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Divine Competition: Religious Organisations
and Service Provision in India

*Sriya Iyer, Chander Velu
and Melvyn Weeks*

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Sriya Iyer
Faculty of Economics
University of Cambridge

Chander Velu
Department of Engineering
University of Cambridge

Melvyn Weeks
Faculty of Economics
University of Cambridge

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Abstract

This paper examines religious and non-religious service provision by religious organisations in India. We present a stylized Hotelling-style model in which two religious organisations differentiate themselves on the strength of religious beliefs in order to compete in attracting adherents. We show in the model two central predictions: first, that the organisations will differentiate themselves on the strength of religious beliefs. Second, that in equilibrium, economic inequality makes the organisations increase their provision of non-religious services. To test this, we present unique primary survey data on the economics of religion, collected by us between 2006 and 2010 from 568 Hindu, Muslim, Christian, Sikh and Jain religious organisations spread across 7 Indian states. We use these data to demonstrate that the organisations have substantially increased their provision of non-religious services. We also provide quantitative evidence based on econometric testing to highlight that religious organisations are differentiating themselves on the strength of religious beliefs with respect to other organisations, and are also providing higher education and health services as economic inequality increases in India.

JEL Classification Code: Z12

Keywords: Economics of Religion, Service Provision, Hotelling Model, Inequality, India

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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.

1 Introduction

Alfred Marshall's prophecy could not have been more prescient as economics today has much to offer the study of contemporary religion. In the twenty-first century the resilience of religion in both developed and developing countries has been observed by scholars investigating the economics and sociology of religion (Iannaccone 1998; Stark and Finke, 2001; Berman 2009; Kuran 2010). Religion constitutes an important source of 'spiritual capital', contributing significantly to building norms and networks among populations organised on the basis of religion. Against this background, our research asks a simple question: *How do religious organisations provide and change their religious and non-religious services in response to the competition for adherents and income inequality?*

Studies in the economics of religion have assessed the effect of religion on economic behaviour at both microeconomic and macroeconomic levels (Azzi and Ehrenberg 1975; Iannaccone 1994; Stark and Finke 2000; Barro and McCleary 2003; Glaeser 2005; Dehejia et al. 2007; Krueger 2007; Berman 2009). Sociologists of religion have discussed the 'religion-market model' (Stark and Finke 2001). In particular, Finke (2004) has argued that while most religions preserve their core teachings, they introduce innovations in the periphery in terms of how services are provided and resources are secured for members. Economists have written seminal papers regarding how religious strictness might overcome free-rider problems, and especially how this can increase commitment, raise participation, and enable a group to offer greater benefits to potential members (Iannaccone 1992; Berman 2000).

Our paper makes two main contributions. First, to provide a model of religion and service provision by religious organisations that shows how the strength of religious beliefs might differ in response to competition. Second, we take our model to new primary data to show how religious organisations provide their religious and non-religious services consistent with changes in income inequality. We present a simple and stylized Hotelling-style model in which two religious organisations choose a religious focal point and decide upon the non-religious services provided. Two central predictions of the model are: (i) organisations

will differentiate themselves on the strength of religious beliefs; (ii) economic inequality makes both organisations increase their provision of non-religious services. To test our model, we also present a unique dataset – to the best of our knowledge, the first large-scale economic survey of religious institutions undertaken in India. We find evidence that religious organisations in India have increased their provision of non-religious services and that this is related to economic inequality and competition.

Overwhelmingly, studies on the economics of religion are based on developed nations, especially using contemporary US data (Iannaccone and Berman 2008). There is far less research on the economics of religion in emerging economies such as India. India is characterized by a multiplicity of religions, the active practice of religion, and religious conflict, which has been commented upon extensively by historians, political scientists, economists and sociologists (Bayly 1983; Engineer 1984; Bagchi 1991; Varshney 2000; Brass 2003; Bohlken and Sergenti, 2010; Sen 2005; Mitra and Ray 2014). Some estimates have suggested that there are over thirty thousand Muslim and other religious schools in India (US Department of State 2010).

Yet, large-scale economic surveys of the activities of religious organisations in India are conspicuously absent. Our study redresses this gap: our economic survey of religious institutions consists of rich and unique primary data from 568 religious organisations, which we collected between 2006 and 2010 in a survey spanning 7 large Indian states. This data includes information on Hindu, Muslim, Christian, Sikh, and Jain organisations, and is collected to examine the economic and competitive behaviour of these organisations. We collected the data using the semi-structured interview format which reduces the possibility of measurement error and which is appropriate when collecting data on a sensitive topic like religion. The data cover religious service provision, non-religious service provision, adherents, religious competition and other issues.

