Divine Innovation: Religion and Service Provision by
Religious Organisations in India

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31 March 2011

CWPE 1135

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Religion and Service Provision by Religious Organizations in India[1]

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Abstract

This paper examines innovations to religious and non-religious service provision by religious organizations in India. We present a stylized Hotelling-style model in which two religious organizations position themselves at opposite locations to differentiate themselves on the religious spectrum in order to compete to attract adherents. Moreover, the model predicts that economic inequality can make both organizations increase their provision of non-religious services to retain adherents. In order to test our propositions, we present unique primary survey data on the economics of religion that we have collected from 2006-2008 on 568 Hindu, Muslim, Christian, Sikh and Jain religious organizations spread across seven Indian states. We use these data to provide qualitative and descriptive statistics from the survey that is consistent and provides initial support for our propositions. We show that these organizations have substantially increased their provision of religious and non-religious services, but that there are significant variations by religion. We also provide quantitative evidence based on econometric testing to highlight that Indian religious organizations are maximizing the differences in their ideology with respect to other organizations, and are also providing higher education and health services as economic inequality increases in India.

1. Introduction

'Political economy or economics is a study of mankind in the ordinary business of life; it examines that part of individual and social action which is most closely connected with the attainment and with the use of the material requisites of wellbeing.

Thus it is on the one side a study of wealth; and on the other, and more important side, a part of the study of man. For man's character has been moulded by his every-day work, and the material resources which he thereby procures, more than by any other influence unless it be that of his religious ideals; and the two great forming agencies of the world's history have been the religious and the economic. Here and there the ardour of the military or the artistic spirit has been for a while predominant: but religious and economic influences have nowhere been displaced from the front rank even for a time; and they have nearly always been more important than all others put together.'

- Alfred Marshall, *Principles of Economics* (1890), Book 1, Chapter 1, Page 1.

So commences what is arguably one of the greatest books ever written on economic science. And it begins not only with a discussion of the importance of economics with which it is primarily concerned, but highlights in equal measure the fundamental role of religion in moulding both an individual's motivations and the course of world history. Alfred Marshall's prophecy could not have been more prescient as economics today has much to offer the study of contemporary religion.

In the 21st century, the increasing importance of religion in both developed and developing countries has been observed by scholars investigating the economics of religion (Iannaccone 1998; Barro and McCleary 2003; Guiso et al. 2003; Berman 2009). Questions such as why some religions appear to become more flexible or accommodating as they evolve over time, while others develop more fundamentalist groups within them, continues to fascinate scholars who have commented on the resilience of religion (Stark and Finke, 2001). This is linked to the manner in which religion constitutes an important source of 'spiritual capital', contributing significantly to the building of norms and networks among populations, organized on the basis of religion.

It is against this backdrop that in this paper we propose that the resilience of religion draws from the ability of religions to undertake innovation and innovative behaviour, similar to the behaviour commonly observed among firms. To date, there are several existing theories that make claim to account for the resilience of religion such as family socialization, the importance of social networks, and a belief in otherworldly or supernatural elements (Christiano *et al*, 2008). But it may also be relevant to view the persistence of religion in societies not merely as the outcome of these largely sociological processes, but equally as a rational economic response to changes in the political, ecological, and economic environments in which they operate. It is in this context that we ask a simple question: *How do religious organizations provide and innovate their religious and non-religious services in response to inequality and the competition for adherents?*

Recent research within economics has been examining identity more closely using information from developing countries like India (for example, see recent work by Amartya Sen (2005)). There is also a broader literature on religious competition and why economic growth has not led to a decline in the practice of religion in rich countries (McBride 2010). In the context of India, a country which is characterized by the multiplicity of religions which

have proven extraordinarily resilient, the active practice of religion, and religious conflict, this has been commented upon extensively by historians, political scientists, sociologists and others (Bayly 1983; Engineer 1984; Bagchi 1991; Varshney 2000; Brass 2003). Other studies explore the effect of economic growth on religious conflict in India (Bohlken and Sergenti, 2010). There are also more recent studies of religion which suggest for example that there are over 30,000 Muslim, and other religious schools in India (US Department of State 2010). Our study adds to existing analyses of religion by contributing theoretically and empirically to this growing literature.

We suggest that the existing economics of religion literature has examined competition, innovation or service provision independently. The existing theories whether from economics or other disciplines do not address how the decision to choose a religious ideology or offer a religious service might be related jointly to economic concerns such as inequality and non-religious service provision. We bring these two sets of concerns together: our economic theory takes the existing religion research forward by offering a model of religion and service provision by religious organizations that also shows how religious ideologies might differ in response to competition. In particular, how religious organizations provide and innovate their religious and non-religious services consistent with changes in income inequality and the competition for adherents. We present a simple and stylized Hotelling-style model in which two religious organizations choose a religious focal point and decide upon the non-religious services provided. We show in the model that the organizations will position themselves at opposite locations to differentiate themselves on the religious spectrum, but that in equilibrium, economic inequality is sufficient to make both organizations increase their provision of non-religious services. To that end, our study is valuable because it provides an economic theory for differentiation of religious offerings in the context of religious and non-religious service provision.

Then, in order to test the model's two key propositions, we present a unique dataset – to the best of our knowledge, the first economic survey of religious institutions undertaken in India, which we conducted between 2006 and 2008. These rich and unique primary data are based on 568 religious organizations which we collected in a survey that spanned 7 large Indian states, and was a major and complex task of planning and execution. These data include information on Hindu, Muslim, Christian, Sikh, and Jain organizations, and are collected to examine the economic and competitive behaviour of these organizations. The states we examined are Jammu and Kashmir, Uttar Pradesh, Gujarat, Karnataka, Madhya Pradesh, West Bengal and Maharashtra. Consequently, these data cover basic demographics, religious service provision, non-religious service provision such as education and health, innovations to religion, adherents, donations, expenditures, and other issues.

We use these data to provide support for our theoretical propositions in two ways: first, we provide qualitative and descriptive statistics from the survey that is consistent and provides initial support for our two propositions. Second, we support this with quantitative evidence based on econometric testing to illustrate the empirical regularity of the phenomena under study. In doing so, we find that in terms of religious services, of all the religious services provided by the organizations, propagation of the faith and religious education are considered the two most important activities provided by them. Muslim and Christian organizations provide more by way of religious education which they rate as their main activity compared to the Hindus. We highlight that religious organizations in India are choosing to maximize the differences in their ideology with respect to other organizations. We find evidence that religious organizations of all religions in India have substantially increased their provision of non-religious services possibly in order to substitute for the lack of state provision, and that

this is related to their perception of economic inequality and competition. Using a range of econometric methods, we also show that the average change in the probability of providing higher levels of education and health services for an increase in the perception of inequality remains positive and significant.

In keeping with the predictions of our theory, and as a consequence, it may be that some religious organizations in India have become more radical, others more liberal. But regardless of this position, the existence of economic inequality between groups makes both radical and more liberal organizations provide more education and health services, accounting perhaps for the paradoxical co-existence of a more prosperous economy and more service provision by religious organizations.

We emphasize also that counter to some historical, sociological or anthropological analyses of religion in India that have mainly studied the many negative consequences that religion might engender such as the phenomenon of 'communalism', we emphasize particularly in this study, the *positive* role of some religious organizations in India today. Collectively from our findings therefore, we argue that innovations to religion, along religious and non-religious lines, may account for the resilience of religious organizations in India today.

The remainder of this paper proceeds as follows: Section 2 outlines the literature on innovations to religion in the context of the economics of religion. Section 3 presents the model. Section 4 discusses our primary survey of religious organizations undertaken in India. In this context, Section 5 discusses the qualitative evidence and descriptive statistics in terms of the provision of religious and non-religious services, and innovations to this provision. This section also includes a discussion of religious organizations' perception of economic inequality and religious competition. In doing so we provide qualitative and descriptive statistics from the survey that is consistent and provides initial support for the propositions. Section 6 presents the quantitative econometric findings of the research that tests the theoretical propositions developed and the key results. Section 7 concludes.

2. How do Religions Innovate?

We begin by defining an `innovation' to religion: All religions have a core set of beliefs as set out in their scriptural theology, for example in books such as the Bible, the Koran or the Bhagvad Gita. But actual religious practice and religious observance involve the interpretation of these beliefs either by the religious clergy or by individuals. For example, with respect to religions such as Islam in India, the interpretation of the words of the Prophet Mohammad (the `Sunnah'), undertaken by the 'ulema' or Muslim religious clergy in India, is equally important to the practice of the Islamic religion as are the sayings of the Koran. Since the process of interpretation of the Islamic religion is conducted mainly by the 'ulema', this may be critical to the evolution of religious practice within Islam in India. For example, in the specific context of India, the main debates about the Islamic religion in the 1990s and more recently have centred almost exclusively on the clergy's interpretation of the Muslim woman's right to divorce, her entitlement to alimony, the age at which a Muslim woman marries, and the practice of `triple divorce'. To the extent that scriptural theology that outlines a religion's core beliefs is subject to such interpretation, we argue that there exists the potential for innovation.

So we can define `innovation' in the religion sector to be any alteration to beliefs and/or to religious practice either by individuals or by the religious clergy that has an impact on the

subsequent actual observance of the religion. Consequently, taking a cue from the literature from the economics of innovation, we can think of `innovation' in the religion sector if there are alterations to religious practice, which makes previous practice less likely to be adopted. For example, in the historical context of India, we can think of Sikhism, Buddhism, Jainism and the Bhakti movement, which all started out essentially as religious reform movements of Hinduism, as `innovations' to Hinduism mainly because they attempted to remove from Hinduism the dogmatic finality of caste and the emphasis on religious rituals, characteristic of Hinduism at the time. Some of these innovations to Hinduism, such as Buddhism and Jainism, went so far as to lead to the formation of new religions. More recently, other social concerns (legal restrictions on child marriage, absence of polygyny), also generate contradictions in the religion which the religious clergy need to deal with. But we argue that it is precisely this kind of `innovation' which sustains the practice and observance of religion not only in India, but also in many other parts of the world. For example, in Pakistan, the ulema have dealt with Islamic scriptural theological prescriptions on polygyny by insisting upon the construction of an arbitration council to negotiate divorce (Iyer 2002). Consequently, this theory would go so far as to argue that religions that do not innovate at all `fall off the cliff' as it were, witnessing evidence of declining religious adherence.

We argue that while altering the interpretation of religion is one channel through which 'innovation' might take place, changing the service-levels provided by organizations, particularly with respect to education and health, may be another channel, in a situation where these services are less well-provided for by the state. So we can think of 'innovation' as occurring along two distinct dimensions - the religious, and the socio-economic, with changes to both of these influencing the number of adherents over time.

2.1. The Economics of Religion

Our study contributes to the existing work on the rational choice approach to understanding religion, but also contributes to understanding how religious competition matters in developing countries. Our interest in innovations to religion can be linked to economists' existing interests in religion and social economics more generally (Becker and Murphy 2000; Putnam 2000). The economics of religion is driven by the continuing persistence and impact of religion in developed and developing countries alike (Iannaccone 2005; Bisin and Verdier 2000; Iyer 2008).

Studies in the economics of religion can be categorized into three main groups: first, those that have focused on the links between religion and economic theory; second, those that have focused on policy such as debates about faith-based welfare programmes, and the economic regulation of the church; and thirdly, those that have examined empirically the influence of religion on economic behaviour, both at the macro and micro levels.

Adam Smith first made reference to the church in *The Wealth of Nations*, and Max Weber discussed the influence of the Protestant ethic on capitalism (Weber 1904). Max Weber's thesis was about the Protestant ethic and modern capitalist development, which was echoed by Landes (1998), and suggests that secular ideas occasioned by capitalist development may have led to less religious attendance, for example in North-West Europe today. However, there have also been critiques of this thesis (Tawny 1926; Gorsky 2005). Lal (1998) highlights the interaction between factor endowments, culture, and politics as a determinant of modern economic growth.

The broadly socio-economic view of religion, which expounds the rational choice approach to the study of religion, is found in the work of many economists and others (Azzi and Ehrenberg 1975; Iannaccone 1998; Montgomery 1996; Stark, Iannaccone and Finke 1996; Stark and Finke 2000; Lechner 2006). The focus here has been both on the supply side, in terms of the structures of religious organizations (Dehejia et al 2007), and on the demand side, in terms of the preferences of consumers of religion (Oslington 2003). This implies that the activities of religious economies are important: for example, Stark and Finke state that `Religious economies are like commercial economies in that they consist of a market of current and potential customers, a set of organizations or firms seeking to serve that market, and the religion offered by various organizations.' (Stark and Finke, 2000, p. 2-3).

