk. Specifically regarding risk, religious communities usually provide members with informal insurance to adverse shocks. More generally, according to the club-good model of religious participation, religious communities can be considered social clubs (Iannaccone, 1992; Berman, 2000). Consistent with that, Chen (2010) shows that, within Muslim communities, members hit by adverse income shocks may also increase religious participation in return for aid as an ex-post insurance mechanism.

As the qualitative evidence suggests, Pentecostal churches have been particularly successful in attracting new believers among the popular classes, in a context of impoverishment, illness, conflict, and substance abuse. In fact, as shown in the bottom graphic of Figure 1, Brazil experienced a substantial growth of Pentecostalism during the 1990s, when the share of Pentecostal affiliates nearly doubled, amidst a decade of poor economic and labor market performance and trade liberalization.

2.3 Values, Attitudes and Influence on Public Life and Politics

Despite the large and growing influence of Pentecostalism in the world, there is relatively little research characterizing Pentecostals' values and attitudes towards public life. We rely on a cross-country survey conducted by The Pew Research Center (2006) to provide some comparative figures. Table 1 summarizes a number of items from this survey, comparing the answers of Pentecostals and other Christians, from respondents from Brazil as well as from the US and selected countries in Africa and Asia.

Panel A shows that Pentecostals tend to be more religiously observant than other Christians in many dimensions. Pentecostals often stand out for their belief in traditional Christian doctrines, and tend to engage more at higher rates in more traditional Christian practices. For example, Pentecostals are more likely to say they go to church frequently, pray frequently, and read the Bible more often and more literally. In Brazil, 86% of Pentecostals interviewed said they attended religious services at least once a week, while only 32% of other Christians answered the same. They also displayed higher levels of private religious practices. In Brazil, 51% of Pentecostals said they read the Bible daily in comparison to only 10% of other Christians. As expected, they are much more likely than other Christians to report experiencing manifestations of the Holy Spirit, receiving direct revelations from

God, and witnessing divine healings or exorcisms. The majority of Pentecostals agreed that miracles still occur, that angels and demons are active, and that God will grant good health, relief from sickness, and material prosperity to the most faithful believers.

In Panel B, we observe they also stand out for their traditional moral values on a wide range of social issues, from homosexuality to extramarital sex to alcohol consumption. In particular, most Pentecostals believe that a wife must always obey her husband. Consistent with the recent and rapid expansion of Pentecostalism in the world, Panel C reports that a great share of Pentecostals have not always belonged to the movement. In Brazil, for instance, 62% of Pentecostals said not to have always belonged to their current religion, while only 13% of other Christians answered the same. Amongst new Brazilian believers, almost half said they converted from Catholicism, which is expected due to a common Christian background and Catholicism's historical dominance in the country. Also related to conversion, Panel D reports that Pentecostals are much more active in sharing their faith with non-believers and tend to agree more that believers have a duty to convert others. They also use religious media more extensively. Finally, Pentecostals stand out for their trust in fellow church members and for their view that it is important for political leaders to have strong religious beliefs. In all countries, and particularly in the US, Pentecostals are less likely to state that separation of church and state should exist. Consistent with Panel D, there is indeed qualitative evidence in support of the view that Brazilian Pentecostals tend to vote for candidates who share their faith ([Kramer, 2005](#)). In Section 6, we further discuss, and empirically examine, the political consequences of the expansion of Pentecostalism in Brazil.

2.4 Trade Liberalization in Brazil and Its Discontents

Until the end of the 1980s, the Brazilian economy was relatively closed to international trade, mainly due to a long-lasting import substitution policy. Trade barriers were high, with high nominal tariffs and several non-tariff barriers. In 1989, the first presidential election after the re-democratization process brought President Fernando Collor, an outsider, into power. In the following year, the new government started the trade liberalization process, revoking most of the special trade regimes and suspending import licenses ([Kume et al., 2003](#)). From 1990 until 1995, the government reduced import tariffs across industries, with the average tariff falling about 60% in the period. In particular, the most protected sectors experienced the largest tariff reductions, leading to a decrease in the variation in tariffs across industries.

The Brazilian trade liberalization had a profound impact on local labor markets. Different regions tend to specialize in different economic activities, so the composition of the

labor force often varies substantially across regions. The variation in tariffs across industries and the employment composition across regions thus interacted and led to trade-induced shocks to local employment and earnings across the country. [Kovak \(2013\)](#) finds that Brazilian regions that were relatively more affected by trade-induced shocks experienced a relatively larger decline in wages. Moreover, harder-hit regions experienced a larger and long-lasting reduction in formal-sector employment and earnings, enhanced employment transition into non-tradable sector jobs, particularly in low-paying service industries, and a permanent increase in informal employment ([Menezes-Filho and Muendler, 2011](#); [Dix-Carneiro and Kovak, 2017a,b](#)). There is also mounting evidence supporting the view that the trade-induced shocks that followed the trade liberalization in Brazil affected many other regional outcomes related to the initial impacts on labor markets. For instance, [Dix-Carneiro et al. \(2018\)](#) document that areas relatively more affected by the reduction in tariffs experienced an increase in crime rates. The authors further show that while the labor market channel accounted for more than 75% of the increase in criminality, regions relatively more exposed to trade-induced shocks also experienced a reduction in government revenues and in the provision of public goods, as well as an increase in income inequality.

The findings from the Brazilian setting are consistent with the existing evidence from several other contexts.⁶ Taken together, the evidence indicates that exposure to trade openness is associated with overall economic distress and the worsening of living conditions in regions that are negatively hit by trade-induced shocks – the losers of the globalization process. In the Brazilian context, we hypothesize that economic distress would lead to the rise of religiosity, as individuals may become more susceptible to the influence of religious rhetoric in times of economic hardship and enhanced risk. Specifically regarding risk, as documented by previous studies, employment in harder-hit regions experienced a significant transition into non-tradable sectors, particularly in low-paying service positions, and a permanent increase in informality. In that sense, trade-induced shocks have been associated with increased employment vulnerability. According to club-good models, this could also lead to an increase in religious participation in return for aid, as an ex-post insurance mechanism ([Iannaccone, 1992](#); [Berman, 2000](#); [Chen, 2010](#)).

⁶For example, see [David et al. \(2013\)](#), [Pierce and Schott \(2016\)](#), [Pavcnik \(2017\)](#), [Feler and Senses \(2017\)](#), [Colantone et al. \(2017\)](#).

3 Data and Descriptive Statistics

3.1 Demographic Variables

Our main sources of data are the 1980, 1991, 2000, and 2010 Brazilian Censuses, which are comprehensive demographic surveys publicly provided by the Brazilian Institute of Geography and Statistics (IBGE). The microdata contain socioeconomic variables as well as religious affiliation at the individual level. We aggregate the microdata at the microregion level, officially defined by IBGE as a cluster of geographically contiguous municipalities with similar economic characteristics and integrated economic activities. This unit of analysis has been used in many studies as the relevant delimitation of a local economy, particularly in the literature of local effects of trade shocks in Brazil.⁷ Since the borders of some municipalities and microregions have changed over time, we group microregions into Minimum Comparable Areas (MCAs), which are the smallest geographic units that can be consistently compared over time. Our final sample consists of 412 MCAs – in the remainder of the paper we use the terms MCA and microregion interchangeably.⁸ Our sample of microdata comprises the working age population, defined as those individuals aged between 15 and 65 years. Throughout the rest of the paper, variables collapsed at the microregion level or defined in per capita terms refer to the working age population.

The main dependent variables are computed at the microregion level as the logarithm of the total number of individuals affiliated to a given religious denomination per capita. We classify individuals by religious affiliation according to IBGE’s coding procedure, presented in Appendix Table A1. We also construct control variables using Census microdata collapsed at the microregion level. We additionally compute the share of women, the share of nonwhites, average age and its square, and the average years of schooling. All aggregations at the microregion level use sample weights from their respective Censuses.

3.2 Exposure to Trade Shocks

Our main variable of interest measures local economic shocks, and follows closely the literature on local labor market effects of trade liberalization. We rely on [Hirata and Soares \(2015\)](#) and [Dix-Carneiro et al. \(2018\)](#) to define a measure for the microregion’s exposure to the early-1990s tariff changes. Both studies follow [Kovak \(2013\)](#), which provides a theoretical framework for computing average tariffs for local labor markets. More specifically, we

⁷See [Kovak \(2013\)](#); [Dix-Carneiro and Kovak \(2015\)](#); [Costa et al. \(2016\)](#); [Dix-Carneiro et al. \(2018\)](#).