The remainder of this paper proceeds as follows: Section 2 discusses the current literature on the economics of religion that concerns religious positioning. Section 3 presents the model. Section 4 discusses our primary survey of religious organisations undertaken in India. Sections 5 and 6 present the quantitative econometric findings of the research that tests the theoretical propositions developed and the key results. Section 7 concludes the paper.

2 Religious Positioning and Social Services

Economists' and other scholars' have interests in religion and social economics more generally (Becker and Murphy 2000; Iannaccone, Neal, Boettke and McCloskey, 2005; Putnam and Campbell 2010); and to the continuing persistence and impact of religion in developed and developing countries alike (Iannaccone and Berman 2008; Bisin and Verdier 2000; Iyer 2008). The main focus of our work is on the links between the strength of religious beliefs, service provision, religious competition and economic inequality.

Our work is located within the broadly socio-economic view of religion, which expounds the rational-choice approach to the study of religion, and is found in the work of many

economists and sociologists (Azzi and Ehrenberg 1975; Iannaccone 1992; Iannaccone 1998; Montgomery 1996; Stark, Iannaccone and Finke 1996; Stark and Finke 2000; Berman 2000). They examine both the supply side, in terms of the structures of religious organisations (Dehejia et al. 2007), and the demand side, in terms of the preferences of consumers of religion (Oslington 2003). This implies that the activities of religious economies are important.¹

In this approach, individuals are rational consumers of religion who decide whether or not to believe, or in which religion to believe, based on their attributes and relative to their initial endowments. According to 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 like firms in a competitive market, particularly regarding service provision to attract potential customers. This idea also underlies our thinking in this paper. 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 allocation of adherents across religions.

Our study adds to existing work on the rational choice approach to understanding religion, but also to understanding how religious competition matters in developing countries. Within the rational choice framework, one line of research that economists have pursued is the so-called ‘club models’ of religion, which have contributed vitally to our understanding of how sects develop. These models are based on the idea that producing and consuming religion have all the features of a collective good and that, like other collective goods, there is potential for free-riding, lack of commitment and participation. Hence, these models look at stigmas and sacrifice as ways of screening members, and predict that more sectarian communities have tighter networks, and higher aid from members than less sectarian religious groups (Iannaccone 1992; Berman 2000; Chen 2010; Abramitzky 2011). The theory that we propose in this paper builds on existing theoretical research to the extent that we are also interested in how religious groups position themselves relative to other groups. However, we suggest that, particularly in emerging economies, economic inequality is an important factor that might differentiate groups on the religious spectrum.

Studies in the economics of religion have focused on the links between religion and economic theory; and the effect of religion on economic behaviour at both microeconomic and macroeconomic levels. Adam Smith first made reference to the church and competition between religions in *The Wealth of Nations* and in *The Theory of Moral Sentiments*. Smith considered religion as a means through which individuals enhanced the value of their human capital. He was also interested in the incentives that prompt individuals to choose to participate in religion-related activities and the effects of different religious beliefs on individual behaviour (Anderson 1988).

More recent studies explore the effect of religion on economic behaviour at both microeconomic and macroeconomic levels and are also concerned with policy debates about faith-based welfare programmes and the economic regulation of the church. One concern is

¹Stark and Finke, for example, state: ‘Religious economies are like commercial economies in that they consist of a market of current and potential customers, a set of organisations or firms seeking to serve that market, and the religion offered by various organisations’ (Stark and Finke, 2000, pp. 2–3).

also whether deregulation, or a lack of regulation of religious organisations, is imperative. Economists have commented on religious competition and why economic growth has not led to a decline in the practice of religion in rich countries (McBride 2010).