In this approach, individuals are rational consumers of religion who decide whether or not to believe, or in which religion to believe, based on a cost-benefit analysis and relative to their initial endowments. In this view, people adopt religion because it is optimal for them to do so and their beliefs and activities may change over time. In a similar way, the supply of religion is explained by churches behaving similarly to firms in a competitive market, and especially providing services to attract potential customers. This idea underlies much of the work in this paper as well. In this context, we think of this issue as if buyers (or individuals) and sellers (or the religions) meet in a marketplace in which supply and demand dictate allocations of adherents across religions. Therefore, the twin ideas that an individual selects religion as a rational choice and that the functioning of religion in society emulates that of an economy, forms the foundations of the 'new paradigm' of the sociology of religion today (Lechner 2006).

The backdrop for this renewed interest in religion is also whether deregulation or lack of regulation of religious organizations is imperative. There has been a renewed interest in revisiting the Weber hypothesis empirically as well. Recent studies examine whether religious beliefs and participation explains economic development and whether in turn it may be explained by the structure of religious groups and organizations, specifically whether or not state religions matter in terms of the implications of a monopolistic structure for the freedom of markets (Barro and McCleary 2003; Stark and Finke 2000; Barro and McCleary 2005; North and Gwin 2004; Gruber and Hungerman 2006), although some research has also highlighted the difficulty of identifying the effect of religion clearly in econometric studies of its impact in cross-country studies (for example, Durlauf, Kourtellos and Tan, 2011). Other macro-based studies have examined specific hypotheses, based on certain religions. For example, La Porta et al. (1999) show that in countries with a high proportion of Catholics or Muslims, the performance of government is reduced and hence, these nations are more likely to be poor. Research on the impact of religion on people's economic attitudes reveals that Christian religions are more positively associated with attitudes conducive to economic growth in comparison to Islamic belief (Guiso et al 2003). There is also a recent literature that has been evaluating the historical basis of conflict and the role of religion and empire in these contexts (Iyigun 2008).

Current research in the economics of religion has been evaluating whether religion and politics are mutually exclusive (Caplow 1985). Iannaccone and Makowsky (2007) explore the relationship between regional issues and religion. In exploring the interaction between religion and politics on an international scale, Haynes (2001) notes that although religious organizations, like the Islamic radicals and the Catholic Church, have acted prominently in some national contexts to undermine the authority of the government, generally they should not be considered a threat to state sovereignty. The notion of 'strategic extremism', posited by Glaeser, Ponzetto and Shapiro (2005), shows that politicians have an incentive to take an

extreme stand on issues such as abortion or same-sex marriage in order to induce their core supporters to vote and make donations. Furthermore, religious or political institutions may also choose extreme positions in order to mitigate the effects of free rider problems (Appelbaum and Katz 2007). In related literature, economic perspectives on terrorism both within and across national boundaries have also been explored (Berman and Laitin 2004; Sandler and Enders 2004; de Mesquita 2005; Krueger 2007; Keefer and Loayza 2008; Berman 2009). Other studies have attempted to understand the broader structures of religion and religious movements (Warner 1993; Gruber 2005; Glaeser 2005), or religion in particular parts of the world (Kuran 2004).

One of the themes of this literature is that many religious groups such as, for example the Hamas, have provided spiritual services alongside social and welfare services in the regions they operate (Berman 2009). As Berman points out in this context, this approach emphasizes the social and economic aspects of religious communities, rather than purely the effect of religious faith. As he writes, 'Distinguishing between those two functions is often difficult, but the distinction is critical. Regardless of the strength of a member's faith, and regardless of the salience of a theology, an organization that can limit shirking will be more successful at mutual aid….That's why social service provision and spiritual service provision so often appear together in communities, making it difficult to distinguish commitment to beliefs from commitment to community, for community members and outside observers alike.' (Berman 2009, p. 19).

Thus, the literature on the economics of religion encompasses both microeconomic and macroeconomic studies. However the existing economics literature has examined competition, innovation or service provision independently. One of the main points which other academic disciplines have tried to address is why we see in practice a range of religious organizations becoming more liberal (or less conservative in their requirements for religious practice and observance) or radical (more stringent on the same dimensions with consequences more widely) over time, such as for example communalism in India. The existing theories whether from economics or other disciplines do not address how the decision to choose a religious ideology or offer a religious service might be related to economic concerns such as inequality and non-religious service provision. We bring these two sets of concerns together: our economic theory takes the existing religion research forward by offering a model of religion and service provision by religious organizations that also shows how religious ideologies might differ in response to competition. Specifically, how religious organizations provide and innovate their religious and non-religious services consistent with changes in income inequality and the competition for adherents amongst them. We also take our theory to data, testing it on primary data that we have collected in India. To that end, our study is valuable because it provides an economic theory for differentiation of religious offerings in the context of religious and non-religious service provision.

3. The Model

To develop a model which embodies our ideas, we focus on the economics of innovation, the links between innovation and competition, and service provision. The intuition behind our model is as follows: Suppose we begin with a simplified economy in which there are 2 religious organizations[6]. We assume that each organization is competing for adherents and

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[6] Our model is applicable to a situation where there are two organizations from different religions, such as for example if we were thinking about competition between Hindus and Muslims, or to a situation in which there

that each organization tries to maximize adherents via choosing a focal point. Each organization maximizes adherents possibly because of political, monetary or other benefits that they derive from having a large number of adherents. Each organization is also providing some non-religious services which we assume the poor will value and use more than the rich, because the latter will already have them.

Our model also identifies the criteria that each adherent uses to choose membership of a religious organization. The adherent chooses which organization to join based on two factors - first, the difference between their personal focal point relative to the religious organization's focal point. Secondly, the wealth benefits from membership of a religious organization (we can think of this say as education, health, employment, or other services that arise from membership of the organization). Again we think the poor will value these services more than the rich.

In classic economic terms, this creates a game theoretic problem in which the two religious organizations have to choose a religious focal point and decide upon the non-religious services provided. But they need to do this by taking into account each others' choices, while they are both competing for adherents in this simplified model. We also look at what happens to the problem when there is economic inequality across the population of individuals in the economy.

Let us now develop our model more formally. Our model of innovation by religious organizations is similar to Hotelling's model of price and location competition (Hotelling 1929). Let I denote a set of individuals. For individual $i \in I$, let $e_i \in [0, \infty)$ denote individual's i's economic well-being, and $x_i \in [0, 1]$ denote individual i's religiousness. Assume that x_i is uniformly distributed across all individuals over $[0,1]$, and that $e_i = e$, for all i. Two religious organizations compete for individuals in I by choosing a religious focal point $x \in [0,1]$, and an amount of non-religious services $s \in [0, \infty)$. The two organizations have identical payoff functions, which are $(\text{p-s})n$, where $p > 0$ is a given constant, and n is the number of adherents to the organization. Individual i's expected utility function is assumed to have the following form,

$$u_i = -(x_i - x)^2 + \frac{s}{e_i} \qquad (1)$$

where x and s are chosen by the organization which individual i chooses to be affiliated with.

The timing of the game is as follows. The two organizations choose x simultaneously, then they observe each other's choices of x, and choose s simultaneously. Individuals go to the organization that gives them a higher utility. It may be helpful to clarify here that we model the organizations as choosing their focal points first, and then their service provision levels. The reason for our doing so is because we think that the religious focal point decision is likely to be more 'sticky' than the service provision decision. After all, choosing the religious focal point may encompass complex issues that concern religious theology, its interpretation, and religious practice. Religious organizations need to be clear where they stand religiously before they can determine their service levels. Therefore technically, the timing of the game in our model is conceptualized as similar to a standard location-price competition model from the economics of industrial organization in which firms decide where to locate first and then

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are two competing organizations that belong to the same religion, which may be more typically the case in India.

decide what prices to charge. In keeping with this justification, our organizations first need to decide where they stand religiously by choosing a religious focal point before they can decide how much non-religious services to provide.

3.1. Characterization of Equilibrium

We now characterize the subgame perfect equilibrium of this game. Let x_1 and x_2 denote the religious focal points chosen by the organizations. Fix any x_1 and x_2, such that $0 \leq x_1 < x_2 \leq 1$, we first calculate the Nash equilibrium in the subgame following (x_1, x_2). Let s_1 and s_2 denote the non-religious services chosen by the organizations. For fixed s_1, s_2, the individual who is indifferent between the two organizations should satisfy

$$-(x - x_1)^2 + \frac{s_1}{e} = -(x - x_2)^2 + \frac{s_2}{e} \tag{2}$$

where x is the indifferent individual's religiousness. Any individual with a lower religiousness chooses organization 1, and any individual with a higher religiousness chooses organization 2. Given the uniform distribution of the individuals' religiousness, solving for the x in (2), the number of adherents of organization 1 is therefore

$$x = \left(\frac{x_1 + x_2}{2}\right) + \left(\frac{s_1 - s_2}{e}\right)\frac{1}{2(x_2 - x_1)} \tag{3}$$

And the number of adherents of organization 2 is $1 - x$.

Organization 1's problem is thus

$$\max_{s_1}(p - s_1)x$$

The first order condition of this problem is

$$s_1 = \frac{p + s_2}{2} - \frac{x_1 + x_2}{2}(x_2 - x_1)e \tag{4}$$

Similarly, organization 2's problem is

$$\max_{s_2}(p - s_2)(1 - x)$$

And the first order condition for organization 2 is

$$s_2 = \frac{p + s_1}{2} - \frac{2 - x_1 - x_2}{2}(x_2 - x_1)e \qquad (5)$$

Solving for s_1 and s_2, we have

$$s_1 = p - \frac{1}{3}(x_2 - x_1)(2 + x_1 + x_2)e$$

$$ \qquad (6) $$

$$s_2 = p - \frac{1}{3}(x_2 - x_1)(4 - x_1 - x_2)e$$

Now we calculate the equilibrium choices of x_1 and x_2. For fixed x_1 and x_2, organization 1's payoff is

$$\pi^1(x_1, x_2) := (p - s_1)x \qquad (7)$$

where x is given in (3), and s_1 is given in (6). To emphasize the dependence of x on x_1, x_2, s_1, and s_2, and the dependence of s_1 and s_2 on x_1 and x_2, we rewrite (7) as

$$\pi^1(x_1, x_2) = \big(p - s_1(x_1, x_2)\big)x\big(x_1, x_2, s_1(x_1, x_2), s_2(x_1, x_2)\big)$$

By the envelope theorem, as we differentiate Π^1 with respect to x_1, we can take $s_1(x_1, x_2)$ as a constant, because the partial derivative of Π^1 with respect to s_1 is equal to 0 at the optimal $s_1(x_1, x_2)$. Moreover, in equilibrium it must be that $p \geq s_1(x_1, x_2)$. Therefore, to calculate the impact of x_1 on Π^1, it suffices to calculate $\frac{dx}{dx_1} + \frac{dx}{ds_2}\frac{ds_2}{dx_1}$. From (3),

$$\frac{dx}{dx_1} = \frac{1}{2} + \frac{s_1 - s_2}{e}\frac{1}{2(x_2 - x_1)^2}$$

From (3) and (6),

$$\frac{dx}{ds_2}\frac{ds_2}{dx_1} = \frac{1}{3}\frac{(x_1 - 2)}{(x_2 - x_1)}$$

From (6)

$$s_1 - s_2 = \frac{1}{3}e(x_2 - x_1)(2 - 2x_1 - 2x_2)$$

Hence

$$\frac{dx}{dx_1} = \frac{1}{2} + \frac{1}{3}\frac{(1 - x_1 - x_2)}{(x_2 - x_1)}$$

Calculation shows that $\frac{dx}{dx_1} + \frac{dx}{ds_2}\frac{ds_2}{dx_1} < 0,$ for all $x_1, x_2,$ therefore, organization 1 chooses $x_1 = 0$ in equilibrium. Similarly, organization 2 chooses $x_2 = 1$ in equilibrium. The two organizations maximize the differentiation of their religious focal points, to avoid competition in the non-religious services.

So far in the analysis we assumed that $x_1 < x_2$. We now argue that it is impossible to have an equilibrium in which $x_1 = x_2$. Suppose that there is. Then in the subgame conditional on $x_1 = x_2$ being chosen, the two organizations will compete away any positive profits by raising s all the way to p, otherwise one organization can always offer a bit more services than the other and grab the whole market and obtain a higher payoff. Hence, both organizations receive zero profits in the subgame. But then organization 1 can deviate by choosing a lower x_1 and make a positive profit, because our analysis above shows that both organizations make positive profits in any subgame following $x_1 < x_2$ being chosen.