⁸We obtained the coding of MCAs from Ipeadata, and grouped the microregions’ codes into MCAs’ codes by using the 1980 layer of MCAs as reference ([Reis et al., 2011](#), for methodological details). The remote archipelago of Fernando de Noronha is itself a microregion but was excluded from the sample.

define the change of the microregion's exposure to tariffs as:

$$\Delta Tariff_j = \sum_{r \neq R} \frac{L_{jr} \epsilon_{jr}}{\sum_{r \neq R} L_{jr} \epsilon_{jr}} [\ln(1 + Tariff_{r1995}) - \ln(1 + Tariff_{r1990})] \quad (1)$$

Where $\Delta Tariff_j$ is the exposure of microregion j to changes in tariffs between 1990 and 1995 across sectors $r \neq R$, being R the set of non-tradable sectors. Kume et al. (2003) provide the terms $Tariff_{r1990}$ and $Tariff_{r1995}$, which measure sector-specific tariffs in 1990 and 1995, respectively. The term L_{jr} is the number of individuals employed in each sector r and microregion j . In our benchmark specification, this term is built on microdata from the 1991 Census, the baseline year and prior to the trade liberalization shock. The term ϵ_{jr} is the elasticity of the demand for labor. As in Hirata and Soares (2015), we define $\epsilon_{jr} = \frac{\sigma_{jr}}{\theta_{jr}}$, where σ_{jr} is the elasticity of substitution between inputs, and θ_{jr} is the share of capital in total capital cost. We also assume $\sigma_{jr} = 1$ and that the share of capital cost varies only across sectors r . We thus assume that $\theta_r = (VA_r - LE_r) / (VA_r)$, $\forall j$, where VA_r and LE_r are, respectively, the value added and the labor earnings of sector r . The values of VA_r and LE_r are calculated with information from the National Accounts (IBGE), specifically the *Tabela de Recursos e Usos* for 1991. Appendix Table A2 presents tariffs by sectors and by year, based on Kume et al. (2003). Sectors considered in Kume et al. (2003) (listed in the first column of Table A2) differed from sector coding in the census data (last column of Table A2). We make both classifications compatible following the same procedure as in Hirata and Soares (2015). We are left with 20 tradable sectors, listed in the column "Aggregated Sectors" of Table A2, plus a non-tradable one.

As defined in equation (1), the term $\Delta Tariff_j$ measures the extent to which labor demand in region j is affected by changes in tariffs across industries, taking into consideration the relative importance of each industry in the composition of regional employment. For this reason, throughout the rest of the paper the term $\Delta Tariff_j$ refers to changes in regional tariffs.

3.3 Descriptive Statistics

Table 2 presents descriptive statistics, separately for each census year, at the microregion level. Panel A displays statistics for religious affiliation. We first observe that the share of individuals that report being affiliated to a religious denomination is remarkably high in Brazil, above 90%, but has continuously decreased through the decades. We observe substantial changes in the composition of religious affiliation. In particular between 1991 and 2000, the share of Catholics decreased nearly 7.5 percentage points, alongside a similar increase in affiliation to other denominations. In particular, the share of Pentecostals

increased nearly 80% throughout the decade, from 4.9% to 8.9%. More generally, the share of Pentecostals has continuously increased over time. As mentioned in Section 2, the latest figures indicate that more than 20% of the Brazilian population were Pentecostal in the mid 2010s (Datafolha, 2016).

Panel B reports summary statistics of our auxiliary variables at the microregion level. We observe that the demographic composition remains roughly stable between censuses, except for education. Indeed, there has been a rapid expansion in educational attainment in the country. Finally, Panel C presents summary statistics of our proxy for local economic conditions, the exposure to tariff change $\Delta Tariff_j$, as defined in equation (1). We observe an average of -0.036 log-point (SD 0.038) across microregions. Consistent with the fact that the most protected sectors faced the largest reductions, Figure A1 shows that regional tariff changes between 1990 and 1995 ($\Delta Tariff_j$) are negatively and strongly correlated with initial levels of tariffs across microregions. Also important to note, we observe that most microregions experienced a reduction in tariffs. In our setting, this effectively refers to a decline in labor demand and downturn in economic conditions in most regions. We further provide discussion on this in the following section.

4 Empirical Strategy

4.1 Conceptual Setup

Our first goal in this paper is to examine the extent to which economic downturns are associated with changes in religious affiliation. The following equation provides our conceptual setup:

$$\Delta Religion_{js} = \alpha + \beta \Delta Tariff_j + \delta_s + W_j' \lambda + \varepsilon_{js} \quad (2)$$

In our benchmark specification, Δ refers to changes between 1991 and 2000. The term $Religion_{js}$ corresponds to the logarithm of the number of individuals per capita that belong to a given religious denomination in microregion j of state s (e.g. Catholics or Pentecostals). The variable $\Delta Tariff_j$ was previously defined in equation (1). The term δ_s corresponds to state fixed-effects, W_j is a vector of controls at the microregion level, while ε_{js} is the error term. As mentioned in Dix-Carneiro et al. (2018), state-fixed effects should absorb the potential confounding influence of relevant policies that are decentralized towards the state level by constitutional mandate (e.g., health and educational policies). Moreover, great heterogeneity in historical immigration and development patterns have affected social and human capital accumulation as well as long-run income per capita across states. For in-

stance, while some states were mostly occupied by European settlers (e.g. Southern states), others received a substantial influx of peoples from Africa through the slave trade (e.g. Bahia and Rio de Janeiro). In that sense, heterogeneity in deep-rooted cultural values is potentially associated with variation in susceptibility to religious rhetoric across regions. By exploring variation in economic conditions across microregions within states, we thus restrict treatment and control comparisons among well balanced units of observation. The term W_j includes a series of controls computed at the baseline year, 1991: the share of women, the share of nonwhites, average age and its square, average years of schooling, and the logarithm of the working age population. We also add lagged dependent variables when testing for pre-trends. Our most saturated specifications therefore compare the variation in economic conditions and in religious affiliation in microregions within states, allowing for differential trends according to initial demographic characteristics as well as pre-trends on the outcome of interest. We estimate heteroscedastic robust standard errors.

As in previous studies, conditioning upon controls and fixed-effects, we expect the remaining variation in $\Delta Tariff_j$ to be exogenous to any latent determinant of religious affiliation. In this case, the parameter of interest β captures the average causal effect of changes in regional tariffs on changes in religious affiliation. In particular, variation in regional tariffs is expected to be orthogonal to any unobservable trends in social capital as well as to supply-side determinants of religious choice.

4.2 Trade-Induced Shocks and Economic Downturns

In this section we provide empirical evidence and further discussion on the relationship between changes in regional tariffs and local economic downturns. We first construct a proxy for local economic condition as the logarithm of the average expected earnings at the microregion level. We follow [Hirata and Soares \(2015\)](#) to compute this variable by using individual-level regressions, for each census year. Separately, for each census year, we first regress individual log earnings on age and its square, dummies for gender and for educational attainment levels, and microregion fixed-effects. The microregion fixed-effects capture the microregion log average earnings that are not explained by individuals' socioeconomic characteristics, i.e., net of composition effects. Second, again separately for each census year, we regress a dummy indicating whether the individual has non-zero earnings on the same set of variables. In this case, the microregion fixed-effects capture the average probability of employment in each microregion, net of composition effects. Finally, separately for each year, we compute the log average expected earnings for microregion j as $Earnings_j = \log(w_j \times p_j) \equiv \log(w_j) + \log(p_j)$, where the term $\log(w_j)$ corresponds to the microregion j fixed-effect estimated in earnings regressions, and the term $\log(p_j)$ refers to

the logarithm of the microregion j fixed-effect estimated in employment regressions. Variation in expected earnings therefore directly reflects changes in local economic conditions, specifically through a composite variable that combines earnings and employment, net of composition effects.⁹ Next, we regress our proxy for local economic conditions on $\Delta Tariff_j$. More specifically, we follow the equation below:

$$\Delta Earnings_{js} = \mu + \theta \Delta Tariff_{js} + \delta_s + W'_{js} \gamma + \xi_{js} \quad (3)$$

Where $\Delta Earnings_{js}$ is the variation in the logarithm of the average expected earnings at the microregion level between 1991 and 2000. The remaining terms are analogously defined as in equation (2). Table 3 presents the results. Column 1 reports a lighter specification, in which we regress the log of expected earnings against tariff changes, conditional only on macroregion fixed-effects – Brazil has officially five macroregions. We find a positive coefficient, meaning that microregions exposed to larger tariff reductions – tariff change holds a negative value – also experienced larger reductions in expected earnings over the 1990s. The coefficient decreases as we add state fixed-effects (column 2) and absorb unobserved variation across states over the decade. The point estimate then increases to 1.956 as we include demographic controls in levels at the baseline (column 3), and remains roughly stable as we add the lagged change in the dependent variable (column 4), and further use population weights (column 5).¹⁰ The stability of the point estimates across columns 4 and 5 indicates that the results are generally robust to weighting, which minimizes concerns related to noisy cells and the influence of outliers. The stability of the coefficient in columns 3 through 4 indicates that pre-trends are not expected to have any confounding influence on the estimates. The remaining columns of Table 3 further test this conjecture. We examine whether the tariff changes in the 1990s correlates with trends in log expected earnings between 1980 and 1991. We find very small and statistically insignificant point estimates in both columns 6 and 7, which display results from unweighted and weighted regressions, respectively. This reassures our assumption that the variation in regional tariffs is uncorrelated with pre-trends or any other unobserved dynamics of employment and earnings.