One theme of the economics of religion literature is that many religious groups have provided social services such as education, as shown, for example, in a national study of congregations in the US (Chaves 2004) and how church provision of services in that country changed with state provision and economic legislation in the 1930s (Gruber and Hungerman 2007). There are also examples from the developing world, such as, for example, the Hamas, which have provided spiritual services alongside social and welfare services in the regions where they operate (Berman 2009). As Berman points out, this approach emphasizes the social and economic aspects of religious communities, rather than purely the effect of religious faith.²

The question is why do religious organisations provide social services? Altering the interpretation of religious doctrine and practice is one channel through which religious differentiation might take place, but varying the service levels provided by religious organisations, particularly with respect to education and health, may be another channel, especially where these services are less well provided for by the state. Recent research also discusses how church activities can substitute for state activities (Hungerman 2005). It is important to examine this relationship between religion and service provision because some theologically strict religions argue that social services are only a means to attain spiritual ends, or to promote religious conversion. More liberal religions argue that providing social services is a moral imperative and so an end in itself, regardless of whether those who are served convert to the religion. So for some religions providing social services might simply be a moral end in itself.

We argue in this paper that for other organisations, social service provision may arise in response to economic inequality, or even as a means of survival in multi-religious communities in which religions not undertaking social-service provision may ‘fall off the cliff’ so to speak, thereby witnessing evidence of declining religious adherence.

In this context, one seminal study of the vitality of religious organisations in the US argues that most religions preserve their core teachings, but introduce innovations in terms of ‘how congregations provide services for members, secure resources from members, or support the core teachings of the larger institution’ (Finke, 2004, p. 23). So religions might consider new products and methods that enhance the productivity and efficiency of the religious organisation through the religious and non-religious services that they provide, thereby increasing their efficiency in competing for adherents.

²As Berman 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 organisation 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.)

3 The Model

Suppose we begin with a simplified economy in which there are two religious organisations. Our model is applicable to two situations: first, where there are two organisations from different religions, for example, if we were thinking about competition between Hindus and Muslims, or second, to a situation in which there are two competing organisations belonging to the same religion, which may be more typically the case in India. We assume that each organisation is competing for adherents and that each organisation tries to maximize adherents via choosing a focal point.³ *By a focal point we mean the strength of religious beliefs*⁴.

Each organisation maximises adherents possibly owing to political, monetary or other benefits derived from having a large number of adherents. Each organisation also provides non-religious services that we assume the poor will value and use more than the rich. Our model assumes that each adherent chooses membership of a religious organisation based upon the difference between their personal focal point relative to that of the religious organisation, and the wealth benefits from membership of a religious organisation.⁵ The two religious organisations each choose a religious focal point and decide upon the non-religious services provided. But they need to do this by taking into account each other's choices, while they are both competing for adherents in this simplified model.

Let us now develop our model more formally. Let I denote a set of individuals. For individual $i \in I$, let $e_i \in [0, \infty)$ denote individual i 's economic well-being. At the outset we assume $e_i = e$, for all i . We will relax the assumption that everyone's economic well-being is the same as we extend the model to include economic inequality. x_i denotes individual i 's religiousness which we assume is uniformly distributed across all individuals over $[0, 1]$.

Two religious organisations 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 organisations incur a cost of providing services. The two organisations have identical pay-off functions, which are $(p - s)n$, where $p > 0$ is a given constant, and n is the number of adherents. The term $(p - s)$ captures the net benefit for the organisation of providing non-religious services for each adherent. Individual i 's expected utility function is assumed to have the following form:

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

where x and s are chosen by the organisation that individual i chooses to be affiliated with. The utility function takes this form in that we include the fraction $\frac{s}{e_i}$ as we assume that the poor will value these services more than the rich, because the rich already have them.

The two organisations choose their religious focal points x (x_1 and x_2) simultaneously and then observe each other's choices of x , and choose their non-religious services s (s_1 and s_2) simultaneously. Individuals choose the organisation that gives them a higher utility.

³A focal point can also be thought of as the product space in the market for religion.

⁴In other models in the economics of religion, economists have talked about religious 'strictness' (Iannaccone 1994). Our focal point can be interpreted to include strictness that may also influence the strength of religious beliefs.

⁵We can think of this, say, as education, health, employment, or other services arising from membership of the organisation.

Our model is similar to Hotelling’s (1929) model of price and location competition (Vogel 2011) in that the timing of the game in our model is analagous to a standard location-price competition model in which firms decide first where to locate and secondly what prices to charge. In our context the religious focal point decision is likely to be more ‘sticky’ than the service provision decision. Religious organisations need to be clear where they stand ‘religiously’ before they can determine their service levels.

We discuss the characterisation of our equilibrium in two stages – first, when there is no economic inequality and everyone is assumed to have the same economic well-being. Then, we relax this assumption and discuss our model when economic inequality is introduced.