All else being equal, now we introduce economic inequality. Let $e_H = ae$ and $e_L = be$ where a and b are positive constants. Suppose the economic well-being of half of the population goes up to e_H, and the economic well-being of the other half goes down to e_L. Moreover, we assume that there is no correlation at the individual level between economic well-being and religiousness. Without loss of generality, we can assume that for each $x \in [0,1]$, there is a rich individual with e_H with probability ½ and a poor individual with e_L with probability ½ , both have the same religiousness x. We follow the same steps as above to characterize the subgame perfect equilibrium of the game with inequality. Fix x_1 and x_2, let x_H denote the number of rich adherents of organization 1, and x_L denote the number of poor adherents of organization 1. The same indifference condition (2) applies to x_H and x_L separately,

$$-(x_H - x_1)^2 + \frac{s_1}{e_H} = -(x_H - x_2)^2 + \frac{s_2}{e_H}$$

$$-(x_L - x_1)^2 + \frac{s_1}{e_L} = -(x_L - x_2)^2 + \frac{s_2}{e_L}$$

Hence

$$x_H = \frac{x_1 + x_2}{2} + \frac{s_1 - s_2}{e_H}\frac{1}{2(x_2 - x_1)}$$

$$x_L = \frac{x_1 + x_2}{2} + \frac{s_1 - s_2}{e_L}\frac{1}{2(x_2 - x_1)}$$

Hence the total number of adherents of organization 1 is

$$\frac{x_H + x_L}{2} = \frac{x_1 + x_2 + \frac{s_1 - s_2}{2(x_2 - x_1)}\left(\frac{e_H + e_L}{e_H e_L}\right)}{2} \tag{8}$$

Organization 1's problem is

$$\max_{s_1}(p - s_1)\left(\frac{x_H + x_L}{2}\right)$$

The first order condition of the problem is

$$s_1 = \frac{p + s_2}{2} - (x_1 + x_2)(x_2 - x_1)\frac{e_H e_L}{e_H + e_L} \tag{9}$$

Organization 2's objective function is

$$\max_{s_2}(p - s_2)\left(1 - \left(\frac{x_H + x_L}{2}\right)\right)$$

The first order condition for organization 2's problem is

$$s_2 = \frac{p + s_1}{2} - (2 - x_1 - x_2)(x_2 - x_1)\frac{e_H e_L}{e_H + e_L} \tag{10}$$

Comparing (9) and (10) with (4) and (5), it is easy to see that the non-religious services provided by the two organizations go up in the inequality case, as shown in Figure 4, if
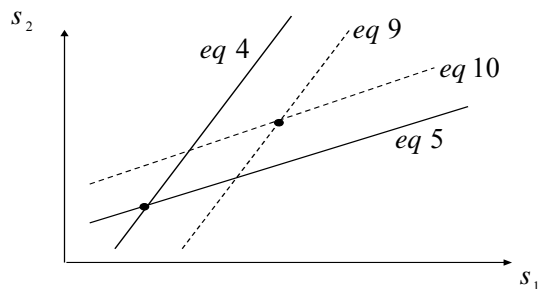
$$\frac{e_H e_L}{e_H + e_L} < \frac{e}{2}$$

Or equivalently,

$$b < \frac{a}{2a - 1}$$

Therefore, both religious organizations will provide more non-religious services if the poor remain poor enough when there is economic inequality.

Figure 1. *Effects of remaining poverty on the provision of non-religious services*

Finally we calculate the equilibrium choices of x_1 and x_2, in the inequality case. Notice that if we replace $\frac{e_H e_L}{e_h + e_L}$ by $\frac{e}{2}$ in (8), (9), and (10), we get exactly (3), (4), and (5). Notice also that in the envelop theorem argument above, the partial derivatives are independent of e. Therefore, the same result carries on to the inequality case, i.e., $x_1 = 0, x_2 = 1$.

 We summarize the analysis into the following two propositions:

Proposition 1. The two religious organizations maximize the differentiation in their religious focal points regardless of economic inequality in order to minimize competition in the provision of non-religious services.

Proposition 2. When there is some economic inequality, if the poor remain poor enough, then both religious organizations will also provide more non-religious services.

Hence, we show that when we solve the model mathematically, the subgame perfect equilibrium for these religious organizations is such that it generates these two propositions that describe their behavior. The intuition behind *Proposition 1* is because the organizations are differentiating themselves religiously in order to minimize the amount they have to compete for providing non-religious services. And the intuition behind *Proposition 2* is that when economic inequality is rising, then religious organizations provide more non-religious services because if the poor remain poor enough, and if there is a sizeable proportion of them, then under the assumption of diminishing marginal utility of non-religious services in an individual's economic well-being, both religious organizations will find it in their interests to provide more non-religious services to attract the poor, as the organizations are competing for more adherents among them. Our model suggests that one factor which pushes religious organizations towards more extremes is non-religious service provision: religious organizations essentially product differentiate in order to minimize competition in service provision. In the next section we discuss the survey of the religious organizations in India.

4. The Survey of Religious Organizations in India

As a part of this study, we planned and executed, to the best of our knowledge, the first Indian survey of 568 religious organizations with a view to understanding their economic, innovative, and competitive behaviour. The survey conducted between 2006-2008 involved

extensive primary data collection and careful fieldwork using questionnaires and personal interviews. The survey involved interviews with 272 Hindu (47.89%), 248 Muslim (43.66%), 25 Christian (4.40%), 23 Sikh and Jain organizations (4.05%) based in the Indian states of Jammu and Kashmir, Uttar Pradesh, West Bengal, Madhya Pradesh, Gujarat, Maharashtra and Karnataka, as shown in Tables 1 and 2. This research involved 52 people from India helping conduct the survey.

A random sample of religious organizations in selected districts of each of the seven states was conducted, based on a listing of all religious organizations listed by the Registrar of Charities. We have random samples within states but equal samples across them. The sample is diverse and shows that the organizations have been in existence for varying lengths of time[7].

Table 1. Distribution of the sample across religions

	Number	Percentage
Hindu	272	47.89
Muslim	248	43.66
Christian	25	4.40
Other	23	4.05
Total	568	100.00

Table 2. Distribution of the sample by region and religion

	Hindu	Muslim	Christian	Other	All-India	Percentage
Gujarat	51	34	3	0	88	15.49
Jammu and Kashmir	26	41	4	11	82	14.44
Karnataka	27	42	6	0	75	13.20
Maharashtra	64	11	1	2	78	13.73
Madhya Pradesh	40	30	2	3	75	13.20
Uttar Pradesh	36	52	3	1	92	16.20
West Bengal	28	38	6	6	78	13.73
Total	272	248	25	23	568	100.00

The survey included questions on basic demographics; areas of operation; adherent numbers; religious practices and religious service provision; non-religious service provision; perceptions of how all types of service provision have changed over time; sources of income and expenditure including donations and other assets; and perceptions of competitive intensity with other religious organizations.

We emphasize that this survey was an elaborate task of planning, coordination and execution, and that the questions asked were very sensitive as were the nature of the respondents. The main states in which the survey was conducted is shown in Figure 2. Table 3 illustrates the manpower used in this survey and the main districts of India covered by the research. Jammu

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[7] For example, in terms of their date of foundation although a majority of the organizations were founded in the 19th and 20th centuries, some organizations were founded as early as the 13th century, and others were founded nine centuries later in the 21st century.

and Kashmir was the most difficult state in which to conduct these interviews, and we needed here both more man-days and travel time than in other states.

Table 3. Summary of the religion survey research

Name of State	Number of investigators	Man-days	Travel days	Average visits per interview	Districts of India covered
Maharashtra	4	44	8	2.4	Nashik, Mumbai
Karnataka	4	48	8	2.2	Bangalore, Belgaum
Madhya Pradesh	3	42	4	1.8	Bhopal, Gwalior, Indore
Jammu and Kashmir	13	65	14	2.1	Jammu, Udhampur, Srinagar, Pulwama, Awantipur, Barmulla, Kupwara, Budgam
Uttar Pradesh	13	45	10	3.5	Muradabad, Rampur, Bareilly, Allahabad, Balian, Varansi, Devaria, Ghazipur
West Bengal	8	40	7	2.2	Kolkata, Burdawan, Howrah
Gujarat	5	44	2	1.6	Surat, Baroda, Junagadh, Amreli, Rajkot, Ahmedabad
Total	50	328	53		

Figure 2. States covered by the India Religion Survey (2006-2008)
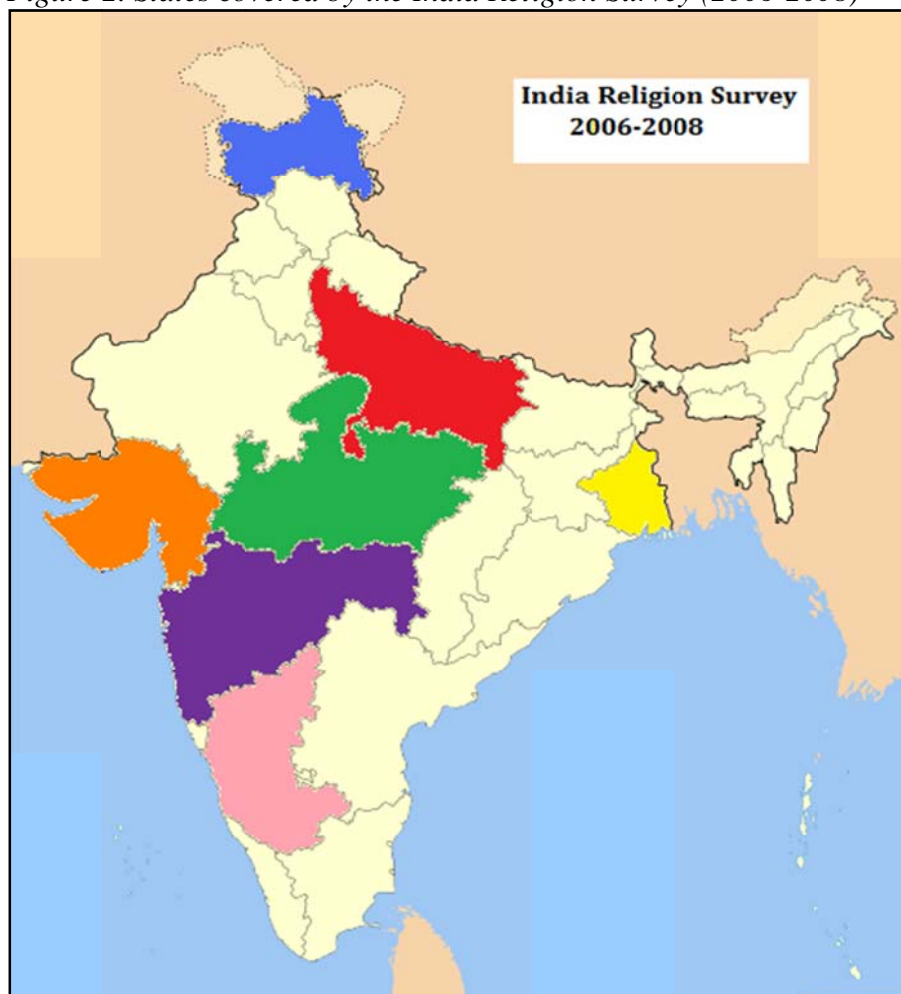

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Table 3 also shows the average number of visits per interview. This varies between 1.6 visits to 3.5 visits per religious organization. In order to avoid common-method bias, there were on average 3 people interviewed in each organization – typically a trustee, one person responsible for administration and the other who could talk about financial issues. For philosophical issues about the religion we talked to the temple or mosque trustees, for managerial and employment issues we talked to the general administration of the temple who was usually an employee. For financial issues, we spoke to the treasurer or employees of the accounts section of the religious institution. In case there were any inconsistencies we went back to the relevant official to seek clarification.

We also first conducted a pilot survey in two states in order to test run the questionnaire before administering the actual survey in all seven states. Also, we provided training to the field staff and conducted practice sessions with them to ensure reliability and consistency in recording responses to questions among the field staff. The questionnaire survey that was administered to the organizations consisted of a series of questions that were grouped into five mains sections: demographics which covered basic information about the organizations, background changes that included perceptions about changes in inequality, innovation in religious and non-religious service provision, knowledge of other organizations, and questions on donations received and expenditure incurred.

There were several issues that arose in the sample design and in administering this survey. First, response rates were reduced if a Hindu investigator approached a Muslim organization and vice-versa. We did, for example experience some issues with data collection in Jammu and Kashmir where it was extremely difficult to conduct interviews. In Jammu and Kashmir some of the field staff had to make 4 or 5 visits to get the information needed since in keeping with our sample design, we had to interview several individuals to gather the necessary information. This also allowed us to understand better all the services and activities provided by the organization. Secondly, we only used Hindu and Muslim investigators as the Christian organizations were not opposed to responding to a non-Christian investigator.