As also documented in previous studies, the relative magnitude of the estimated effect is economically relevant. One standard deviation of the change in log expected earnings between 1991 and 2000 is 16.9 log-points. The point estimate of approximately 1.95 observed in columns 3 through 5 of Table 3 means that the expected earnings of a microregion hit by a one standard deviation (0.038) negative variation in tariffs grew 7.5 log points [$0.038 \times$

⁹In this analysis, all individual-level regressions use sample weights from the respective Census.

¹⁰Population weights refer to the share of the microregion population out of the total Brazilian population in 1991. Lagged variables are analogously computed by using census data. In this case, Δ refers to changes between 1980 and 1991.

1.956] less than the median microregion exposed to the tariff change. This equals to a variation of approximately 7.2% in expected earnings, or nearly half a standard deviation of the dependent variable $[7.5/16.9 \sim 44\%]$. In that sense, in our setting, variation in regional tariffs is generally associated with economic downturns.

5 Economic Downturns and Religious Affiliation

In this section, we present and discuss the effects of local economic downturns on religious affiliation. We do this by examining whether religious affiliation responds to changes in regional tariffs across microregions. We further investigate heterogeneous effects by demographic groups, analyze whether the effects persist in the long run, and discuss its potential mechanisms.

5.1 Pentecostal Affiliation

We begin with Table 4, which presents the estimated effects of regional tariff changes on Pentecostal affiliation. Column 1 reports our lighter specification, conditional only on macroregion fixed-effects.¹¹ We find a negative and significant coefficient, which means that exposure to larger reductions in regional tariffs was accompanied by relatively larger increases in Pentecostal affiliation. The point estimate slightly increases in module from -1.319 to -1.670 as we add state fixed effects (column 2), and remains roughly stable in the range between -1.563 and -1.473 as we include demographic controls in levels at the baseline (column 3), add the lagged change in the dependent variable (column 4), and further use population weights (column 5). Again, the stability of the coefficient in columns 3 through 5 indicates that pre-trends are not expected to have any confounding influence on the estimates. We further examine this claim in the remaining columns of Table 4, which test whether exposure to the tariff changes observed in the 1990s correlates with trends in Pentecostal affiliation between 1980 and 1991. We find small and statistically insignificant point estimates in both columns 6 and 7, which display results from unweighted and weighted regressions, respectively. This reassures the assumption that trade-induced shocks are uncorrelated with pre-trends or any other unobserved dynamics that could challenge our identification strategy.

The magnitude of the estimated effects is non-trivial. Column 4 of Table 4 displays one of our most conservative specifications, which compares variation in economic conditions and in religious affiliation in microregions within states, allowing for differential trends ac-

¹¹Brazil has five macroregions North, Northeast, Central-West, Southeast, and South.

cording to initial demographic characteristics and pre-trends in religious conversion. The point estimate of -1.603 implies that a reduction of one standard deviation in regional tariffs (0.038) is accompanied by an increase of 6.1 log-points in the number of individuals affiliated to Pentecostal denominations per capita [0.038×1.603]. Put differently, the number of Pentecostals per capita grew 5.9% more in a microregion exposed to a reduction of one standard deviation in regional tariffs relative to the median variation in tariffs. This corresponds to approximately 21% of a standard deviation of the growth of Pentecostals per capita across microregions [$6.1/28.5 \sim 21\%$].

The point estimates also provide suggestive evidence on an implicit income-elasticity of Pentecostal affiliation around -0.873 (see Table 3). A negative variation of 1% in expected earnings is associated with an increase of approximately 0.8% in the number of individuals affiliated to Pentecostal churches per capita. Overall, these results thus confirm that the growth in Pentecostalism during the 1990s in Brazil can be traced back to greater exposure to tariff reductions and deeper local economic downturns.

5.2 Religious Conversion

We now investigate the extent to which the observed effects on Pentecostal affiliation come from individuals being converted from other religions or simply from non-religious individuals adhering to Pentecostalism. To do so, we replicate the same exercise of column 4 from Table 4, our benchmark specification, for the other main religious denominations and for the share of religious individuals.

Table 5 presents the results. In column 1, we assess whether greater exposure to tariff reduction, or deeper local economic downturns, is associated with changes in the number of individuals per capita who confirm some type of religious belief. We find a small and statistically insignificant coefficient, which indicates that economic downturns are not particularly associated with conversion into religiousness. In the remaining columns of Table 5, we test whether the growth of Pentecostalism has come from the conversion from other religious denominations. In columns 2 and 3, we examine whether greater exposure to regional tariff reductions is associated with changes in affiliation to Catholicism and to traditional Protestant denominations, respectively. We find positive coefficients in both columns, which means that economic downturns are associated with a decline in affiliation to religious denominations that share a common Christian background with Pentecostal churches. In column 4 we observe that regional tariff changes are not significantly associated with affiliation to religious denominations from other backgrounds.

Overall, these results parallel the descriptive figures presented on Table 1. As mentioned in Section 2.3, most Pentecostals mentioned not always belonging to the movement.

According to [The Pew Research Center \(2006\)](#), in Brazil, 62% of Pentecostals said they have not always belonged to their current religion, while only 13% of other Christians answered the same. Amongst the new Brazilian believers, almost half said they converted from Catholicism. This is consistent with the estimates from Table 5. On the one hand, the larger coefficient in column 3 suggests relatively greater conversion from traditional Protestantism, which is consistent with the fact that Pentecostalism and historical Protestant denominations share a closer Christian background. On the other hand, nearly 87% of the Brazilian population was affiliated to Catholicism in 1991. In that sense, in column 2 of Table 5 we observe a relatively smaller elasticity in comparison to that of column 3, but still sufficiently large enough to free a considerable number of Catholics into Pentecostalism as a response to economic distress.

5.3 Heterogeneity by Demographics

We now explore potential heterogeneous effects by demographics. We have two main reasons to conjecture that greater exposure to tariff change may differentially affect conversion across groups. First, individuals' characteristics shape the demand for religion and, potentially, their religiosity in response to local economic conditions. The pioneer model of [Azzi and Ehrenberg \(1975\)](#) rationalizes that people with lower opportunity costs of time are expected to be relatively more devoted to religion – this would be the case of low-skilled workers, the elderly and women out of the labor force. In general, these groups are more religiously observant and adherent to religion, as shown in [Deaton \(2011\)](#) in a within-countries 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. In that sense, one could expect greater religiosity and attachment to a religious denomination among these groups, and thus a lower probability of conversion. In particular, we expect that resilience to religious conversion should increase with age, as religious beliefs become more ingrained over the course of a lifetime. Second, trade liberalization may differentially affect some segments of society. [Dix-Carneiro \(2014\)](#) estimates that older, female, and less educated workers faced substantially higher adjustment costs on the labor market following the Brazilian trade liberalization. In principle, we can only assess the combination of these two potential channels of heterogeneity.

In Table 6, we examine the extent to which economic distress affected affiliation to Pentecostalism within different demographic cells according to age, gender, and educational level. The table shows the estimates of our benchmark specification (column 4 of Table 4). Overall, we find evidence of conversion in response to tariff changes in nearly all demographic groups. The effects are not statistically different across most columns, but the point

estimates are informative. First, we find relatively greater effects among youth and young adults, and small and insignificant estimates for older adults. We also find smaller point estimates among women and the less educated. These result-form estimates suggest that youth and young adults, as well as men, are relatively more susceptible to religious conversion in response to economic downturns. A similar reasoning applies to the remaining two columns, with less educated individuals facing a lower probability of conversion.

5.4 Persistence and Potential Mechanisms

Next, we examine whether the effects of economic downturns on Pentecostalism persist in the long run. In Table 7, we replicate the first five columns of Table 4, but now consider the change in Pentecostalism affiliation between the 1991 and the 2010 Censuses as the outcome variable. This gives us a span of time of nearly two decades since the beginning of the trade liberalization process, in the early 1990s. Table 7 presents slightly smaller point estimates, but still statistically significant at 10% and similar to those reported in Table 4. Column 4 displays a point estimate of -1.207, which implies that a reduction of one standard deviation in regional tariffs (0.038) in the early 1990s was accompanied by an increase of 4.6 log-points in the number of individuals affiliated to Pentecostal denominations per capita in the long run [0.038×1.207]. This corresponds to approximately 75% of the short-term impact (6.1 log-points), and indicates that economic downturns have had persistent effects on Pentecostal affiliation.

As mentioned in Section 2, the existing evidence indicates that regions that were negatively hit by trade-induced shocks experienced overall economic distress and the worsening of living conditions, not only directly related to labor markets outcomes, but also associated with a reduction in government spending and in the provision of public goods, as well as an increase in income inequality and crime rates. In Table 8, we investigate whether these regional outcomes mediate the impacts of local economic downturns on Pentecostal expansion over time. Column 1 replicates our benchmark estimates for both the short-term (Panel A) and the long-term (Panel B) impacts, previously reported on Tables 4 and 7, respectively. In the remaining columns, we sequentially add changes in regional outcomes as controls in order to test the extent to which the observed covariation in changes in tariffs and in Pentecostal affiliation is absorbed by local-specific dynamics.