3.1 Characterisation of Equilibrium

We will now characterise the subgame perfect equilibrium of this game. Let x_1 and x_2 denote the religious focal points chosen by the organisations. 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 organisations. For fixed s_1, s_2 , an individual who is indifferent between the two organisations if

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

where x is the indifferent individual’s religiousness. Any individual with a lower level of religiousness chooses organisation 1, and any individual with a higher level chooses organisation 2. Given the uniform distribution of the individuals’ religiousness, the x maps into the number of adherents n symmetrically. Solving for the x in (2), the number of adherents of organisation 1 is given by

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

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

Having solved for x , the number of adherents of the two organisations, we now examine the optimisation problem for each organisation. Organisation 1’s problem is thus:

$$\max_{s_1} (p - s_1) x \quad (4)$$

The first order condition of this problem is

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

Similarly, organisation 2’s problem is:

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

And the first order condition for organisation 2 is

$$s_2 = \frac{p + s_1}{2} - \frac{2 - x_1 - x_2}{2} (x_2 - x_1) e. \quad (6)$$

Solving for s_1 and s_2 , we have:

$$s_1 = p - \frac{1}{3}(x_2 - x_1)(2 + x_1 + x_2)e \quad (7)$$

$$s_2 = p - \frac{1}{3}(x_2 - x_1)(4 - x_1 - x_2)e \quad (8)$$

Now we calculate the equilibrium choices of x_1 and x_2 . For fixed x_1 and x_2 , organisation 1's pay-off is:

$$\pi^1(x_1, x_2) := (p - s_1)x, \quad (9)$$

where x is given in (3), and s_1 is given in (7).

To emphasise 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 (9) as:

$$\pi^1(x_1, x_2) = (p - s_1(x_1, x_2))x(x_1, x_2, s_1(x_1, x_2), s_2(x_1, x_2)) \quad (10)$$

By the envelope theorem, as we differentiate $\pi^1(x_1, x_2)$ 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) we note that

$$\frac{dx}{dx_1} = \frac{1}{2} + \frac{s_1 - s_2}{e} \frac{1}{2(x_2 - x_1)^2}. \quad (11)$$

From (3) and (7)

$$\frac{dx}{ds_2} \frac{ds_2}{dx_1} = \frac{1}{3} \frac{(x_1 - 2)}{(x_2 - x_1)}. \quad (12)$$

From (7)

$$s_1 - s_2 = \frac{1}{3}e(x_2 - x_1)(2 - 2x_1 - 2x_2). \quad (13)$$

Hence:

$$\frac{dx}{dx_1} = \frac{1}{2} + \frac{1}{3} \frac{(1 - x_1 - x_2)}{(x_2 - x_1)} \quad (14)$$

From the above, the calculation shows that $\frac{dx}{dx_1} + \frac{dx}{ds_2} \frac{ds_2}{dx_1} < 0$, for all x_1, x_2 . Therefore, organisation 1 chooses $x_1 = 0$ in equilibrium. Similarly organisation 2 chooses $x_2 = 1$ in equilibrium. The two organisations differentiate their religious focal points, to avoid competition in non-religious services.

So far in the analysis we have assumed that $x_1 < x_2$.⁶ We now argue that it is impossible to have an equilibrium in which $x_1 = x_2$. This is because in the subgame conditional on $x_1 = x_2$ being chosen, the two organisations will compete away any positive profits by raising s all the way to p ; otherwise one organisation can always offer a few more services than its competitor and grab the whole market, thus obtaining a higher pay-off. Hence, both organisations receive zero profits in the subgame. But then organisation 1 can deviate by choosing a lower x_1 and make a positive profit, because our analysis above shows that both organisations make positive profits in any subgame following $x_1 < x_2$ being chosen.

⁶A similar argument can be made for the case where $x_2 < x_1$.

3.2 Characterization of Equilibrium with Economic Inequality

Until now, we have assumed that there are 2 organisations on the supply side but that the demand side is entirely homogenous because we have all adherents who have identical economic well-being. In reality however, we do see economic inequality across adherents and much heterogeneity on the demand side, so in order to incorporate this aspect we now introduce economic inequality in our model. By starting with (2) which states the indifference condition that the 2 organisations ought to satisfy if an adherent is indifferent across the 2 organisations, we can now introduce economic inequality. In order to examine the effect of economic inequality we focus on changing the population from being equally well-off to increased dispersion in the well-being whilst maintaining the average well-being of the population, i.e., a mean-preserving spread in their well-being.