In the sample, most of the organizations operated in a combination of rural and urban areas: there were 42 organizations (7.39%) which operated in rural areas only; 377 (66.37%) which operated in an urban area; and 149 organizations (26.23%) who operated in both rural and urban areas. In the survey we asked direct questions on adherent numbers, as shown in Table 4 which denotes the organizations' reported adherent numbers in 1985, 1995, 2005 and 2007. The figures provided below were cross-checked against adherent statistics held by the organizations.

Table 4. Number of adherents between 1985-2007

Adherents	1985		1995		2005		2007	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Less than 1000	51	8.98	28	4.93	24	4.23	41	7.22
1000-4999	89	15.67	90	15.85	62	10.92	80	14.08
5000-9999	52	9.15	56	9.86	67	11.80	102	17.96
10000-19999	44	7.75	49	8.63	50	8.80	49	8.63
20000-49999	49	8.63	49	8.63	57	10.04	56	9.86
50000-99999	46	8.10	59	10.39	59	10.39	49	8.63
100,000 to 300,000	35	6.16	80	14.08	73	12.85	96	16.90
300,000 to 500,000	2	0.35	2	0.35	30	5.28	29	5.11
Greater than 500,000	5	0.88	5	0.88	17	2.99	48	8.45
Do not know	195	34.33	150	26.41	129	22.71	18	3.17
Total	568	100.00	568	100.00	568	100.00	568	100.00

Table 4 shows religious organizations' reported adherent numbers from 1985-2007. What we see from this table is that reported adherent group size has been increasing overall, although the split between the different bands has remained more or less stable. What is particularly striking is the number of organizations reporting greater than 500,000 adherents, which has increased from approximately 5 organizations (0.88%) in 1985 to 48 organizations (8.45%) in 2007. The adherent numbers are important because donations from them might be important for the organizations. Annual donations received ranged from Rs. 25,000 to greater than Rs. 10 million. In terms of the location of donors, approximately 61% were primarily from the same state or region, about 19.54% were from across the state, and 10.04% were from other Indian states. Only 2.82% of organizations reported that they received international donations.

5. Qualitative Evidence on Religious and Non-Religious Services

In this section we provide qualitative evidence to support the propositions of our model. These qualitative perceptions are based on detailed field notes and discussions undertaken collectively by members of the project team, and on descriptive statistics generated by the organizations' responses to questions in the questionnaire. The sections lend qualitative support for Propositions 1 and 2 from our model. The key findings which emerge is that most religious organizations did make enormous efforts to reach out to people of their own religion by providing both religious and non-religious services.

5.1. Religious Beliefs and Religious Services

The organizations were asked how they would describe themselves religiously and Table 5 illustrates the strength of religious beliefs by nature of the religious organization, grouped by their religious affiliation.

Table 5. Strength of religious beliefs by religious affiliation

	Hindu	Muslim	Christian	Other	All-India
Very strong	100	118	10	5	233
Strong	97	80	5	8	190
Mild	33	33	6	9	81
Very Mild	19	13	3	0	35
Not religion-based at all	16	3	1	1	21
Do not know	7	1	0	0	8
Total	272	248	25	23	568

The data on the strength of religious beliefs grouped by religion is also shown in Figure 3 below which illustrates the percentage of organizations of a particular religion who opted for a response. The Figure shows that approximately 74.47% of organizations in the sample considered themselves to be very strong or strong in terms of their religiousness. What is interesting is that Hindus and Muslims are more likely to describe themselves as very strong. Other religions are more likely to describe themselves as mild.

Figure 3. Strength of religious beliefs
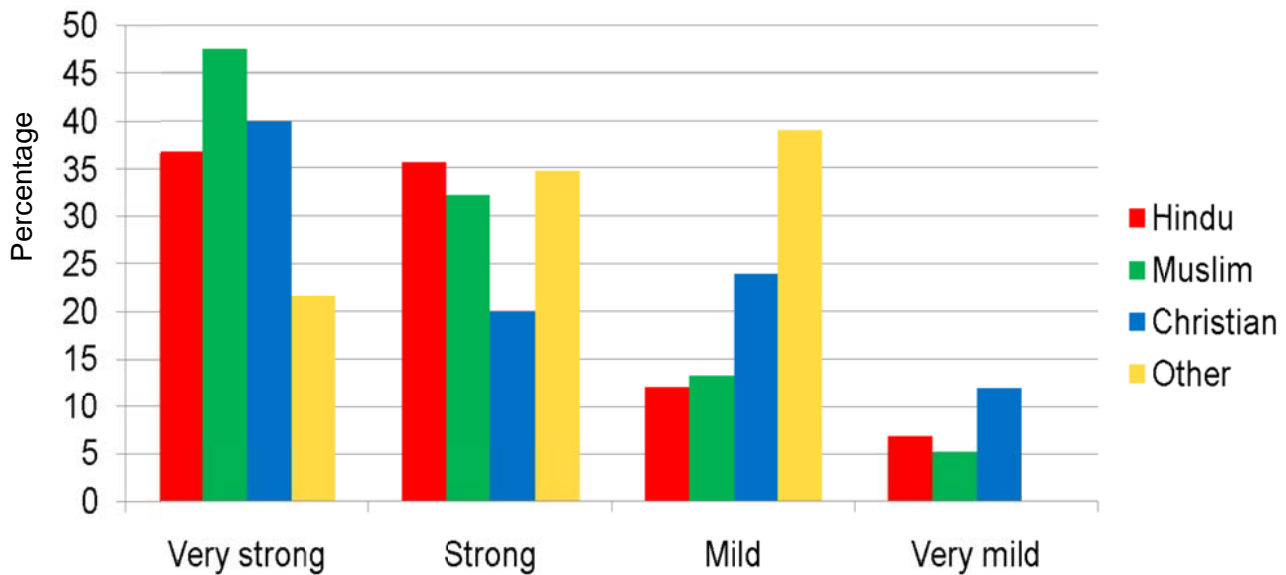
We then asked the organizations to identify what motivated them the most and their responses are grouped in Table 6. Spirituality and service were the avowed main motivations for the organizations.

Table 6. Motivation for the religious organization

Motive	Rank 1		Rank 2		Rank 3		Rank 4		Rank 5		Not ranked	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Spirituality	194	34.2	131	23.1	78	13.7	116	20.4	1	0.2	48	8.5
Service	179	31.5	163	28.7	98	17.3	78	13.7	2	0.4	48	8.5
Protecting from impure influences	35	6.2	120	21.1	207	36.4	134	23.6	3	0.5	69	12.2
Showing the right path	128	22.5	108	19	125	22	120	21.1	2	0.4	85	15
Other	1	0.2	1	0.2	1	0.2	6	1.1	39	6.9	520	91.6

In terms of motives for their activities, religious and otherwise, a majority of organizations said that providing social service was the *raison d'être* of their work, followed closely by considerations such as spirituality, showing the right path and protection from impure influences. Some organizations were skeptical of the potential of innovation to change Indian society for the better: For example, at one Hindu religious organization, the priest emphasized that ideally it was important that the following three virtues were upheld for a prosperous society - *'Raja garam; baniya naram aur ladki sharam'*, which translates as *'The king should be bold and strong; the traders should be sincere and polite; and the girls should be full of modesty and shyness.'* But, he laments *'Now this is Kalyug (the modern age). Everything has gone upside down!'*

The survey asked a series of questions about religious service provision. For example, we asked 'What are the religious services provided by your organization?' And the main responses were propagation of the faith; weddings, funerals and divorce; religious education; and others. Of the religious services provided by the organizations, propagation of the faith (30.63%) and religious education (32.75%) are considered the two most important activities provided by them. The organizations were also asked to rank why they provided the religious services and frequently organizations provided more than one response. Among the various responses provided was that it was a virtuous thing to do (83.80%), the fact that others did not provide these services (16.02%), that they provided these services in response to provision by other organizations (33.10%), and that providing these services was a requirement for the area (41.20%). This is supported when we look at the breakdown by religion in Table 7 which shows that of the organizations admitting explicitly to provide religious services, propagation of the faith and religious education are the two main activities provided by all religions. The table also shows that Muslim and Christian organizations

provide more by way of religious education (39.5% of all Muslim organizations and 44% of all Christian organizations) which they rate as their main activity compared to the Hindus, for whom propagation of the faith (39% of all Hindu religious organizations) is ranked as the main reason why they provide religious services, with religious education being important but playing only a secondary role.

Table 7. Distribution of religious services provided by religion

Religious Services	Hindu		Muslim		Christian		Other		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Propagation and expansion of faith	106	39.0	58	23.4	7	28.0	3	13.0	174	30.6
Weddings, funerals, divorce	16	5.9	31	12.5	3	12.0	3	13.0	53	9.3
Religious education	69	25.4	98	39.5	11	44.0	8	34.8	186	32.7
Other religious services	8	2.9	4	1.6	0	0.0	5	21.7	17	3.0

A key factor that we are interested in is how religious service provision may have changed before the economic liberalization of 1991 and in the period thereafter. Therefore, the organizations were also asked specifically about this. The organizations were asked to rank the four categories above in terms of their provision before and after 1991. The results of this are shown in Tables 8 and 9 below.

Table 8. Provision of religious services before 1991

Religious services	Propagation of the faith		Offering services like weddings or funerals		Religious education		Other services	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Rank1	140	24.6	11	1.9	22	3.9		
Rank2	23	4.0	116	20.4	189	33.3		
Rank3			4	0.7	23	4.0	4	0.7
Service not mentioned	405	71.3	437	76.9	334	58.8	564	99.3

Table 9. Provision of religious services after 1991

Religious services	Propagation of the faith		Offering services like weddings or funerals		Religious education		Other services	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Rank1	400	70.4	13	2.3	55	9.7		
Rank2	2	0.4	106	18.7	99	17.4	11	1.9
Rank3					21	3.7	2	0.4
Service not mentioned	166	29.2	449	79	393	69.2	555	97.7

Tables 8 and 9 provide initial support for Proposition 1 that the religious organizations differentiate themselves on religious services. They show that before 1991, the organizations viewed their key religious services provided as mainly faith propagation and religious

education with the latter being the main religious service offered and a substantial number of organizations not viewing any of these activities are predominant. The situation is quite dramatically altered for the post-1991 period. Now propagation and expansion of the faith is regarded as the single major religious service provided with over 70% of organizations mentioning this. Religious education also continues to be important and the percentage of organizations mentioning this at rank 1 also increased for the post-1991 period from approximately 3% to 10%. About 20% of the organizations mentioned offering services such as weddings and funerals at rank 2, and which stayed approximately at the 20% level in both periods.

Overall, in response to a question about this, there were as many as 539 organizations (94.89%) who felt that providing religious services increased the welfare of the population in their district, so the provision of religious services was unquestionably an important aspect of service provision by these organizations.

5.2. Innovations to Religious Beliefs, Religious Services and Social Practice

One of the main purposes of the survey was to ascertain contemporary practice but also to investigate innovations to religious beliefs and the provision of religious services. As a first step, the organizations were asked 'What elements in your belief system have received more emphasis from your organization, and which elements have received less emphasis?' The responses are shown in Table 10 below.

Table 10. Changes in religious beliefs and practices

Changes in religious beliefs and practices	More emphasis		Less emphasis		Stayed the same		Do not know	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Worship at place of worship	320	56.3	65	11.4	148	26.1	35	6.2
Worship at home	237	41.7	144	25.4	139	24.5	48	8.5
Women going to place of worship	177	31.2	98	17.3	218	38.4	75	13.2
Belief in God	411	72.4	56	9.9	65	11.4	36	6.3
Belief in Fate	238	41.9	183	32.2	82	14.4	65	11.4
Spirituality	333	58.6	107	18.8	83	14.6	45	7.9
Other	12	2.1	2	0.4	14	2.5	540	95.1

The organizations responded that almost all aspects of their religious belief systems and practices have received more emphasis and this included both religious practices such as worship at places of worship, worship at home, and women going to places of worship; as also religious beliefs including those in God, fate and spirituality. Two aspects that some of the organizations believed received less emphasis was worship at home, and a belief in fate. This is one of the salient changes we found because Hinduism typically does not emphasize communal worship. In an effort to understand the evolution of religious services, we asked which social practices associated with the religion were newly adopted and which practices had been abandoned. The organizations' responses are shown in Table 11 below.