Panel A reports remarkably robust and stable effects of changes in tariffs on Pentecostalism affiliation in the short term, except in column 2, which controls for changes in employment and, to a lesser extent, in column 3, which adds changes in the Gini index. Although we find statistically similar effects across columns, in column 2 the coefficient of changes in tariffs drops a third (in module) in comparison to column 1, from -1.603 to -1.004, and be-

comes only borderline significant at 10%. The point estimate slightly decreases in column 3, and remains stable in columns 4 and 5. The overall pattern suggests that labor market conditions are a relevant short-term mediator of the effects of economic downturns on Pentecostalism, followed by inequality. We observe a similar pattern in Panel B, as the long-term effects of changes in tariffs on Pentecostal affiliation are again stable across columns. Yet, the covariation between tariffs and Pentecostalism is now relatively less affected once we control for long-term changes in either employment or inequality. This result suggests that a transitory variation in economic conditions may have persistent effects on religiosity and more fundamentalist religious beliefs, irrespective of long-term dynamics in regional outcomes.

We are not able to precisely identify the ultimate triggers for religious conversion at the individual level, as the worsening of each of the regional outcomes generally reflects a combination of enhanced insecurity, deprivation, and risk. However, the results of Table 8 importantly suggest that short-term adverse shocks to employment seem a relevant mediator of the relationship between economic downturns and Pentecostal affiliation, alternative mechanisms bearing little influence in both the short and long run. Also important to note, we find no evidence that public spending has attenuated the relationship between economic distress and Pentecostal expansion.

5.5 Supply vs Demand

Economic downturns may have triggered Pentecostalism expansion not only through the demand-side, but also via supply-side determinants of religiousness. As regions are hit by adverse shocks, local vulnerability may attract churches and religious services competing for adherents, possibly leading to increased affiliation. Although it is difficult to disentangle mechanisms, we perform a simple exercise to test whether supply-side triggers were relevant in our empirical setting. We rely on census data on employment and occupations to calculate the change in the prevalence of Pentecostal Pastors at the microregion level, in both the short and long run. This should be considered a proxy for the supply of Pentecostal churches and religious services at the local level. Table 9 shows the estimates of our benchmark specification (column 4 of Table 4), in which the dependent variable is the change in the logarithmic of the number of Pentecostal Pastors per capita (columns 1 and 2) or per Pentecostal population (columns 3 and 4). We find statistically insignificant results for both dependent variables, in both the short and long run. Overall, these results suggest that supply-side mechanisms did not play a relevant role in the Pentecostalism expansion as a response to economic downturns.

6 Political Consequences

Religion and politics have always been connected in Brazil. The country has a strong Catholic tradition, and the Catholic Church has been influential over the centuries. During the dictatorship period, the military government had the informal support of more conservative sectors of the Catholic Church, while sectors more inclined towards redistributive issues backed the left-wing parties (Tuñón, 2017). Yet, the relationship between religion and politics has become explicit more recently, with members of the clergy running as candidates for political offices. Although not exclusively, this movement has mostly come from those affiliated with Pentecostal denominations.

Pentecostalism entered politics in the 1990s, with church leaders directly running for office. Since then, Pentecostal denominations have successfully leveraged their political structure and influence. As noted by Kramer (2005, p.98), “churches, especially those that own radio and television stations, have increasingly fielded and succeeded in electing their own candidates to political office. The pulpit and its electronic surrogates offer regular and unsurpassed access to an evangelical public. [In Brazil’s 2002 election], Brazilians elected 4 evangelical senators and 45 federal deputies, which represented nearly 10 percent of Congress (...). Of these, 22 federal representatives and a senator from Rio, Bishop Marcelo Crivella, are from the UCKG. Two decades ago, while Brazil was redemocratizing itself, this degree of political presence for evangelicals was unthinkable”.

Evangelical politicians currently hold 74 out of 513 seats in the lower-house of the Brazilian Federal Congress (DIAP, 2014), while Bishop Marcelo Crivella is currently the mayor of the city of Rio de Janeiro, the second largest in Brazil, having received 1.7 million votes or 59% of the total number of valid votes in the last elections (TSE, 2016). Also, the presence of Pentecostalism in politics has increased in close connection with their role as media owners. Pentecostal leaders acquired more than 600 TV and radio channels (Watts, 2014), including *Rede Record*, the second most influential TV company in the country. *Rede Record* is owned by Bishop Edir Macedo, the UCKG’ founder and Crivella’s uncle.

In this section, we further discuss, and empirically examine, whether electoral outcomes reflect the expansion of Pentecostalism in society. We assess whether this expansion can be associated with greater participation of affiliates as well as religious leaders in politics. The link between religious adherence and participation in politics can be particularly salient as a mediator between non-secular beliefs and policy choices. According to Durkheim (1912, p.47), “a religion is a unified system of beliefs and practices relative to sacred things (...) which unite into one single moral community called a Church all those who adhere to them”. The more fundamentalist religious communities and sects could therefore unite towards common moral and political views as well as in support of common political plat-

forms. Indeed, there is qualitative evidence in support of the view that Brazilian Pentecostals tend to vote for candidates who share their faith ([Kramer, 2005](#)). As shown in Table 1, Pentecostals stand out for their trust in fellow church members and for their view that it is important for political leaders to have strong religious beliefs. They are also less likely to say that separation of church and state should exist.

Next, we provide empirical evidence on the extent to which tariff changes and the Pentecostal expansion during the 1990s are associated with the electoral performance of candidates connected to Pentecostal denominations running for office. We start by describing the background of the political system in Brazil. We then describe the data and the model used in the empirical analysis, and present the results.

6.1 Background on the Political Organization of Brazil

Brazil is composed of the federal government, 26 states and a federal district, and over 5,500 municipalities. The federal government is divided into three independent powers: executive, legislative, and judiciary. The executive branch is commanded by the President, while the federal legislative congress is divided into a two-chamber legislature comprising the Senate and the Chamber of Deputies (*Camara dos Deputados*).

Federal elections for president are held jointly with elections for the Senate and the Chamber of Deputies. The 513 members of the Chamber of Deputies are elected to a four-year term by proportional elections within each state. More specifically, Federal Deputies are elected under an open-list proportional representation system, with a given state being a single multi-member district. Under the open-list rule, a citizen casts a vote for one individual candidate or for a party.¹²

While the Senate represents the interests of the Brazilian states, the Chamber of Deputies (the Lower House of Congress) represents the Brazilian people. Deputies create federal laws and control the acts of the Public Administration. They are responsible for discussing, proposing, and voting laws over a range of both constitutional and infra-constitutional topics, which include, for instance, civil rights and regulation over social and moral issues – such as abortion, drugs, and discrimination. We focus on the election of Federal Deputies primarily because these are the representatives that propose and vote for legislations sensitive to moral values that are more salient to religious communities. A second reason is that candidates compete in an open-list system, differently from candidates to the Senate or the executive branches, who need to bargain and to gain nominations within their party. In this section, we assess the electoral performance of candidates associated with religious denominations running for the Federal Chamber of Deputies.

¹²For more detail on the data and the electoral process, see [Fujiwara \(2015\)](#).

6.2 Electoral Data

We use electoral microdata publicly available from the Federal Electoral Authority (*Tribunal Superior Eleitoral – TSE*) for the 1994, 2002 and 2014 federal elections, thus covering two decades of electoral outcomes in Brazil.¹³ Brazil is a secular country and the official records do not contain the religious affiliation of candidates. We identify candidates' connections to Pentecostal churches and to other different religious denominations in two ways. First, we rely on a wider classification of candidates associated with Pentecostal churches from [Lacerda \(2017\)](#). The author hand-coded a list of *Pentecostal* candidates by using: (i) religious designations in candidacy names; (ii) literature review matching candidates names and churches; (iii) online searches on the websites of the major national and regional newspapers; and (iv) direct contact with the major Pentecostal churches.¹⁴ The main caveat of this classification is that selection based on (ii) to (iv) can be biased toward the identification of the most popular and the elected candidates. The second caveat refers to availability of data, as the information on candidacy names is incomplete for the 1994 election. For this year, we only have information from approximately half the Brazilian states.¹⁵

In our second approach, we identify candidates who actively disclose their occupational identity according to their campaign bynames. When registering a candidacy in the Federal Electoral Authority, each candidate chooses the candidacy name that is officially used in the elections. This chosen name is the one that appears on the voting ballots (i.e., voting machines). The candidate can choose virtually any name.¹⁶ In particular, the use of professional or clerical designations is common. For example, “Jose Divino Oliveira De Souza” ran as candidate for the Chamber of Deputies by the State of Rio de Janeiro in the 2002 election under the name of “Pastor Divino” (literal translation for Divine Pastor). In this approach, we code candidates according to two types of religious designations in their candidacy names. We classify the candidate as a *Pastor* if the candidate uses one of the most common clergy designations from Pentecostal and Protestant denominations – Pastor, Bishop, Reverend, or Minister. We classify a candidate as a *Priest* if he explicitly uses this Catholic designation in the ballot.¹⁷ The main virtue of identifying candidates' con-

¹³We consider 1994 as our baseline year, as microdata from previous elections do not provide information on candidates' profiles. We use microdata from the 2002 federal elections to examine the immediate effects of the trade liberalization, and right after the release of the 2000 Census; and microdata from the 2014 federal elections in our long-term analysis, as these are the most recent data available from TSE.