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 $1/2$, and a poor individual with e_L with probability $1/2$; both have the same religiousness, x .

We follow the same steps 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 organisation 1, and x_L denote the number of poor adherents of organisation 1. We again write the same indifference condition (2) now as:

$$-(x_H - x_1)^2 + \frac{s_1}{e_H} = -(x_H - x_2)^2 + \frac{s_2}{e_H} - (x_L - x_1)^2 + \frac{s_1}{e_L} = -(x_L - x_2)^2 + \frac{s_2}{e_L} \quad (15)$$

Hence

$$x_H = \frac{x_1 + x_2}{2} + \frac{s_1 - s_2}{e_H} \frac{1}{2(x_2 - x_1)} x_L = \frac{x_1 + x_2}{2} + \frac{s_1 - s_2}{e_L} \frac{1}{2(x_2 - x_1)}. \quad (16)$$

Hence the total number of adherents of organisation 1 is

$$\frac{x_H + x_L}{2} = \frac{x_1 + x_2 + \frac{s_1 - s_2}{2(x_2 - x_1)} \frac{e_H + e_L}{e_H e_L}}{2}. \quad (17)$$

Organisation 1's optimisation problem is

$$\max_{s_1} (p - s_1) \left(\frac{x_H + x_L}{2} \right). \quad (18)$$

The first order condition of the problem is

$$s_1 = \frac{p + s_2}{2} - (x_1 + x_2)(x_2 - x_1) \frac{e_H e_L}{e_H + e_L}. \quad (19)$$

Organisation 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 organisation 2's problem may be written

$$s_2 = \frac{p + s_1}{2} - (2 - x_1 - x_2)(x_2 - x_1) \frac{e_H e_L}{e_H + e_L}. \quad (20)$$

Comparing (19) and (20) with (5) and (6), we observe that the non-religious services provided by the two organisations increase in the inequality case, if

$$\frac{e_H e_L}{e_H + e_L} < \frac{e}{2}, \quad (21)$$

or equivalently $b < \frac{a}{2a-1}$. Therefore, both religious organisations will provide more non-religious services when there is economic inequality⁷. Figure 1 illustrates the effect of

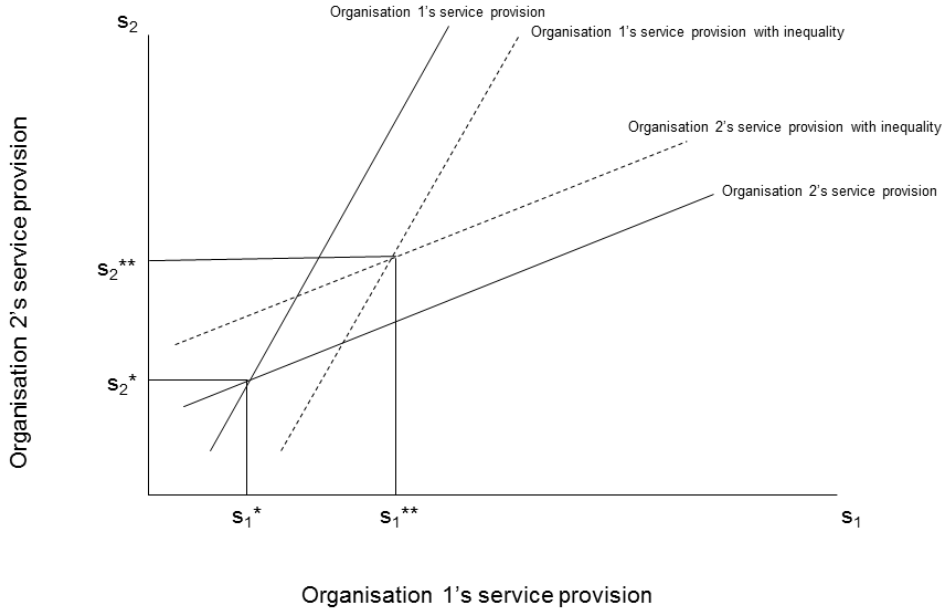


Figure 1: Effects of inequality on the provision of non-religious services.

economic inequality on the non-religious service provision of organisations 1 and 2. The intersection of the continuous lines representing equations (6) and (7) show the level of non-religious service provision without economic inequality. In contrast, the intersection of the dotted lines representing Equations (19) and (20) show non-religious services with inequality. The intersection of the lines show the optimal levels of service provision with and without inequality - these are marked as s_1^* and s_2^* , compared to, s_1^{**} and s_2^{**} . As can be seen, the non-religious service provision is greater ($s_2^{**} > s_2^*$), when there is some economic inequality.