Table 11. Changes in social practices

Social Practices	Adopted		Abandoned		Stayed the same		Do not know	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Caste	80	14.1	201	35.4	222	39.1	65	11.4
Marriage within caste/*biradari*	138	24.3	144	25.4	223	39.3	63	11.1
Later age at marriage	385	67.8	36	6.3	81	14.3	66	11.6
Remarriage for men	394	69.4	18	3.2	97	17.1	59	10.4
Remarriage for women	375	66	48	8.5	86	15.1	59	10.4
Child marriage	13	2.3	434	76.4	55	9.7	66	11.6
Dietary restrictions (e.g. vegetarianism)	130	22.9	179	31.5	177	31.2	82	14.4
Untouchability	45	7.9	297	52.3	149	26.2	77	13.6
Having more children	65	11.4	306	53.9	122	21.5	75	13.2
Preferring to have boys rather than girls	29	5.1	336	59.2	119	21	84	14.8
Other factors	4	0.7	1	0.2	6	1.1	557	98.1

A closer look at Table 11 suggests that the influence of caste is either believed to be declining (35.39%), or staying the same (39.08%). Marriage within the caste is also viewed as staying the same. A majority of organizations think that a later age at marriage occurs (67.78%) and that remarriage for both men (69.37%) and women (66.02%) is widely acceptable. Child marriage is viewed almost uniformly as a practice that is being increasingly abandoned (76.41%). Untouchability was viewed as either having stayed the same (26.23%) or being increasingly abandoned (56.29%). As regards demographic matters, having large families was generally being abandoned (53.87%) and the organizations believed that son preference was being abandoned (59.15%) too. What is also interesting here though is the large number of organizations (20.95%) who believed that the latter had stayed the same.

The organizations were also asked a qualitative question about whether in their opinion religious services now, compared to 20 years previously, were more traditional, less traditional, or had stayed the same. There were 238 organizations (41.9%) who reported that religious services overall were more traditional, compared to 209 organizations (36.8%) who said they were less traditional, while 112 organizations (19.72%) felt they had stayed the same. Their responses, broken down by religion, are shown in Table 12.

Table 12. Comparison of new religious services provided in the last 20 years, by religion

New Services	Hindu		Muslim		Christian		Other		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
More traditional	124	46.3	97	39.6	5	20.8	12	54.5	238	42.6
Less traditional	78	29.1	111	45.3	13	54.2	7	31.8	209	37.4
Stayed the same	66	24.6	37	15.1	6	25.0	3	13.6	112	20.0
Very mild	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Not-religion based	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Total	268	100.0	245	100.0	24	100.0	22	100.0	559	100.0

What is unusual is how many organizations of all religious persuasions argued that religious services had become more traditional rather than less traditional over time. This suggests that 'innovations' to religious service provision are viewed as being more traditional even as wider changes in the economy are happening. This is also a uniform perception across all religions, although the percentages for the Hindus and Muslims are higher than for the Christians. This is consistent and provides some initial support for Proposition 1.

However, what is also salient in this context is the difference between religious beliefs and religious practice, and the extent to which the capacity for innovation at the level of religious practice does exist. For example, some organizations telecast by internet wedding and cremation ceremonies in real time for overseas relatives and organised mass marriages for poor women. Another example, as one of our field staff commented: '*There are two kinds of innovation - one at idea level and other at the planning level. Some of them even go to the extent that they are working only to show the true path of the religion. This means they would not tolerate any change in the religious belief. But practice is different. Most of the religious Muslim leaders would not preach for use of contraceptives as it will interfere in the God's area - that it is up to God to give you more children or less. Who are we to deny his blessing with more children! They are totally against abortion and would give religious decree against those who practice it. But the ground really is quite different. And they understand it...People across the religion are now going for less children, marriage at a later age is a common phenomenon these days and inter-caste and to some extent inter-religion marriage is also coming in vogue.*'

Our field staff believed that innovations to religious service provision also had to do with external changes such as market forces and globalization. They argue for example that the Hindu norm of *'kaala pani'*, a norm that a Hindu who crossed the seas would lose their caste and which prevented people from travelling overseas, was a norm which had more or less completely died out in response to globalization and cheap air travel. As one of our respondents argues, '*Now very few religious people would preach for not to cross the seas. It is something unavoidable.*' The other area that Hindu respondents frequently cited as an example of a dying innovation was the end of the Sanskrit language as the lingua franca of the country. Muslim respondents pointed out that the use of images or pictures are prohibited in Islam but that no Islamic person could avoid them now in the increasingly media-dominated world that both these institutions and individuals were now operating in.

In summary, our study shows evidence of all religious organizations providing religious services, with some differences between them as regards their motivation to do so and actual provision, as well as changes in religious beliefs, service provision and social practice.

5.3. Non-Religious Services

There was also qualitative support for Proposition 2 that tried to assess religious competition in the context of non-religious service provision. There were a range of non-religious services provided by the organizations and in the survey they were asked if they provided services including education, health, employment, food distribution, child care or other services. Their responses are shown in Table 13.

Table 13. Non-religious services provided by the organizations

Non-religious services	Pre-1991				Post-1991			
	Yes	%	No	%	Yes	%	No	%
Education	294	51.76	274	48.24	342	60.21	226	39.79
Health	174	30.63	394	69.37	240	42.25	328	57.75
Employment	49	8.63	519	91.37	61	10.74	507	89.26
Food distribution	279	49.12	289	50.88	320	56.34	248	43.66
Child care	92	16.2	476	83.8	124	21.83	444	78.17
Other services	67	11.8	501	88.2	85	14.96	483	85.04

Compared to pre-1991, the organizations across the board have all increased their provision of all non-religious services. The most popular non-religious services provided are education, health-care and food distribution, followed by child care, and then by a long way behind by employment and other services. Some of the 'other services' that religious organizations provide are quite diverse and included organizing blood donation and other medical camps, flood relief, setting up drug rehabilitation centres, operating old-age homes, organising group marriages for the poor, running sewing classes for women, organizing widow welfare programmes, cow-lending and other innovative microfinance schemes.

We suggest that the organizations are providing non-religious services possibly to compensate for the lack of public provision (Bano and Nair 2007): it is noteworthy that over half the sample provided food and over 60% provided education in the post-1991 period. In keeping with the predictions of our model, post the liberalization of the Indian economy in 1991, the provision of all non-religious services has increased without exception. This is an important finding of the present study, and it is relevant in the context of Propositions 1 and 2 of our theoretical model.

There are variations in the provision of non-religious services before and after 1991 by religion, shown in Table 14 and Figure 4 below. Figure 4 shows the percentage of organizations by religion providing a particular non-religious service.

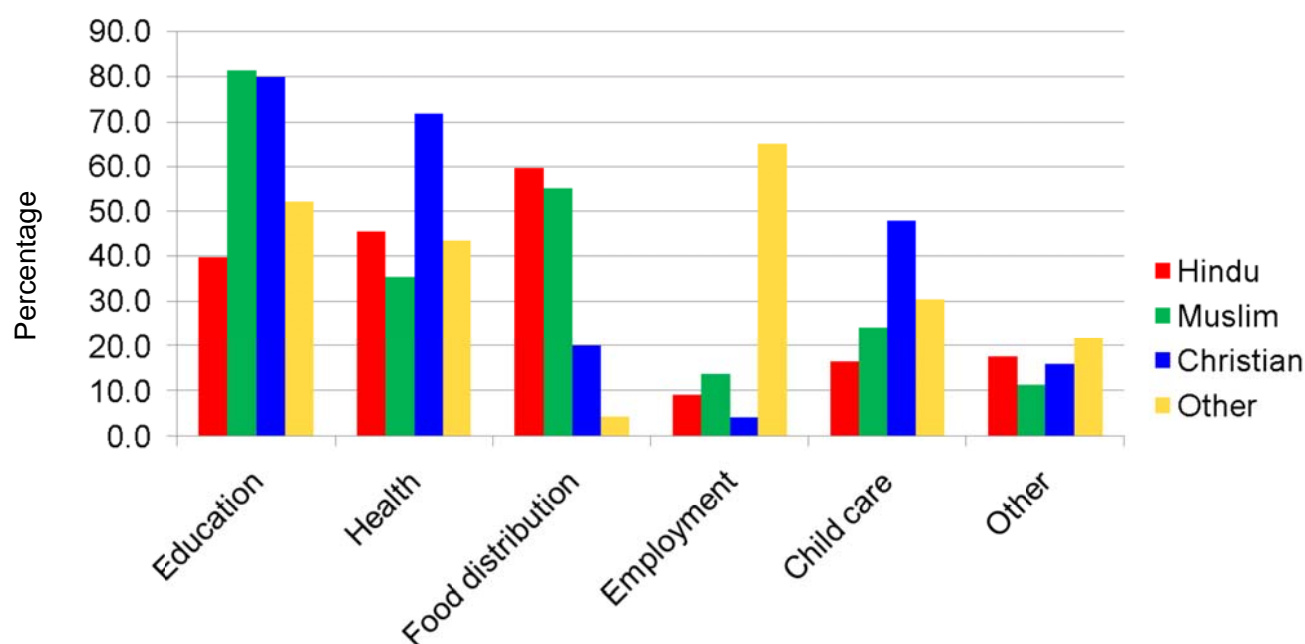*Figure 4. Non-religious service provision after 1991 by religion*

Table 14. Distribution of non-religious services provided before and after 1991, by religion

Non-religious services	Hindu		Muslim		Christian		Other		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Education before 1991	89	32.72	174	70.16	20	80.0	11	47.83	294	51.76
Education after 1991	108	39.71	202	81.45	20	80.0	12	52.17	342	60.21
Health before 1991	92	33.82	55	22.18	17	68.0	10	43.48	174	30.63
Health after 1991	124	45.59	88	35.48	18	72.0	10	43.48	240	42.25
Employment before 1991	20	7.35	27	10.89	1	4.0	1	4.35	49	8.63
Employment after 1991	25	9.19	34	13.71	1	4.0	1	4.35	61	10.74
Food distribution before 1991	147	54.04	112	45.16	5	20.0	15	65.22	279	49.12
Food distribution after 1991	163	59.93	137	55.24	5	20.0	15	65.22	320	56.34
Child care before 1991	36	13.24	39	15.73	11	44.0	6	26.09	92	16.20
Child care after 1991	45	16.54	60	24.19	12	48.0	7	30.43	124	21.83
Other services before 1991	39	14.34	21	8.47	5	20.0	2	8.70	67	11.80
Other services after 1991	48	17.65	28	11.29	4	16.0	11	21.74	85	14.96
Total	272		248		25		23		568	

Table 14 and Figure 4 show that although all religions are providing substantial education and health before and after 1991, one interesting aspect that this study has uncovered is that Hindus and Muslims are engaging more in providing education, health, employment services and food distribution services in the post-1991 period. For those who provide this, child care service provision has also increased very much in the post-1991 period.

The religious variations are quite striking: The Hindus are mainly providing food distribution. The Muslims and Christians seem to provide the most education services and the Hindus are providing much less. The Christians provide education, health and child-care. What is prominent looking at this graph is why the Christian and Muslim organizations are providing so much more education than the Hindus? With the Christian organizations, many of them have been providing education through missionary and other activities since the colonial period, so this is not so surprising that we find this, although it is reassuring that we do. The fact that the Muslim organizations provide so much education is more unusual.

Economists have long been arguing that in order to explain ethnic differences in schooling (whether in India or elsewhere), you need to look at factors both on the demand side and on the supply side. And in the Indian context, there have been concerns about discrimination in access to schooling for minority communities on the demand side, but also supply-side issues in education such as school quality, curricula, and so forth (Borooah and Iyer 2005). For example, Borooah and Iyer (2005) found that even after controlling for other individual, household and village-level characteristics, Muslims in India had lower primary school enrolment than Hindus. There is also some evidence that parents might send their children to

religious schools because for most religious schools such as *madrasas*, the cost of tuition and boarding is free. Another factor that might explain this finding is that non-religious services are structurally required in Islam through *zakat*.

So one of the findings of our study is that religious organizations of all religions are providing more non-religious services. Table 15 shows the distribution of non-religious services by state in India. It shows that organizations in all states have increased their provision of non-religious services in the post-1991 period. Moreover, Table 15 also shows that the states which have poorer public provision like Uttar Pradesh are also the states in which the religious organizations are providing more. This is another key finding of the present study which is that the religious organizations are substituting non-religious services in order to compensate for the lack of state provision. This suggests, consistent with Propositions 1 and 2 in the model, that poverty and inequality might contribute significantly towards religious organization membership.