¹⁴We refer to [Lacerda \(2017\)](#) for the detailed classification procedure. We double checked the classification.

¹⁵We have data for the following states: AC, AL, AM, AP, BA, GO, MA, MS, PI, RR, RS, SC, SE, SP.

¹⁶For instance, “Rosângela Barros Assed Matheus De Oliveira” was elected Governor of the State of Rio de Janeiro in 2002, but her candidacy name was “Rosinha Garotinho”, which is the combination of her personal nickname and the nickname of her husband, the incumbent state Governor at the time.

¹⁷The Portuguese designations we use for Pastor are “Pastor”, “Bispo”, “Reverendo” and its feminine

nections to Pentecostal or Catholic designations based on the candidacy name is that this is a systematic method to classify candidates homogeneously across elections and regions of the country. This is not a simple task in the Brazilian context, in which party identity is relatively weak, and campaigns often exploit candidates' personalities rather than their political agenda. Another virtue is that, by making it explicit in their candidacy names, these candidates reveal a strong attachment to their religious groups. This approach, however, likely underestimates the number of candidates *de facto* associated with religious groups.¹⁸

We aggregate the microdata on votes at the microregion level, for each election year. Our main outcome variable is the vote share of all candidates connected to Pentecostal churches combined – classified either from candidacy names (*Pastors*) or from Lacerda's list (*Pentecostals*). We also compute the total vote share of priests based on candidacy names (*Priests*).

Table 10 presents the descriptive statistics. Panel A presents figures for all candidates in Brazil, while Panel B is restricted to those states for which we have information on candidacy names from 1994. In both panels, statistics for *Pentecostals* refer to those candidates who were identified as being connected to Pentecostal churches based on the wider definition of Lacerda (2017), while figures for *Pastors* and *Priests* refer to candidates and votes identified by candidacy name designation. Columns 1 through 6 show an impressive increase in the number of candidates and votes associated with Pentecostal churches, irrespective of coding method or sample. According to the classification based on the candidacy name method, the average number of votes on Pentecostal candidates at the microregion level increased nearly 40 times between 1994 and 2014, while their vote share rose from 0.1 to 1.6 percent. Statistics of Panel A, based on the wider classification method, show that the average share of votes on Pentecostal candidates reached nearly 8% in 2014.

6.3 Results

We first follow equation (2) to examine the reduced-form relationship between tariff changes and vote shares, separately for each election year. The dependent variable is the total vote share of candidates connected to a given religious denomination in a given election. Since the political presence of candidates associated with Pentecostal churches was virtually nonexistent in the early 1990s (Kramer, 2005), we interpret the dependent variables as

variations; and those for Priests are "Padre", "Pr.", "Frei" and "Dom". Note that there are Bishops in the Catholic Church, but no Catholic Bishop has become a politician in Brazil so far. Since some of these terms may be a family name, we only consider candidacy names where the designation appears before the personal name.

¹⁸For example, the Senator elected by the State of Rio de Janeiro in 2002, Marcelo Crivella, was a Pentecostal Bishop but did not make it explicit in his candidacy name.

long-difference changes from a common zero baseline. In this specification, we therefore compare variation in electoral outcomes and in local tariffs in microregions within states, allowing for differential trends according to initial demographic characteristics and pre-trends in Pentecostal affiliation (i.e. variation between the 1980 and 1991 Censuses). We estimate heteroscedastic robust standard errors.

Table 11 presents the results. In Panel A the dependent variable refers to the vote share of Pentecostal candidates, whose identification to Pentecostalism is based on the wider classification of Lacerda (2017). Dependent variables on Panels B and C are the vote shares of candidates whose candidacy names explicitly refer to pastors and priests, respectively. Columns 1 through 4 display results for the 2002 election, while the remaining columns focus on electoral outcomes for 2014. Panel A reports robust effects of changes in tariffs on the vote share of Pentecostal candidates in both the short and long run. Coefficients are statistically similar across specifications within election years, long-term estimates being significantly higher than the short-term ones, by nearly twofold. The point estimate of -23.09 in column 4 implies that a reduction of one standard deviation in regional tariffs (0.038) was accompanied by an increase of 0.8 percentage points in the vote share of Pentecostal candidates in the short-run [0.038×23.09]. The coefficient of -52.48 in column 8 analogously implies an increase of 2 percentage points in the vote share of Pentecostal candidates in the long run [0.038×52.48]. This corresponds to approximately 20% [$0.8/4.11 \sim 20\%$] and 30% [$2/6.5 \sim 30\%$] of a standard deviation of the growth of the vote share of Pentecostal candidates across microregions in the short and long run, respectively.

In Panel B, we observe relatively stable point estimates across columns 1 through 8 – although less robust in the 2002 election, and particularly non-significant in columns 3 and 4. The magnitude of the coefficients are smaller in comparison to Panel A, but still relevant. The point estimate of -6.47 in column 8 implies that a reduction of one standard deviation in regional tariffs (0.038) was accompanied by an increase of 0.24 percentage points in the vote share of Pentecostal candidates in the long run [0.038×6.47]. This corresponds to approximately 12% of a standard deviation of the growth of the vote share of Pastors across microregions in the long run [$0.24/1.89 \sim 12\%$]. In comparison to Panel A, this result suggests that the connection between Pentecostal affiliation and political participation might have reflected the general increase in the representation of Pentecostalism in society, on top of the rise of the presence of religious leaders in politics. Still, the results confirm that religious leaders have indeed leveraged their political participation by directly running for office. Also, in comparison to Table 7, we observe that Pentecostalism in society expanded more in the short run, followed by a relatively greater expansion in politics in the long run. Finally, we find no association between tariff changes and the vote share of Priests in these

two elections.

Together with previous results from Section 5, Table 11 provides supportive evidence on a positive association between a demand-side expansion of Pentecostalism adherence in society and of Pentecostal participation in politics, both as a response to economic downturns. This link is further characterized in Table 12, in which we examine the OLS direct effects of religious affiliation and political participation. The results generally mirror those from Table 11, which helps to reassure that link. We find that the expansion of Pentecostals between 1991 and 2000 is positively associated with larger Pentecostal participation in politics, in both the short and long run. In order to gain further evidence on this, we use the local exposure to tariff changes as an instrument for the growth of Pentecostal adherents in each microregion.¹⁹ The exclusion restriction of this exercise is that exposure to tariff change does not affect the electoral performance of Pentecostal candidates other than through its impact on Pentecostal affiliation. We acknowledge that there is ample evidence that economic shocks can affect political outcomes through different channels, thus, evidence from this exercise remains suggestive.²⁰ Appendix Table A3 presents the results of this last exercise. The 2SLS point estimates indicate again a positive relationship between Pentecostal affiliation and vote share of Pentecostal and Pastors candidates, particularly in the long run, without any qualitative change in the correlation for Priests.

7 Conclusion

In this paper, we examined the extent to which, and characterized how, economic downturns affect religious conversion towards stricter denominations within Christianity in Brazil. We also empirically investigated whether the expansion of Pentecostalism in society, as a response to adverse economic shocks, is associated with an increase in the political participation of religious leaders in politics. We find that economic downturns lead to religious conversion to Pentecostalism from other Christian denominations, and that this effect is persistent over decades. Adverse shocks to employment seem a relevant mediator of the relationship between economic downturns and Pentecostal affiliation, triggering demand-side determinants of religious conversion, with alternative mechanisms bearing little influence in both the short and long run. We also find a positive association between the expansion of Pentecostalism in society and in politics, as a response to economic downturns.

The link between religion and politics can be particularly salient as a mediator between

¹⁹First stage results are displayed in Table 4, column 2.

²⁰E.g., Brunner et al. (2011); Charles and Stephens Jr (2013); Giuliano and Spilimbergo (2013).

non-secular beliefs, policy choices, and institutions in a new political equilibria. Should this link be active, as is the case in Brazil, initial impacts on religious affiliation might have even deeper and long-lasting effects on society. In particular, affiliation to Pentecostal Evangelicalism comes apace with a rise in religiosity and religious fundamentalism in Brazil, a predominantly Catholic country – with the neutral definition of *fundamentalism* from Inglehart and Norris (2004). Our results indicate that the conversion towards more fundamentalist religious beliefs has also been reflected in terms of political representation. We speculate that this process, in the limit, may undermine the democratic endorsement of the very individual rights which allow for different beliefs to bloom.

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Figure 1: Historical Trends in the Share of Catholics and Protestants in Brazil

Original data from IBGE (*Séries Históricas e Estatísticas*).