⁷It should be qualified that this result will hold only if the poor remain poor enough in that even with an increase in economic well-being for the population, there should be a sizeable proportion of the population that is still poor enough to demand the services provided by the religious organisations.

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 (17), (19), and (20) which are the total number of adherents and the first order conditions for both organisations' problems, we get exactly (3), (5), and (6) which were in the non-inequality case. Notice also that in the envelope 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 can summarise the analysis into the following two propositions:

Proposition 1. In the presence of competition in the provision of non-religious services, the religious organisations differentiate their religious focal points.

Proposition 2. The provision of non-religious services by the religious organisations increases when there is a change in economic inequality.

Hence, we show that when we solve the model mathematically, the subgame perfect equilibrium for these religious organisations is such that it generates these two propositions describing their behavior. The intuition behind Proposition 1 arises because the organisations are differentiating themselves religiously in order to reduce the amount they have to compete for providing non-religious services. The intuition behind Proposition 2 is that when economic inequality rises, religious organisations provide more non-religious services. This is because, assuming diminishing marginal utility of non-religious services in an individual's economic well-being, both religious organisations will find it in their interests to provide more non-religious services to attract the population of less well-off individuals. This is because the organisations are competing for more adherents among them. Our model suggests that one factor that pushes religious organisations towards more extremes is non-religious service provision: religious organisations essentially product differentiate in order to reduce competition in service provision. In the next section we discuss the survey of the religious organisations in India.

4 The Survey of Religious Organisations in India

As a part of this study we planned and executed a survey of 568 religious organisations in India with a view to understanding their economic and competitive behaviour. We emphasize that, to the best of our knowledge, no previous large-scale economic surveys of religious organisations have been undertaken in India comparable to this survey. The survey conducted between 2006 and 2010 involved extensive primary data collection and fieldwork using questionnaires and personal interviews. The survey involved interviews with 272 Hindu (47.9 per cent), 248 Muslim (43.7 per cent), 25 Christian (4.4 per cent), and 23 Sikh and Jain religious organisations (4.1 per cent) based in the Indian states of Jammu and Kashmir, Uttar Pradesh, West Bengal, Madhya Pradesh, Gujarat, Maharashtra and Karnataka. In section 4.1 we discuss the approach to data collection and research design. We discuss religious motivation and social practices in section 4.2, the strength of religious beliefs in section 4.3, followed by a discussion in section 4.4 of the religious and non-religious services provided by the religious organisations in our sample. Finally, we elaborate on the role of religious competition in section 4.5 and economic inequality in section 4.6.

Table 1: Distribution of the Sample by Religion and Region

	Hindu	Muslim	Christian	Other	All-India	Percentage
Gujarat	51	34	3	0	88	15.5
Jammu and Kashmir	26	41	4	11	82	14.4
Karnataka	27	42	6	0	75	13.2
Maharashtra	64	11	1	2	78	13.7
Madhya Pradesh	40	30	2	3	75	13.2
Uttar Pradesh	36	52	3	1	92	16.2
West Bengal	28	38	6	6	78	13.7
Total	272	248	25	23	568	100.00
Percentage	47.9	43.7	4.4	4.1		

4.1 Research Design

A stratified random sample of religious organisations in selected districts of each of the seven states was chosen, based on a listing of all religious organisations by the Registrar of Charities. The stratified sampling framework consisted of equal samples between states. The religious organisations consist of temples, mosques, churches, religion-based NGOs, religion-based family trusts (*parivar*), religion-based trusts (*samitis*) and religion-based communes (*ashrams*), other religion-based groups (*mandals* and *sabhas*), and religion-based charities (*madradas*), religion-based committees, and welfare societies.

The sample is diverse and shows that the organisations have been in existence for varying lengths of time.⁸ The distribution of the sample by religion and states is shown in Table 1. We used only Hindu and Muslim investigators. The states in which the survey was conducted are shown in Figure 2.

Recent research has emphasised the importance of collecting accurate data when surveying organisations using interview methods (Bloom and Van Reenan 2010; Bloom and Van Reenan 2007). We follow the prescribed best practice in order to obtain unbiased responses in our questionnaire survey and to reduce interviewer bias based on their perceptions. We elaborate upon our approach below.