Table 15. Distribution of non-religious services provided before and after 1991, by state

Non-religious services	Gujarat		Jammu and Kashmir		Karnataka		Maharashtra		Madhya Pradesh		Uttar Pradesh		West Bengal	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Education before 1991	40	45.5	50	61.0	29	38.7	19	24.4	29	38.7	76	82.6	51	65.4
Education after 1991	46	52.3	58	70.7	45	60.0	23	29.5	37	49.3	81	88.0	52	66.7
Health before 1991	22	25.0	29	35.4	14	18.7	16	20.5	18	24.0	44	47.8	31	39.7
Health after 1991	29	33.0	43	52.4	33	44.0	20	25.6	29	38.7	49	53.3	37	47.4
Employment before 1991	8	9.1	7	8.5	0	0.0	1	1.3	5	6.7	24	26.1	4	5.1
Employment after 1991	10	11.4	7	8.5	3	4.0	2	2.6	7	9.3	28	30.4	4	5.1
Food distribution before 1991	46	52.3	41	50.0	23	30.7	20	25.6	57	76.0	42	45.7	50	64.1
Food distribution after 1991	53	60.2	45	54.9	28	37.3	22	28.2	62	82.7	51	55.4	59	75.6
Child care before 1991	12	13.6	11	13.4	6	8.0	2	2.6	17	22.7	27	29.3	17	21.8
Child care after 1991	14	15.9	23	28.0	8	10.7	4	5.1	24	32.0	33	35.9	18	23.1
Other services before 1991	20	22.7	14	17.1	1	1.3	5	6.4	2	2.7	13	14.1	12	15.4
Other services after 1991	20	22.7	16	19.5	1	1.3	5	6.4	2	2.7	20	21.7	21	26.9
Total	88		82		75		78		75		92		78	

This is also supported by a more qualitative question in which in addition to direct questions about non-religious services provided, the organizations were also asked about possible religious motives for the provision of non-religious services. The organizations explained that the provision of non-religious services was a key way in which to propagate and to expand their faith - over 55% of organizations thought this was very important in the post-1991 period, and this increased substantially relative to the pre-1991 period. This again is consistent with Propositions 1 and 2. With respect to the provision of non-religious services such as education and health services, the organizations were asked if they had changed their provision of non-religious services such as education and health-care: there were 331

(58.27%) who reported that they had. They were also asked if the education and health services were now better provided for, and the costs of providing these services. There were 318 (55.99%) who thought these services were better provided for now, 69 (12.15%) who felt that they were less well provided for, and 101 (17.78%) who thought that the non-religious provision had stayed the same. There were 542 organizations (95.42%) who felt that providing these non-religious services increased the welfare of the population in their districts.

Apart from the impact of their activities on the population, the organizations were then asked to subjectively evaluate what was the primary gain to them in providing these services: they were asked to rank the most significant benefits as shown in Table 16 below.

Table 16. Primary gain by providing non-religious services

Non-religious services	Monetary contributions		Religious adherents increase		Political influence extended		Other benefits	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Rank 1	37	6.5	79	13.9	1	0.2	0	0.0
Rank 2	149	26.2	205	36.1	8	1.4	2	0.4
Rank 3	73	12.9	99	17.4	13	2.3	7	1.2
Service not mentioned	309	54.4	185	32.6	546	96.1	559	98.4
Total	568	100.0	568	100.0	568	100.0	568	100.0

With respect to other qualitative perceptions about innovations to non-religious service provision, most organizations either had introduced or were in the process of introducing computer education and computer-based learning schemes. Our field staff noted that while the main focus of non-religious service provision for most of the organizations was on education, yet many people were educationally backward in the key areas of operation of the organizations. More than 90% of the respondents said that Indians needed religious education more than any other service. Health-care provision was the second-most popular service provided after education. Organizations differed in terms of their target groups: for example, in Jammu and Kashmir the Muslim organizations were very clear that their target group was the welfare of their community. In other states religious institutions would make it a point to state that their organizations were open for everyone irrespective of religious denomination. There was little doubt that the religious organizations perceived themselves to be providing very important non-religious services for their communities. Many spoke of people having lost faith in the government and working for the uplift of their communities through their own local efforts. For example, Kashmiris both those who belonged to less fortunate economic backgrounds, and others spoke knowledgably and eloquently about basic issues of their lives and existence, and they were at pains to discuss these at considerable length. Also, the heads of most of the organizations in all the states did emphasize their secular outlook.

So the bottom line is that all religions have increased their provision of all non-religious services, possibly to compensate for the lack of state provision, and that there are important variations among the religions in terms of the kinds of services they provide.

5.4. Economic Inequality and Religious Competition

Some of the questions we asked in the survey were about subjective evaluations of inequality and poverty by the organizations. The survey asked a series of questions on how the organizations perceived background changes in the economy more widely. A series of questions ascertained the organizations' views about poverty and inequality. First, the organizations were asked, 'What are the most important economic changes that you think have happened?' They provided a range of qualitative responses including that the area is now better developed, that awareness had increased, that there were better education and employment opportunities, that 'big malls and big shops have opened', that 'Brahmins had become richer', that 'everyone carries a mobile', that 'farmers are quitting farming', that there was an increase in real estate activity, but equally an increase in slum areas. Others pointed out that there was lots of development in the IT sector and that 'multistoryed buildings have come up' in addition to new roads and services and an 'increase in mall culture', but as one temple trustee appositely put it 'Mumbai has developed but Dharavi has not!' Others pointed out the positive aspects that 'Poor people can now manage two square meals a day.'

Responses to questions on background economic and other changes provide qualitative support for Proposition 1. A majority of organizations agreed that there was an observable increase in income and overall standard of living of the general population. The overall sense about their economic status was that poverty had decreased but that economic inequality had increased. The perceived changes in income inequality are consistent with other studies which have commented recently on the increase in income inequality in the post-1991 economic reform period in India (Sarkar and Mehta 2010). In terms of poverty, an estimate by the World Bank in 2005 showed that India had approximately 42% of its population living below the international poverty line of $1.25 a day (Chen and Ravallion 2008).

In order to assess these changes more closely, the organizations were asked, 'How do you think the economic position of the population you serve has changed in the past 10 years?' A majority of the organizations believed that the economic position of the population that they were serving had become better (83.27%), followed by others who thought it had stayed the same (13.03%) and 3.5% who thought it had become worse. This is consistent with the qualitative observations as well.

We then asked them questions about their perceptions of inequality such as 'How do you think economic inequality has changed in your district over the past 20 years?'; 'How do you think that poverty has changed in your district in the past 20 years?'; and 'What are the most important economic changes that you think have happened in your area in the last 5 years?'

The responses in Table 17 show that a majority of the sample believed that economic inequality had either increased (46.13%) or stayed the same (21.83%). The split was not dissimilar across the various religious groups. A similar question on poverty yielded the responses shown in Table 18.

Table 17. Economic inequality in the last twenty years

Economic inequality	Freq.	%
Decreased	174	30.6
Stayed the same	124	21.8
Increased	262	46.1
Do not know	8	1.4

Table 18. Poverty in the last twenty years

Poverty	Freq.	%
Decreased	247	43.5
Stayed the same	93	16.4
Increased	225	39.6
Do not know	3	0.5

A majority of the organizations perceived that poverty had decreased (43.49%). What is striking is that while economic inequality is perceived to have increased, poverty is believed to have decreased over time. The finding from the previous section that non-religious service provision increased during a period when the perception of economic inequality increased is consistent with Proposition 2.

We also assessed religious competition by asking organizations a range of questions about their knowledge of other organizations in the same geographical area. While not all the questions are reported in this paper, we highlight a couple of issues that are of interest to the research question posed by our theoretical model, particularly with respect to Proposition 2. Specifically, organizations were asked both about the number and size of other organizations operating in the same area. There were 150 organizations who reported 1-2 others; 136 who reported 3-5 competitors; 96 who reported 6-10; 74 who reported over 10 organizations as competitors; 112 who did not know their competition. In order to assess the size of the competition, the organizations were asked to state how many other organizations were bigger, smaller or the same size. The responses are shown in Table 19 below.

Table 19. Reported size of other organizations in the same geographical area

	Bigger organizations		Same size organizations		Smaller organizations	
	Freq.	%	Freq.	%	Freq.	%
1	109	19.2	142	25.0	90	15.8
2	63	11.1	53	9.3	76	13.4
3	40	7.0	27	4.8	28	4.9
4	21	3.7	12	2.1	26	4.6
5	18	3.2	7	1.2	16	2.8
6	7	1.2	3	0.5	4	0.7
7	4	0.7			8	1.4
8	1	0.2	2	0.4	4	0.7
9					1	0.2
10	2	0.4	1	0.2	2	0.4
11	1	0.2	2	0.4		
Do not know	302	53.2	319	56.2	313	55.1

To complement the analysis in Table 19, another question that was asked was whether an organization had provided a new religious service because other organizations in their area had provided a new service. Many religious organizations said that they did provide a new service if others did so. It was the impression of our field staff that the organizations were more inclined to answer questions about other organizations that belonged to the same religion. As might be expected, all organizations described organizations of other religions as religiously stronger than themselves. In order to assess how different the organizations were - in effect, whether in keeping with our model, if the focal points of these organizations diverged at all - the organizations were asked to assess how different they were to other organizations working in the same district. They were asked to indicate differences on several dimensions: religious belief, religious services, education and health services, other services, manner of organization, service orientation. The responses, grouped by religion, are shown in Table 20.

Table 20. Perceived differences between religious organizations in geographical vicinity

	Difference to Hindus		Difference to Muslims		Difference to Christians	
	Freq.	%	Freq.	%	Freq.	%
Different in terms of religious belief	203	35.7	99	17.4	107	18.8
Different in terms of religious services provided	117	20.6	88	15.5	60	10.6
Different in terms of education & health provided	56	9.9	77	13.6	84	14.8
Different in terms of other services we provide	47	8.3	55	9.7	49	8.6
Different in the way we are organized	37	6.5	103	18.1	73	12.9
Different in terms of service orientation	15	2.6	35	6.2	61	10.7
Did not respond	93	16.4	111	19.5	134	23.6

In total, a large number of organizations mentioned other organizations that also provided non-religious services. The total number of other organizations that the organizations were aware of and mentioned was 914 providing educational services, 772 providing health, 105 providing employment, 873 providing food distribution services, and 44 providing other services.

In summary, the qualitative and descriptive statistics from the survey is consistent with and provides initial support for both Propositions 1 and 2 respectively. In the next section, we use our survey data to econometrically test Propositions 1 and 2 in order to demonstrate the empirical regularity of our findings.

6. Econometric Testing of the Propositions

The econometric analysis consists of testing the two propositions identified by the theoretical model.

Proposition 1. The two religious organizations maximize the differentiation in their religious focal points regardless of economic inequality in order to minimize competition in the provision of non-religious services.

Proposition 2. When there is some economic inequality, if the poor remain poor enough, then both religious organizations will also provide more non-religious services.

For *Proposition 1*, our dependent variable is the strength of religious beliefs. The independent variables used in the empirical analysis along with the variable definitions are shown in Table 21.

Table 21. Variable Definitions

Variable name	Variable definition
orgrel	Strength of religious beliefs
impeduhth	Changes in health and education services since 1991 $\in \{-1, 0, 1\}$
econineq20	Whether economic inequality has changed over the last 20 years $\in \{-1, 0, 1\}$
adherents	Number of adherents of the organization
age	Age of the organization
Muslim	Whether the organization is Muslim
Christian	Whether the organization is Christian
Hindu	Whether the organization is Hindu
Gujarat	Whether the state is Gujarat
Jammu and Kashmir	Whether the state is Jammu & Kashmir
Maharashtra	Whether the state is Maharashtra
Karnataka	Whether the state is Karnataka
Uttar Pradesh	Whether the state is Uttar Pradesh
West Bengal	Whether state is West Bengal

These variables include a range of religion and state effects, the age of the organizations, the number of adherents for the organization, and perceptions of whether an increase in inequality had been observed.

Let us consider first *Proposition 1* which states that the two religious organizations maximize the differentiation in their religious focal points regardless of economic inequality, in order to minimize competition in the provision of non-religious services.

6.1. Goodness-of-fit Tests for Dispersion on the Strength of Religious Beliefs

We argue that the analysis depends upon the religious organizations being spread across the spectrum of strength of their religious beliefs. In order to establish this, we conduct goodness-of-fit tests, technically empirical discrepancy of distributions tests, for the categorical variable on the strength of religious beliefs variable (*orgrel*) along the lines of Read and Cressie (1988). This method has been used by Rysman and Greenstein (2005) to test if agents in discrete locations (states or `belief bins') are more agglomerated or dispersed than would be predicted by random choice. Their idea is to compare the log-likelihood of the sample based on a multinomial probability density function with the log-likelihood of the sample as predicted by random choice, i.e., if the mass were being placed on the support points uniformly. An LR-test allows us to check if this difference is significant and the sign of the test statistic points to either excess dispersion or excess agglomeration. More familiar in these cases is the Pearson χ^2-test which was proposed for similar situations by Ellison and Glaeser (1997), which is able to reject the null of random choice, but is unable to point towards either agglomeration or dispersion.