Table 1: Pentecostals vs Other Christians: General Characterization of Attitudes, Beliefs and Moral Issues (in % of Respondents)

	Brazil		US		Kenya		Philippines	
	Pentecostals	Other Christians	Pentecostals	Other Christians	Pentecostals	Other Christians	Pentecostals	Other Christians
A. Religious Experience, Religiosity and Beliefs								
Attend church at least once per week	86	32	65	50	92	64	90	58
Read Scripture daily	51	10	34	21	51	17	48	9
Literal view of the Bible (word of God to be taken literally)	81	65	76	37	91	73	55	54
Believe in the rapture of the church*	93	47	90	59	95	76	92	74
Completely agreeing miracles still occur	55	30	63	41	63	34	62	30
Completely agreeing angels and demons are active	81	53	72	41	75	43	82	49
God will grant material prosperity to believers with enough faith	83	70	66	43	85	77	90	85
Witnessed divine healings	77	32	62	28	87	47	72	30
Received direct revelations from God	64	29	54	25	57	16	58	19
Experienced or witnessed exorcisms	80	26	34	7	86	39	52	26
B. Social and Moral Issues (behavior is never justified)								
Homosexuality	76	46	80	54	99	98	86	52
Drinking alcohol	72	46	48	26	88	39	82	55
Divorce	37	15	15	8	70	51	84	72
Abortion	91	76	64	45	88	81	97	97
A wife must always obey her husband	61	42	46	20	89	85	68	58
C. Attachment and Conversion								
Have not always belonged to current religion	62	13	43	27	42	13	74	8
Pentecostal converts from Catholicism	45	-	6	-	20	-	66	-
D. Social and Political Attitudes								
Share faith with non-believers at least weekly	68	21	57	27	59	30	56	15
Agreeing believers have a duty to convert others	72	34	64	40	91	87	77	57
Use religious media (TV/radio) at least weekly	78	34	74	35	92	67	61	40
Can trust a lot in fellow church members	23	12	57	51	36	33	51	34
Political leaders important to have strong religious beliefs	73	63	87	67	80	72	84	75
Should have separation of church and state	50	67	36	67	50	63	52	60

Authors' own elaboration based on data from [The Pew Research Center \(2006\)](#). The columns "Other Christians" does not include adherents to the charismatic movement, which includes members of non-Pentecostal denominations who engage in at least some spiritual practices associated with Pentecostalism.

* The rapture of the church corresponds to the teaching that the faithful will be saved and taken to heaven before the end of the world.

Table 2: Descriptive Statistics at the Microregion level

	1980		1991		2000		2010	
	Mean	S.d.	Mean	S.d.	Mean	S.d.	Mean	S.d.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A. Religion								
% Religious	98.64	1.59	96.57	3.33	94.31	4.19	93.81	4.29
% Catholic	91.78	6.13	87.68	7.9	80.12	10.28	72.75	12.39
% Traditional Protestant	2.56	3.29	2.34	3.08	3.26	3.49	3.42	3.23
% Pentecostal	2.78	2.31	4.95	3.16	8.95	4.87	14.5	6.57
% Other religion	1.52	1.8	1.6	1.84	1.98	1.89	3.14	2.57
Panel B. Demography and Economic Controls								
Age	32.49	.81	33.26	1	34.01	1.23	.	.
Years of schooling	3.02	1.31	4.13	1.35	5.38	1.35	.	.
% Non-White	.49	.26	.52	.25	.48	.22	.	.
% Female	.5	.02	.5	.02	.5	.01	.	.
Log working age population	11.29	1.01	11.53	1.03	11.72	1.05	.	.
Panel C. Tariff Change								
Δ Tariff 1990-1995 ($\Delta Tariff_j$)			-.036	.038				

This table displays descriptive statistics based on data from the 1980, 1991, 2000 and 2010 Censuses averaged at the microregion level. Columns 1 and 3 present the means and columns 2 and 4 report standard deviations. The unit of observation is a microregion (as in [Reis et al., 2011](#)); N=412.

Table 3: First Stage Results

	Dep. Var.: Log Expected Earnings					Δ 1980-1991 PLACEBO	
	Δ 1991-2000					Δ 1980-1991 PLACEBO	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$\Delta Tariff_j$	1.022*** (.216)	.6741*** (.1712)	1.957*** (.2749)	1.956*** (.2776)	1.923*** (.2699)	-.2879 (.3208)	-.2663 (.3129)
Partial F-stat.	22.4	15.5	50.7	49.6	50.8	.8	.7
Fixed Effects	Region	State	State	State	State	State	State
Controls			Yes	Yes	Yes	Yes	Yes
Lag Dep. Var.				Yes	Yes		
Weighted					Yes		Yes

This table displays the estimated effects of local exposure to tariff changes on changes in log expected earnings as captured by θ in equation (3). Columns 1 to 5 present changes between 1991 and 2000, our main specification. Columns 6 and 7 present results of our *placebo* exercise, with changes in log expected earnings between 1980 and 1991 regressed on 1991-2000 tariff changes. We explain how we create expected earnings in Section 3. Each column corresponds to a different regression with specification indicated. All regressions include a constant and a set of fixed effects as indicated. The vector of controls, computed at the baseline year 1991, includes: the share of women, the share of nonwhites, average age and its square, average years of schooling, and the logarithm of the working age population. Regressions in column (4) include the lagged dependent variable (Δ 1980-1991). Columns 5 and 7 present results for a weighted regression using population weights (the share of the microregion population out of the total Brazilian population in 1991). The unit of observation is a microregion (as in Reis et al., 2011); N=412. Robust standard errors. *** $p < .01$, ** $p < .05$, * $p < .1$.

Table 4: Main Results – Reduced Form – Pentecostals Affiliation

	Dep. Var.: Log Pentecostals per capita					Δ 1980-1991	
	Δ 1991-2000					PLACEBO	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$\Delta Tariff_j$	-1.319*** (.313)	-1.67*** (.4267)	-1.563** (.6067)	-1.603*** (.6009)	-1.515*** (.565)	-.4623 (.8811)	-.4924 (.8408)
Fixed Effects	Region	State	State	State	State	State	State
Controls			Yes	Yes	Yes	Yes	Yes
Lag Dep. Var.				Yes	Yes		
Weighted					Yes		Yes

This table displays the reduced form estimates of the effects of local exposure to tariff changes on changes in log Pentecostals per capita as captured by β in equation (2). Columns 1 to 5 present changes between 1991 and 2000, our main specification; the mean dependent variable is 0.654. Columns 6 and 7 present results of our *placebo* exercise, with changes in log Pentecostals per capita between 1980 and 1991 regressed on 1991-2000 tariff changes. Each column corresponds to a different regression with specification indicated. All regressions include a constant and a set of fixed effects as indicated. The vector of controls, computed at the baseline year 1991, includes: the share of women, the share of nonwhites, average age and its square, average years of schooling, and the logarithm of the working age population. Regressions in column (4) include the lagged dependent variable (Δ 1980-1991). Columns 5 and 7 present results for a weighted regression using population weights (the share of the microregion population out of the total Brazilian population in 1991). The unit of observation is a microregion (as in Reis et al., 2011); N=412. Robust standard errors. *** $p < .01$, ** $p < .05$, * $p < .1$.

Table 5: Results – Reduced Form – Affiliation to Other Religions

	Dep. Var.: Δ Log Religious Affiliation per Capita $\Delta 1991 - 2000$			
	Any Religion	Catholic	Traditional Protestants	Other Religion
	(1)	(2)	(3)	(4)
$\Delta Tariff_j$	.0691 (.0769)	.3197** (.1263)	2.72** (1.083)	-1.542 (1.213)
Fixed Effects	State	State	State	State
Controls	Yes	Yes	Yes	Yes
Lag Dep. Var.	Yes	Yes	Yes	Yes

This table displays the reduced form estimates of the effects of local exposure to tariff changes on changes in log share of people with any religious belief (column 1), Catholics non-Pentecostals (column 2), Traditional Protestants (column 3) and other religions (column 4) as captured by β in equation (2). Mean dependent variable of each column presented in the table. $\Delta Tariff_j$ is the local exposure to tariff change, detailed in section 4. We present results for our main specification (column 4 in Table 4) which includes state fixed effects, demographic controls, and Δ 1980-1991 Pentecostal share. The unit of observation is a microregion (as in Reis et al., 2011); N=412. Robust standard errors. *** $p < .01$, ** $p < .05$, * $p < .1$.

Table 6: Heterogeneous Effects by Demographics – Reduced Form

	Dep. Var.: Δ 1991-2000 Log Pentecostals per capita by demographic group						
	Age			Gender		Education	
	15-29 (1)	30-49 (2)	50-65 (3)	Female (4)	Male (5)	Primary (6)	Higher (7)
$\Delta Tariff_j$	-1.737** (.7334)	-2.006*** (.6590)	-1.112 (.6808)	-1.414** (.6014)	-1.901*** (.640)	-1.177* (.6187)	-2.588*** (.7156)
Fixed Effects	State	State	State	State	State	State	State
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lag Dep. Var.	Yes	Yes	Yes	Yes	Yes	Yes	Yes

This table displays the reduced form estimates of the effects of local exposure to tariff changes on changes in log Pentecostals per capita by different demographic groups as captured by β in equation (2). The dependent variable in columns 1 to 3 is the log share of Pentecostals within each age bracket as indicated. Columns 4 and 5 show the results on log share of Pentecostals by gender, and columns 6 and 7 by education level. Primary education refers to people that completed at most primary education, and higher education refers to people who completed high school or more. $\Delta Tariff_j$ is the local exposure to tariff change, detailed in section 4. We present results for our main specification (column 4 in Table 4) which includes state fixed effects, demographic controls, and the lagged dependent variable (Δ 1980-1991). The unit of observation is a microregion (as in [Reis et al., 2011](#)); N=412. Robust standard errors. *** $p < .01$, ** $p < .05$, * $p < .1$.