In order to reduce respondent bias, we conducted interviews with those individuals at different levels of the organisation’s hierarchy. So in each organisation we interviewed those individuals who were most closely involved with the religious and organisational decision-making. In order to avoid ‘common-method bias’ on average three people were interviewed in each organisation: typically a trustee, one person responsible for administration, and another who could talk about financial issues⁹. The three people answered different questions: For philosophical issues related to the religion, we talked to the temple or mosque trustees; and for managerial and employment issues, we talked to the general administra-

⁸For example, in terms of their date of foundation although a majority of the organisations were founded in the nineteenth and twentieth centuries, some organisations were founded as early as the thirteenth century, and others were founded nine centuries later in the twenty-first century.

⁹Common-method bias is the bias introduced by the same person answering all questions in a questionnaire survey.

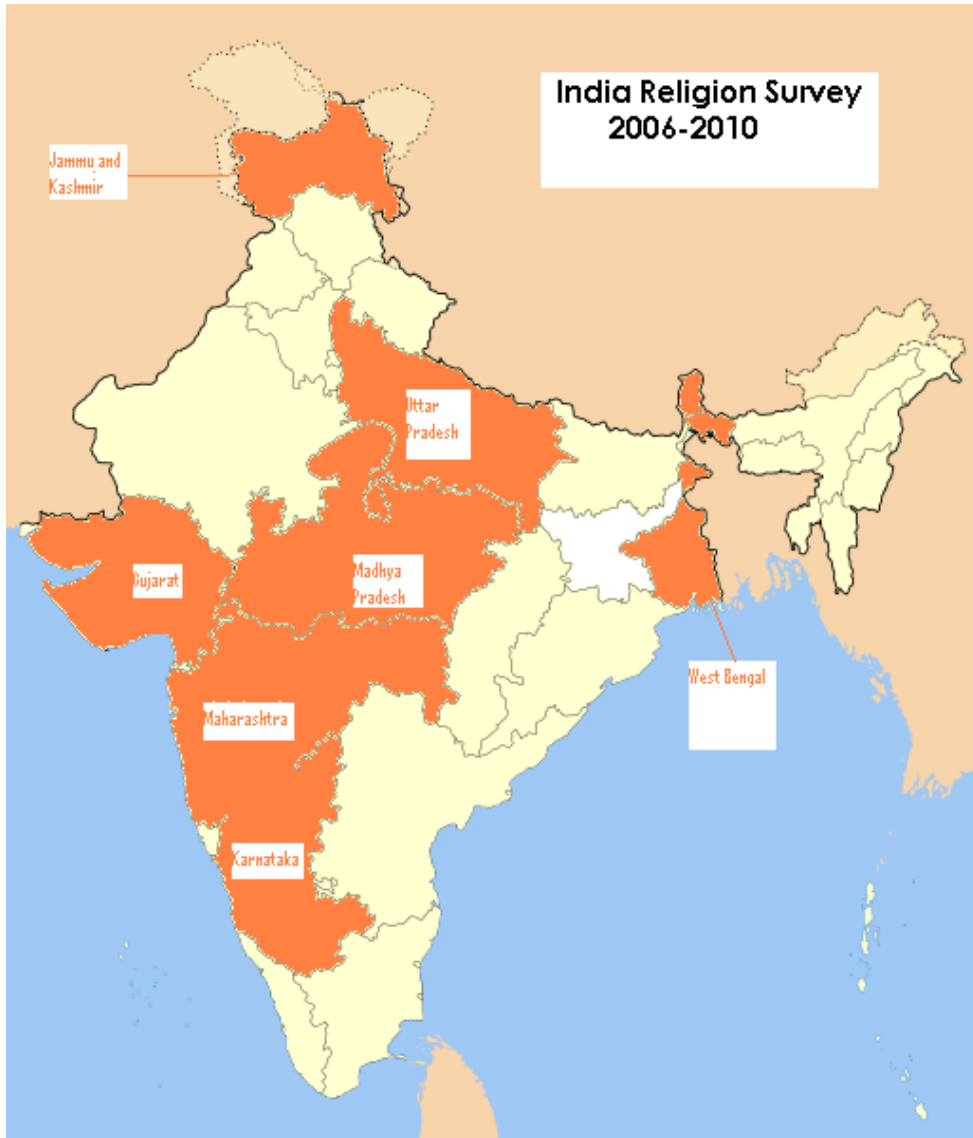


Figure 2: States covered by the India Religion Survey (2006-2010).