Furthermore, tests can be based on analytical asymptotic critical values or they can be based on simulated critical values based on MC simulations or complete enumerations (Jann 2008). More specifically, these are tests of hypotheses relating to the parameters of the multinomial distribution with k categories, $\boldsymbol{\pi} = (\pi_1, \dots, \pi_k)'$, which has the probability mass function:

$$\mathbb{P}(\boldsymbol{X} = \boldsymbol{x}) = \frac{n!}{\pi_1! \dots \pi_k!} \pi_1^{x_1} \dots \pi_k^{x_k}$$

Where the random vector $\boldsymbol{X} = (X_1, \dots, X_k)'$ has as elements the non-negative random variables $X_i \in \{0, \dots, n\}, i \in \{1, \dots, k\}$ which count the number of times category i is observed in the sample ($\sum_{i=1}^{k} X_i = n$) and n is the sample size. We test the null

$$H_0 : \pi = \pi_0$$

where $\pi_0 = (\pi_{01}, \dots, \pi_{0k})'$ is a pre-specified probability vector.

The Pearson and the LR belong to the family of empirical discrepancy of distributions statistics defined by the Cressie-Read power divergence family of statistics:

$$2n\mathbb{I}^\lambda \left(\frac{\boldsymbol{X}}{n}, \boldsymbol{\pi_0}\right) = \frac{2}{\lambda(\lambda + 1)} \sum_{i=1}^{k} X_i \left(\left(\frac{X_i}{E_i}\right)^\lambda - 1\right) ; \lambda \in \mathbb{R}$$

Where $E_i = n\pi_{0i}, i \in \{1, \dots, k\}$. For $\lambda = 1$ (where the statistic is defined by continuity at 1), this is Pearson's χ^2-statistic and for $\lambda = 0$, it is the LR-statistic. Additionally, Cressie and Read (1984) recommend using $\lambda = \frac{2}{3}$ when no knowledge of the alternative is available. Tests can be based on the χ^2_{k-1} asymptotic distribution of the family of statistics under the null that the two parameter vectors are equal. See Cressie and Read (1984) for a pioneering treatment of these tests.

Rysman and Greenstein (2004) show that while the classical Pearson goodness-of-fit test is able to discriminate between the uniform distribution of mass ($\pi_{01} = \dots = \pi_{0k} = \frac{1}{k}$) and

alternatives, it cannot indicate the direction of deviation from the null. This is their primary reason for recommending the LR test in this scenario.

We report the results of our tests on the dependent variable (the strength of religious beliefs) in Tables 22 without covariates and in Table 23 with covariates.

Table 22. Goodness of fit tests on the dependent variable (without covariates)

Goodness-of-fit test		
	Statistic	*p*-value
Pearson's χ^2	154.9	0.0064
Likelihood Ratio (LR)	162.1537	0.0054
Cressie-Read	156.1762	0.0062
Freeman-Tukey	170.0932	0.0046

Based on the positive and significant LR test statistic, we conclude that religious organizations are dispersed more widely than would be expected if they were choosing their ideologies independently of each other. *This suggests that religious organizations in India are choosing to maximize the differences in their ideology with respect to other organizations.*

We generalize the above tests to their conditional (on covariates) versions. The theoretical extension is not straightforward and the relevant theory is derived in Andrews (1988a, 1988b) and Vuong and Wang (1993). The key aspect of testing conditional fit lies in the construction of appropriate data-dependent cells for the tests. The Andrews method relies on the ability to construct data-dependent cells which are chosen from a Vapnik-Cervonenkis class of sets. Several ways are suggested in Andrews (1988) which involve various combinations of appropriately discretized outcome and covariates; since our outcome variable is naturally categorical, we use k-means clustering to split the covariates into categories independently for each category of the outcome variable. The predicted probabilities for these cells are then compared with the cell counts, and an independent nonparametric bootstrap is used to generate p-values for these statistics.

Details of an asymptotic χ^2-distribution are given in Andrews (1998a, b), but we compute them using the bootstrap, the relevant theory for which is given in Vuong and Wang (1993). Predicted probabilities are obtained by fitting a multinomial logit model by maximum likelihood.

Table 23. Goodness-of-fit tests (with covariates)

Goodness-of-fit Test		
	Statistic	*p*-value
Pearson's χ^2	124.4	0.003
Likelihood Ratio (LR)	136.2	0.0021
Cressie-Read	127.3	0.0029
Freeman-Tukey	147.05	0.0011

We note that the results are not substantially qualitatively altered and we conclude that the dispersion of religiosity is robust to the inclusion of covariates in the model.

To test the second part of Proposition 1 we also need to examine if the maximization of religious focal points holds regardless of economic inequality. This is shown in Figure 5. In the figure we are splitting the sample by perception of inequality (whether the organization said that inequality had increased, decreased or stayed the same) and it shows that the distribution of choices of religiosity is not wholly different across categories of perception i.e., the bars are roughly declining in the same proportion.

Figure 5. Distribution of the Intensity of Religious Beliefs among Religious Organizations
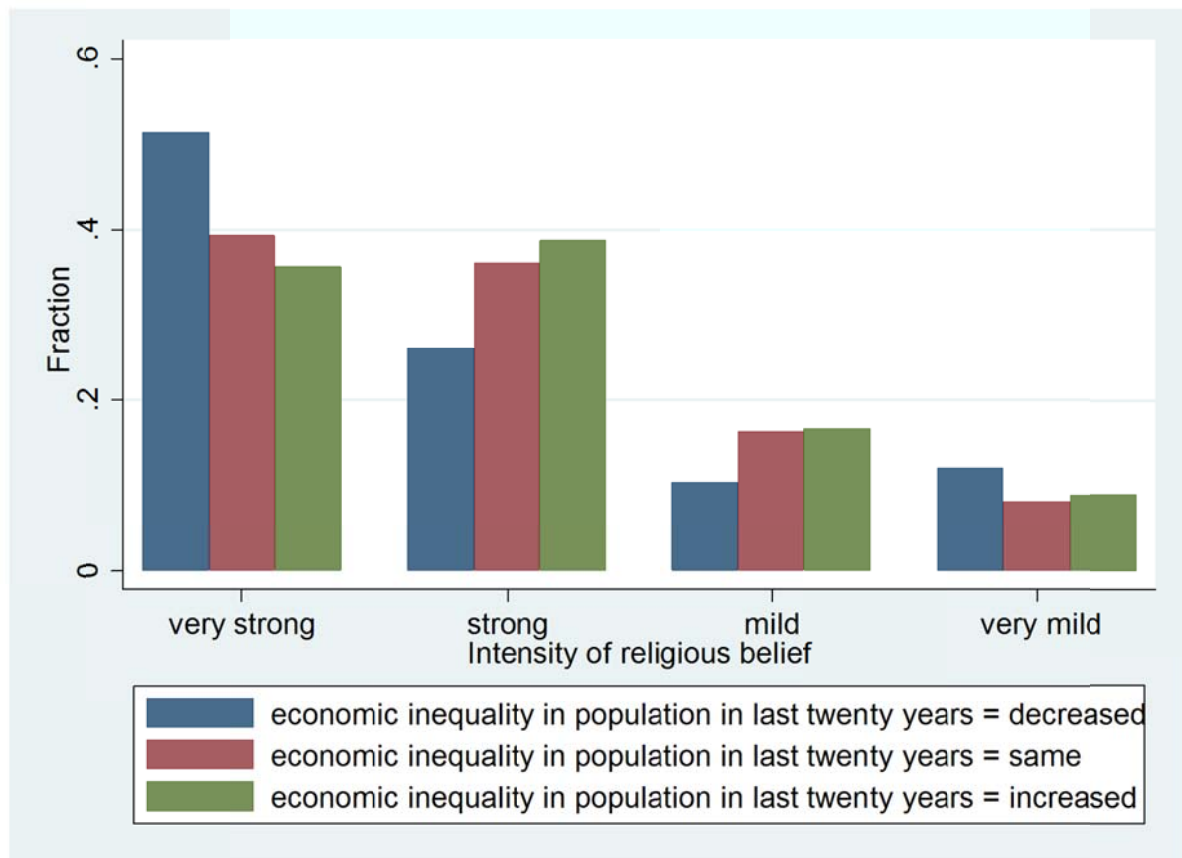
In Figure 5 we observe that the distribution of religious beliefs across categories of the variable which shows whether economic inequality has changed over the past 20 years, is positively skewed. So together the goodness-of-fit tests and the figure demonstrates *Proposition 1* that the two religious organizations maximize the differentiation in their religious focal points regardless of economic inequality.

We also examine the distribution of the strength of religious beliefs by whether the organization said that they provided a range of non-religious services. Figure 6 shows how the distribution of the intensity of religious beliefs varies by the range of non-religious services provided. It shows that those organizations which described themselves as very strong or strong in terms of their religious beliefs were slightly more likely to provide a range of non-religious services than those who described themselves as mild or very mild.

Figure 6. Distribution of the Intensity of Beliefs among Religious Organizations, by range of Non-Religious Services provided
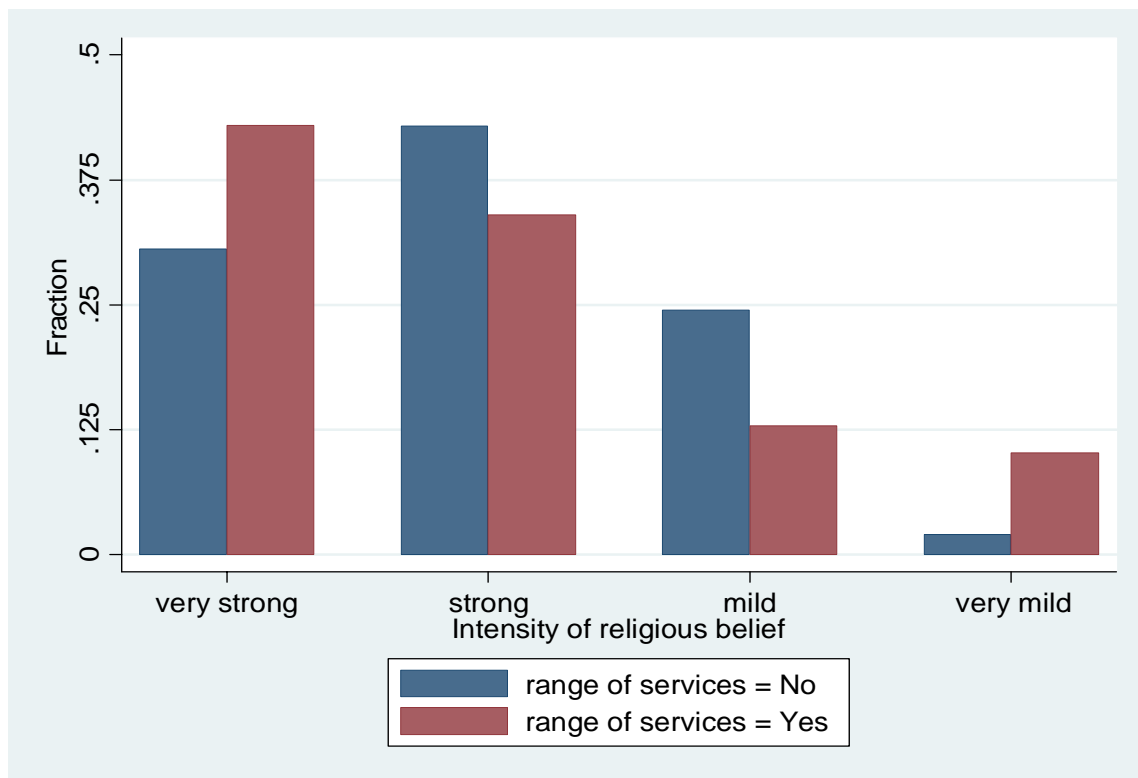
In order to refine and test the final part of Proposition 1 on competition effects, we estimate Ordered Logit regressions. These Ordered Logit regressions are estimated with and without state and religion fixed effects to examine whether competition between organizations in the provision of a service also affects the distribution of the intensity of religious beliefs. We report the marginal effects for the Ordered Logit regression which shows whether an organization's religiosity is affected by whether there are other religious organizations in the area whose service-provision affects the decision of the organization. As Tables 24 and 25 show, the marginal effect of a religious organization having an effect on another organization's service provision positively affects the probability of an organization being more strong in its strength of religious beliefs. And it affects the probability of being a less religious organization negatively. As Tables 24 and 25 show, this effect is robust to the inclusion of state and religion fixed effects.

Table 24. Marginal Effects for the Ordered Logit Model with fixed effects

Average change in the strength of religious belief	Provide a new service because others do so
Prob (orgrel = Very Mild)	-0.0614***
	(0.006)
Prob (orgrel = Mild)	-0.0821*
	(0.004)
Prob (orgrel = Strong)	-0.0237**
	(0.056)
Prob (orgrel = Very Strong)	0.1671***
	(0.003)

Note: *p*-value reported in parentheses

Table 25. Marginal Effects for the Ordered Logit Model without fixed effects

Average change in the strength of religious belief	Provide a new service because others do so
Prob (orgrel = Very Mild)	-0.0449**
	(0.036)
Prob (orgrel = Mild)	-0.0643**
	(0.029)
Prob (orgrel = Strong)	-0.0291**
	(0.045)
Prob (orgrel = Very Strong)	0.1383**
	(0.025)

Note: *p*-value reported in parentheses

Together therefore our results provide support for Proposition 1 that the religious organizations are maximizing the differentiation in their ideology on the religious spectrum in order to minimize the competition on non-religious services, regardless of economic inequality.