Table 7: Results – Reduced Form – Pentecostals Affiliation ($\Delta 1991 - 2010$)

	Dep. Var.: Log Pentecostals per capita $\Delta 1991-2010$				
	(1)	(2)	(3)	(4)	(5)
$\Delta Tariff_j$	-1.27*** (.3873)	-1.408*** (.419)	-1.216* (.661)	-1.207* (.6655)	-1.128* (.652)
Fixed Effects	Region	State	State	State	State
Controls			Yes	Yes	Yes
Lag Dep. Var.				Yes	Yes
Weighted					Yes

This table displays the reduced form estimates of the effects of local exposure to tariff changes on changes in log Pentecostals per capita between 1991 and 2010 as captured by β in equation (2). Each column corresponds to a different regression with specification indicated. All regressions include a constant and a set of fixed effects as indicated. The vector of controls, computed at the baseline year 1991, includes: the share of women, the share of nonwhites, average age and its square, average years of schooling, and the logarithm of the working age population. Regressions in column (4) include the twice lagged dependent variable ($\Delta 1980-1991$). Column 5 presents results for a weighted regression using population weights (the share of the microregion population out of the total Brazilian population in 1991). The unit of observation is a microregion (as in [Reis et al., 2011](#)); $N=412$. Robust standard errors. *** $p < .01$, ** $p < .05$, * $p < .1$.

Table 8: Results – Reduced Form – Controlling for Covariates

	Dep. Var.: Log Pentecostals per capita				
	(1)	(2)	(3)	(4)	(5)
Panel A. Δ 1991-2000					
$\Delta Tariff_j$	-1.603*** (.6009)	-1.004* (.5731)	-1.408** (.5815)	-1.541*** (.5944)	-1.720*** (.6485)
Δ Employment		-1.278** (.524)			
Δ Gini			.5469 (.5764)		
Δ Crime Rate				-.0376** (.0189)	
Δ Gov. Spending					.0156 (.032)
Panel B. Δ 1991-2010					
$\Delta Tariff_j$	-1.207* (.6655)	-1.109 (.711)	-.9914 (.7364)	-1.148* (.6665)	-1.232* (.6869)
Δ Employment		-.1494 (.351)			
Δ Gini			.294 (.4233)		
Δ Crime Rate				-.0347 (.0211)	
Δ Gov. Spending					.0046 (.0471)

This table displays the reduced form estimates of the effects of local exposure to tariff changes on changes in log Pentecostals per capita as captured by β in equation (2). Each column corresponds to a different regression with specification indicated. *Panel A* show results for the change between 1991-2000 and *Panel B* for changes between 1991-2010. $\Delta Tariff_j$ is the local exposure to tariff change, detailed in section 4. Column 1 presents present results for our main specification (column 4 in Table 4) which includes state fixed effects, demographic controls, and $\Delta 1980 - 1991$ Pentecostal share. We add controls for different measures of contemporaneous changes in local living conditions in the remaining columns. Column 2 controls for the contemporaneous change in log employment probability as captured by the microregion fixed-effects from individual-level regressions of individual log employment on age and its square, dummies for gender and for educational attainment levels (we explain this decomposition in section 4.2). Employment defined as those with positive income in Census. Column 3 controls for the evolution of microregion Gini, computed using average household income from the Census. Column 4 controls for the homicide rates (per 100,000 people) obtained from mortality records from SIM/DATASUS. We sum the number deaths by external causes (ICD codes E960-E969 in 1991, and X85-Y09 in the remaining years) in each Census year and divide by the population in that year. Column 5 controls for the evolution of the total municipal government spending compiled by the Ministry of Finance (*Secretaria do Tesouro Nacional*). The unit of observation is a microregion (as in Reis et al., 2011); $N=412$. Robust standard errors. *** $p < .01$, ** $p < .05$, * $p < .1$.

Table 9: Results – Pentecostal Pastors

	Dep. Var.: Δ Log Pentecostal Pastors			
	Per Capita		Per Evangelical	
	1991-2000 (1)	1991-2010 (2)	1991-2000 (3)	1991-2010 (4)
$\Delta Tariff_j$	3.193 (5.564)	4.89 (6.36)	.4735 (3.014)	2.493 (3.156)

This table displays the reduced form estimates of the effects of local exposure to tariff changes on changes in log share of Pastors per capita (columns 1 and 2) and Pastors per Pentecostal adherent (columns 3 and 4) as captured by β in equation (2). We identify pastors in the censuses as citizens which main professional occupation is religious sacerdotal and declare being a Pentecostal adherent. Columns 1 and 3 show change between 1991-2000 and columns 2 and 4 show changes between 1991-2010. $\Delta Tariff_j$ is the local exposure to tariff change, detailed in section 4. We present results for our main specification (column 4 in Table 4) which includes state fixed effects, demographic controls, and $\Delta 1980 - 1991$ Pentecostal share. The unit of observation is a microregion (as in [Reis et al., 2011](#)); $N=412$. Robust standard errors. *** $p < .01$, ** $p < .05$, * $p < .1$.

Table 10: Descriptive Statistics – Election Results

	1994 election		2002 election		2014 election	
	Total Votes (1k) (1)	Microregion Vote Share (%) (2)	Total Votes (1k) (3)	Microregion Vote Share (%) (4)	Total Votes (1k) (5)	Microregion Vote Share (%) (6)
Panel A. Brazil						
Total	41,483.9	100	78,798.9	100	89,205.4	100
Pentecostals	-	-	4,817.8	4.23 (4.11)	8,688.2	7.95 (6.49)
Pastors	-	-	1,885.1	1.62 (2.4)	1,267.4	1.23 (1.89)
Priests	-	-	120.8	.29 (1.67)	139.6	.23 (1.04)
Panel B. Sample of 15 states						
Total	21,809.9	100	41,898.5	100	47,620.9	100
Pentecostals	-	-	2,195.1	3.99 (3.88)	4,512.7	8.34 (6.79)
Pastors	21.9	.1 (.53)	744	1.55 (2.46)	815.4	1.61 (1.93)
Priests	10.2	.05 (.33)	74	.4 (1.77)	25.5	.04 (.36)

This table shows the descriptive statistics of the results of the elections the Lower House of Congress (*Deputado Federal*) in 1994, 2002, and 2014, shown in the columns. Columns (1), (3), and (5) show the total number of votes (in thousands) casted to group of candidates in the rows. Columns (2), (4), and (6) show the average vote share across microregions of each group of candidates and the standard deviation in parenthesis. *Total* present the figures for all candidates running. *Pentecostals* are all candidates associated with Pentecostal churches (from [Lacerda, 2017](#)). *Pastors* are candidates that used a designation from a Pentecostal religion in their candidacy name – e.g., Pastor, Pastor, Reverend or Minister. *Priests* are candidates who used a Catholic designation in their candidacy name – e.g., Priest or Frei. *Panel A* presents statistics for the whole country, while *Panel B* restricts the sample to the states we had data for the candidacy name in 1994: AC, AL, AM, AP, BA, GO, MA, MS, PI, RR, RS, SC, SE, SP.

Table 11: Results – Reduced Form – Vote Share

	Dep. Var.: Vote share of Federal Deputies							
	2002 election				2014 election			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A. Pentecostals Candidates								
$\Delta Tariff_j$	-31.48*** (5.03)	-27.37*** (7.98)	-22.94*** (7.86)	-23.09*** (7.96)	-38.09*** (8.29)	-54.26*** (11.7)	-51.12*** (11.69)	-52.48*** (11.65)
Panel B. Pastors Candidates								
$\Delta Tariff_j$	-14.1*** (3.18)	-6.78* (3.96)	-5.15 (3.94)	-4.78 (3.84)	-6.41*** (2.15)	-6.43** (3.05)	-6.53** (3.02)	-6.47** (2.92)
Panel C. Priests Candidates								
$\Delta Tariff_j$	2.4 (3.15)	4.05 (5.74)	4.74 (5.5)	4.8 (5.16)	-.09 (1.31)	1.5 (1.43)	1.96 (1.57)	2.14 (1.6)
Fixed Effects	State	State	State	State	State	State	State	State
Controls		Yes	Yes	Yes		Yes	Yes	Yes
Δ 1980-1991 Pent.			Yes	Yes			Yes	Yes
Weighted				Yes				Yes

This table displays the reduced form estimates of the effects of local exposure to tariff changes on the vote share of Pentecostal and Catholic candidates in different elections as captured by β in equation (2). The dependent variables are the vote share of candidates running for Federal Congress (*Deputado Federal*) in the elections in the columns. The dependent variable in *Panel A* is the vote share of candidates associated with Pentecostal churches (from [Lacerda, 2017](#)); in *Panel B* is the vote share of *Pastors* in each election – i.e., candidates which used a designation from a Pentecostal religion in their candidacy name, e.g., Pastor, Pastor, Reverend or Minister; and *Panel C* is the vote share of *Priests* – candidates who used a Catholic designation in their candidacy name, e.g., Priest or Frei. All regressions include a constant and a set of state fixed effects because all microregions within a State have the same candidates list. The vector of controls, computed at the baseline year 1991, includes: the share of women, the share of nonwhites, average age and its square, average years of schooling, and the logarithm of the working age population. Regressions in columns 3 and 7 include Δ 1980-1991 Pentecostal share. Columns 4 and 8 present results for a weighted regression using population weights (the share of the microregion population out of the total Brazilian population in 1991). The unit of observation is a microregion (as in [Reis et al., 2011](#)); N=412. Robust *standard errors*. *** p < .01, ** p < .05, * p < .1.

Table 12: Results – OLS – Vote Share and Pentecostal Expansion

	Dep. Var.: Vote share of Federal Deputies							
	2002 election				2014 election			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A. Pentecostals Candidates								
Δ Share Pentecostals	.69*** (.1)	.47*** (.09)	.42*** (.08)	.44*** (.08)	.95*** (.18)	.88*** (.21)	.85*** (.22)	.83*** (.22)
Panel B. Pastors Candidates								
Δ Share Pentecostals	.34*** (.05)	.22*** (.04)	.21*** (.04)	.21*** (.04)	.23*** (.06)	.22*** (.07)	.22*** (.08)	.23*** (.08)
Panel C. Priests Candidates								
Δ Share Pentecostals	-.04 (.05)	-.04 (.05)	-.05 (.05)	-.04 (.05)	-.02 (.02)	-.03 (.02)	-.03 (.02)	-.04 (.02)
Fixed Effects	State	State	State	State	State	State	State	State
Controls		Yes	Yes	Yes		Yes	Yes	Yes
Δ 1980-1991 Pent.			Yes	Yes			Yes	Yes
Weighted				Yes				Yes

This table displays the correlation between the growth on the number of Pentecostals per capital between 1991 and 2000 in each microregion and the vote share of Pentecostal and Catholic candidates in different elections as captured by β in equation (2). The dependent variables are the vote share of candidates running for Federal Congress (*Deputado Federal*) in the elections in the columns. The dependent variable in *Panel A* is the vote share of candidates associated with Pentecostal churches (from [Lacerda, 2017](#)); in *Panel B* is the vote share of *Pastors* in each election – i.e., candidates which used a designation from a Pentecostal religion in their candidacy name, e.g., Pastor, Pastor, Reverend or Minister; and *Panel C* is the vote share of *Priests* – candidates who used a Catholic designation in their candidacy name, e.g., Priest or Frei. All regressions include a constant and a set of state fixed effects because all microregions within a State have the same candidates list. The vector of controls, computed at the baseline year 1991, includes: the share of women, the share of nonwhites, average age and its square, average years of schooling, and the logarithm of the working age population. Regressions in columns 3 and 7 include Δ 1980-1991 Pent. share. Columns 4 and 8 present results for a weighted regression using population weights (the share of the microregion population out of the total Brazilian population in 1991). The unit of observation is a microregion (as in [Reis et al., 2011](#)); N=412. Robust *standard errors*. *** $p < .01$, ** $p < .05$, * $p < .1$.

A Appendix Figures and Tables

Figure A1: Tariff Reductions and Initial Tariff Levels, by Microregions

Source: Hirata and Soares (2005). Authors' calculations based on data from the 1991 census and from Kume et al (2003).

Table A1: Religions Classifications and Codes

Religion	Denomination	Census Classification		
		1980	1991	2000 and 2010
Catholic	Apostólica Romana	1	11	110
	Carismática	1		111
	Armênia/Ucraniana	1		112
	Apostólica Brasileira	1	12	120
	Católica Ortodoxa	1	13	130
	Ortodoxa Cristã	1		140,149
	Other	1		199
Protestant	Luterana	1	21	210,219
	Presbiteriana	1	22	220-225,229
	Evangélica Metodista	1	23	230-232,239
	Batista	1	24	240-245,249
	Congregacional	1	25	250,251,259
	Adventista	1	26	260-262,269
	Episcopal Anglicana	1	27	270,279
	Menonita	1	28	280,289
	Exército da Salvação	1		300
	Others	1	29-30	
Pentecostal	Assembléia de Deus	3	31	310-312, 319
	Congregação Cristã do Brasil	3	32	320,329
	O Brasil Para Cristo	3	33	330,339
	Evangelho Quadrangular	3	34	340,349
	Universal do Reino de Deus	3	35	350,359
	Casa da Benção	3	36	360,369
	Casa de Oração	3	37	370,379
	Deus É Amor	3	38	380,389
	Maranata	3	39	390,399
	Comunidade Cristã	3		420,429
	Nova Vida	3		430,439
	Comunidade Evangélica	3		440,449
	Avivamento Bíblico	3		460,469
	Cadeia da Prece	3		470,479
	Igreja do Nazareno	3		480,489
	Others	3		892
Others	IJCSUD*/Mormons		51	510,519
	Testemunha de Jeová		52	520,529
	Legião da Boa Vontade		53	530
	Espiritualista			590,599
	Espírita, Kardecista	4	61	610,619
	Afro-brasileiras	5	62,63	620,629,630,639, 640,641,649
	Judaísmo	7	71	710,719
	Orientais	6	75,76,77,79	740,741,749,750-755,759, 760-766,790-793,799
	Islamismo	8	81	810,819
	Esotérica	8	82	820,821,829
	Tradições Indígenas	8	83	830-834,839
	Others	8	59,84,85,86,89	850,890-896,490-492,499

*Igreja de Jesus Cristo dos Santos dos Últimos Dias. Table displays 1980, 1991, 2000, and 2010 IBGE Censuses' compatible codes for religious denomination and churches of interest for this work.

Table A2: Sector of activities and tariff – 1990, 1995 and 1998

	Nominal Tariffs			Weighted Tariffs			Weight in the Aggregated Sector in 1990	Aggregated Sectors	θ_r	1991 Census Classification
	1990	1995	1998	1990	1995	1998				
Sectors from Kume et al. (2003)										
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
Electric materials	44.1	21.3	19.5	42.1	20.2	18.3	0.45	Electric material and equipment	0.64	130
Electronic equipment	40.6	19.3	17.4	42.1	20.2	18.3	0.55	Electric 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

Nominal tariffs per year from 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 1991. The last column provides the way of classifying individuals according to their sector in the 1991 Census (IBGE).

Table A3: Results – 2SLS – Vote Share and Pentecostal Expansion

	Dep. Var.: Vote share of Federal Deputies							
	2002 election				2014 election			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A. Pentecostals Candidates								
Δ Share Pentecostals	1.21*** (.18)	1.2*** (.33)	1.05*** (.34)	1.06*** (.34)	1.46*** (.29)	2.38*** (.52)	2.33*** (.53)	2.42*** (.54)
Panel B. Pastors Candidates								
Δ Share Pentecostals	.54*** (.12)	.3* (.17)	.23 (.17)	.22 (.17)	.25*** (.08)	.28** (.12)	.3** (.13)	.3** (.13)
Panel C. Priests Candidates								
Δ Share Pentecostals	-.09 (.12)	-.18 (.24)	-.22 (.24)	-.22 (.23)	0 (.05)	-.07 (.06)	-.09 (.07)	-.1 (.07)

This table displays the relationship between the growth on the number of Pentecostals per capital between 1991 and 2000 in each microregion and the vote share of Pentecostal and Catholic candidates in different elections as captured by the 2SLS estimate from β in equation (2). We instrument the expansion of Pentecostalism with local exposure to tariff changes. The dependent variable in *Panel A* is the vote share of candidates associated with Pentecostal churches (from [Lacerda, 2017](#)); in *Panel B* is the vote share of *Pastors* in each election – i.e., candidates which used a designation from a Pentecostal religion in their candidacy name, e.g., Pastor, Pastor, Reverend or Minister; and *Panel C* is the vote share of *Priests* – candidates who used a Catholic designation in their candidacy name, e.g., Priest or Frei. All regressions include a constant and a set of state fixed effects because all microregions within a State have the same candidates list. The vector of controls, computed at the baseline year 1991, includes: the share of women, the share of nonwhites, average age and its square, average years of schooling, and the logarithm of the working age population. Regressions in columns 3 and 7 include the twice lagged dependent variable (Δ 1980-1991). Columns 4 and 8 presents results for a weighted regression using population weights (the share of the microregion population out of the total Brazilian population in 1991). The unit of observation is a microregion (as in [Reis et al., 2011](#)); N=412. Robust *standard errors*. *** $p < .01$, ** $p < .05$, * $p < .1$.