6.2. Non-religious Service Provision and Economic Inequality

Proposition 2 states that when there is some economic inequality, if the poor remain poor enough, then both religious organizations will also provide more non-religious services. To test *Proposition 2* we use a range of models such as the Ordered Logit model, which we estimate with and without fixed effects. First, we use an Ordered Logit model with the variable changes in health and education services since 1991 as the outcome variable. Our primary independent variable of interest is the perception of inequality. In all the specifications below, we include the age and the number of adherents of the religious organizations as covariates. The fit and the coefficients of the Ordered Logit model are obtained. To interpret this model, we calculate the marginal effect of a change in the variables of interest on the outcome. These are tabulated in Table 26. Note that the results in each row are from a separate regression and are presented with their goodness-of-fit statistics.

Table 26 has straightforward interpretations. It shows the average changes or first differences in the probability of providing either more, less or the same amount of education and health services when the perception of economic inequality changes from one category to the other. It demonstrates a Markov transition matrix, i.e., a matrix of change in probabilities of the outcome for a transition of perception of inequality from one category to the other. So for example in Table 27, the average probability of providing *more* education and health services *increases* by 0.2495 if an organization perceives inequality to have increased rather than it having stayed the same. Similarly, the probability of providing less education and health services decreases by -0.1298 when inequality increases. These are also economically meaningful numbers, i.e. the changes in probabilities are fairly substantial. The results for the case of increased inequality are all significant at the 1 percent level of significance. This provides support for Proposition 2 since we observe a consistent relationship between non-religious services increasing when there is some inequality.

The Ordered Logit model, however, imposes the restrictive proportional odds assumption, which implies that the coefficient of interest is the same for all the cut-off points. The Brant test tests a fundamental restriction of the Ordered Logit model, whereby the regression coefficients are restricted to be equal across choices. The Brant test is used to check whether this assumption holds in this case, and at the 5% level of significance this test rejects the null of proportional odds. Therefore, we re-estimate our model in two more ways to check if our results are robust to dropping the proportional odds assumption. The Multinomial Logit model is more general but ignores the ordering in the response variable. The average marginal effects for this model are reported in Table 27.

One disadvantage of the Multinomial Logit model is that it is overparameterised in that it allows all variables to vary over all categories. The Generalised Ordered Logit model as described in Williams (2006) allows for certain covariates to violate the proportional odds assumptions, which are decided on the basis of a backward stepwise selection using LR-tests. This has the advantage of parsimony, but the final chosen model is fairly arbitrary. The average marginal effects for this model are reported in Table 28.

Both the Multinomial Logit and the Generalised Ordered Logit model provide support for the proposition that non-religious services increase in the presence of some inequality. Therefore, overall, we find strong support for *Proposition 2:* The average change in the probability of

providing higher levels of education and health services for an increase in the perception of inequality changes little across all the models, and remains large, positive and significant.

Table 26. Marginal Effects for the Ordered Logit Model

Average change in probability of providing education and health services	Change in inequality	
	Stayed the same to Increased	Decreased to Increased
Prob (impeduhth = Better provided for)	0.2495***	0.2817***
	(0.000)	(0.000)
Prob (impeduhth = Stayed the same)	-0.1196***	-0.1300***
	(0.003)	(0.002)
Prob (impeduhth = Less well provided for)	-0.1298***	-0.1517***
	(0.001)	(0.001)

Note: *p*-value reported in parentheses

Table 27. Marginal Effects for the Multinomial Logit Model

Average change in probability of providing education and health services	Change in inequality	
	Stayed the same to Increased	Decreased to Increased
Prob (impeduhth = Better provided for)	0.2962***	0.2636***
	(0.000)	(0.000)
Prob (impeduhth = Stayed the same)	-0.2539***	-0.1144**
	(0.000)	(0.015)
Prob (impeduhth = Less well provided for)	-0.0422	0.1492**
	(0.419)	(0.011)

Note: *p*-value reported in parentheses

Table 28. Marginal effects for the Generalized Ordered Logit Model

Average change in probability of providing education and health services	Change in inequality	
	Stayed the same to Increased	Decreased to Increased
Prob (impeduhth = Better provided for)	0.2967***	0.2696***
	(0.000)	(0.000)
Prob (impeduhth = Stayed the same)	-0.2543***	-0.1332**
	(0.000)	(0.000)
Prob (impeduhth = Less well provided for)	-0.0424	-0.1364*
	(0.470)	(0.001)

Note: *p*-value reported in parentheses

In summary, the regressions collectively support the proposition that the religious organizations maximize the differentiation of their religious position, and that more non-religious services are provided as inequality is perceived to increase.

6.3. Robustness of Results

To check the robustness of our results, the Ordered Logit models were re-estimated with state and religion fixed effects, shown in Tables 29 and 30. This is important to make sure that the results are not confounded by characteristics of the particular states surveyed. The excluded categories for the fixed effects are the state 'Madhya Pradesh' and 'Other Religions'. The Ordered Logit results did not change qualitatively in the fixed effects estimation. Similarly, the Multinomial Logit results are still significant. All estimation results are reported with clustered robust standard errors, with clusters being interactions of state and religion categories, using the clustering strategies put forward by Cameron, Gelbach and Miller (2010)[8]. What this suggests is that even with the inclusion of state and religion fixed effects, the organizations provide more non-religious services when inequality is perceived to increase.

So, what we find is that the average change in the probability of providing higher levels of education and health services for an increase in the perception of inequality remains large, significant and positive. So if organizations perceived that inequality had increased, they also said that education and health services were better provided for. The empirical testing of the two propositions indicate that in keeping with the predictions of our theory, organizations are differentiating themselves on the religious spectrum - some religious organizations in India are positioning themselves as more radical, others more liberal. But regardless of this position, as economic inequality increases, all organizations provide more education and health services.

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[8] These strategies are for clustering standard errors in the ordered logit model on two non-nested clusters simultaneously. We have also estimated the logit models with the clustering done only on states, and only on religions, and our results show even greater significance for the variables of interest, but we report the results with clustering based on the more stringent interactions of state and religion only.

Table 29. Marginal Effects for the Ordered Logit Model with fixed effects

	Change in inequality	
Average change in probability of providing education and health services	Stayed the same to Increased	Decreased to Increased
Prob (impeduhth = Better provided for)	0.1043*	0.0943*
	(0.072)	(0.075)
Prob (impeduhth = Stayed the same)	-0.445*	-0.0408
	(0.077)	(0.110)
Prob (impeduhth = Less well provided for)	-0.0597*	-0.0535*
	(0.082)	(0.057)

Note: *p*-value reported in parentheses

Table 30. Marginal Effects for the Multinomial Logit Model with fixed effects

	Change in inequality	
Average change in probability of providing education and health services	Stayed the same to Increased	Decreased to Increased
Prob (impeduhth = Better provided for)	0.1433**	0.0739
	(0.022)	(0.155)
Prob (impeduhth = Stayed the same)	-0.1399***	-0.0403
	(0.000)	(0.384)
Prob (impeduhth = Less well provided for)	-0.0034	-0.0335
	(0.954)	(0.427)

Note: *p*-value reported in parentheses

7. Conclusion

Consider this view from the field - *'Yahan bhukha jagtaa hai par koi bhukha sota nahi'* translated as '*People wake up on an empty stomach here but no one will go to bed on an empty stomach*'. And so the words of a Sufi scholar discussing the practice of 'langar' or the community kitchen of his mosque, which undertakes a community feeding programme, epitomises the vital nature of non-religious service provision by religious organizations in India today. If we examine the history of India's religions, all of them - Hinduism, Islam, Jainism, and Buddhism arose in response to the perceived inequalities in society and by a desire on the part of those propagating the religion to deal with the social problems which emerged in various historical periods. Such lessons underlie the crucial role of the socio-economic consequences of religiosity and service provision which has played a key role in the operations of Indian religious organizations in the past.

This paper has examined the economics of religion in India in the present. In particular, we highlight innovations to the provision of religious and non-religious services such as education and health by religious organizations as a way of retaining adherents in a situation where economic growth and income inequality are both increasing. To illustrate this theoretically, we presented a simple and stylised Hotelling-style model in which two religious organizations choose a religious focal point and decide upon the non-religious services provided. We showed in the model two central predictions: First, that the organizations will position themselves at opposite locations to differentiate themselves on the religious spectrum. Second, that in equilibrium, economic inequality alone is sufficient to make both organizations increase their provision of non-religious services. The remainder of the paper set about presenting qualitative and quantitative data on religious and non-religious service provision in India, and testing the two central propositions.

To examine the issue empirically, we present our unique primary survey data that we collected from 2006-2008 in India on 568 Hindu, Muslim, Christian, Sikh and Jain religious organizations spread across 7 major Indian states in what is to the best of our knowledge the first large-scale economic survey of religious organizations in India. We find evidence that organizations of all religions in India have substantially increased their provision of religious and especially non-religious services possibly in order to substitute for the lack of state provision, and that this is related to their perception of economic inequality and poverty. With economic growth, even with a reduction in the absolute levels of poverty, as more people become better-off they increasingly demand more non-religious services. So if growth also generates greater income inequality, then this can lead to a greater demand for non-religious service provision. Moreover, states in which we find greater non-religious service provision by religious organizations are also those in which public provision is less good.

Using our theoretical model and testing the two key propositions from it on our survey data, we highlight that religious organizations in India are choosing to maximize the differences in their ideology with respect to other organizations, creating the potential for religious innovation. This is also consistent with our theoretical model which suggests that in equilibrium religious organizations will maximize the differentiation in their religious focal points. The distribution of religious beliefs is positively skewed. Using a range of econometric methods that included Ordered Logit and Multinomial Logit models on these religion data, we also showed that the average change in the probability of providing higher levels of education and health services for an increase in the perception of inequality changes little across all the models, and remains large, positive, significant and robust.

Our study also highlights variations between religions both in religious service provision and in non-religious service provision. For example, of all the religious services provided by the organizations, propagation of the faith and religious education are considered the two most important activities provided by them. Muslim and Christian organizations provided more by way of religious education which they rate as their main activity compared to the Hindus, for whom propagation of the faith is ranked as the main reason why they provide religious services, with religious education being important but playing only a secondary role. For the post-1991 period, propagation and expansion of the faith is regarded as the single major religious service provided with over 70% of organizations mentioning this. The econometric analysis also lent strong support to the view that religious organizations in India are choosing to maximize the differences in their ideology with respect to other organizations.

In the context of non-religious services, for example by looking at the distribution of non-religious services by religion and by region, shows that all religions have increased their provision of all non-religious services in the post-1991 period. Although all religions are providing substantial education and health before and after 1991, this study has uncovered that Hindus and Muslims are engaging much more in providing more education, health, employment services and food distribution services in the post-1991 period. There are also differences across Hindus, Muslims, Christians and others in the non-religious services provided. In keeping with the predictions of our model, the provision of all non-religious services has increased without exception. Another aspect is how innovative many religious organizations are with respect to the kinds of non-religious services they are providing - be it basic school education, health-care including blood donation, vaccination and eye camps, computer-based learning schemes, food distribution, cow-lending schemes, mass marriages, religious book distribution, or HIV/AIDS awareness programmes.

What does emerge is that religious organizations all across India, and irrespective of religion, are playing a very important role in local communities by providing education, health, or other schemes. And this is a very *positive* role that many of them are playing in their communities, by contributing both religiously and to non-religious activities that both build social capital and address economic necessity.

We are hopeful that the outcome of our research will have considerable policy relevance for the management of religiously pluralistic populations in developing countries. Economists are interested in the relationship between economic growth and religious conflict. Our study might be able to contribute to understanding this relationship better because with economic growth it could be that because religious organizations are differentiating themselves more religiously, this sets up the potential for greater conflict, which could possibly be mitigated by the same organizations also providing more non–religious services.

What is clear is that emerging economies today are experiencing appreciable modern economic growth, yet this is coterminous with the increasing resilience of religious institutions. And this dichotomy between the sacred and the secular perhaps underlies how the existence of economic inequality makes for more religious and non-religious service-provision by religious organizations. We believe that economics has much to offer the study of religion in developing countries like India, and perhaps can elucidate how a more prosperous economy may exist equally with more resilient religious organizations.

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