tion of the temple, usually an employee. For financial issues, we spoke to the treasurer or employees of the accounts section of the religious organisation. In case there were any inconsistencies we went back to the relevant official to seek clarification. Each section of the questionnaire relevant to each official's jurisdiction was completed by the field investigator in the local language in which the interview was conducted, and then translated into English.¹⁰ In addition, 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 interviewers themselves had little prior knowledge of the organisations they were interviewing, and many also conducted the interviews in several states with the team leaders visiting all states, which ensured consistency and accuracy of responses. This interviewing strategy of course puts demands on the interviewers, and many of our interviewers were scholars and assistant professors in local universities, which ensured high-quality interviewing skills.

The questionnaire survey that was administered to the organisations consisted of a series of questions on topics and themes such as 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 organisations. In the survey we used a combination of open and closed questions - this has also been used in other surveys of firm practice (see for example Bloom and Van Reenen 2010). For example, we used questions such as 'What are the religious services provided by your organisation?' followed by 'What do you perceive is the primary gain to the organisation in providing these services?'

We also asked questions that elicited examples particularly on areas where practices might differ by religion such as 'What steps do you take to ensure smooth and efficient functioning of the services provided by you?' and 'In providing these services, please can you tell us on what criteria you determine who will be included or excluded from them?' Other open-ended questions on economic factors included questions such as 'What are the most important economic changes that you think have happened in your area in the last 5 years?'

We conducted the interviews using the semi-structured interview format. We did so for two reasons - first, because religion is a sensitive topic; and second, in order to minimise the potential for measurement and misclassification errors (an issue we discuss in more detail in Section 6 below). The semi-structured interview is a face-to-face interview in which respondents' beliefs and views on topics are assessed in discussions and open-ended questions that allow the interviewer to minimise the possibility of errors in obtaining and recording responses. This is a strategy that is being advocated increasingly in other census and survey work as well (see for example Schatz 2012). Although semi-structured interviews can take many forms, the best form is face-to-face interviews which are labour intensive but which allow for the collection of high-quality data because they permit the interviewer

¹⁰We 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.

to correct misunderstandings, clarify questions, elicit experiences and follow-up on ideas. There are two main advantages to using semi-structured interviews.

First, the semi-structured interview is a broad questioning technique which can also be used to minimise possible inconsistencies as we corroborate responses from different sources (qualitative and quantitative data), and where these varied data sources generate potentially different responses. In conducting these interviews, there are potentially errors that can arise when asking the questions and interpreting the answers. The flexibility of the semi-structured format enables the interviewer to question more broadly based on the responses and hence reduces the possibility of misclassification. Although the semi-structured interview has the appearance of a conversation or discussion, 'this is due to the skills of the interviewer in facilitating a relaxed, non-threatening atmosphere where interviewees feel comfortable to express themselves.' (Mathers, Fox and Hunn, 1998). Interviewer bias is minimized through training and more time spent in the interview listening rather than the interviewer talking. The interviewers use interviews to triangulate between the general discussions and the responses recorded in the questionnaire. This is because the technique can create consistency between interviewees' responses and the external material that is collected from the organisations such as pamphlets and what people say more generally about topics and themes concerned. So for example some questions are assessing what someone actually knows about a topic, while others are assessing their opinions, beliefs or views.

Second, for complex and sensitive topics where a simple method might be less effective, the semi-structured interview format is important. This is because the semi-structured interview is organised around topics and themes and its purpose is to have flexibility in how and in what sequence questions are asked. This format is also usually used when 'the subject matter is very sensitive, if the questions are very complex or if the interview is likely to be lengthy' (Mathers, Fox and Hunn, 1998). This is why semi-structured interview methods are usually used when collecting attitudinal information on a large scale, as we do, and in psychoanalytic and clinical medicine research (Schatz 2012). In our experience, conducting interviews especially about religion and religious beliefs display many of these characteristics, so the semi-structured format was preferred.

Our use of the semi-structured format was driven by these two advantages. In order to conduct our interviews, we made several visits to each organisation to understand the religious ethos of each organisation before asking questions about the economic variables we were interested in. Frequently these conversations concerned theological debates in the religion, scriptural support for service provision, understanding the mythology associated with the religious institution, as well as economic issues. We made repeat visits to the organisations and as also shown in Table 2, the average number of interviews that involved these semi-structured interviews was 2.4 in Maharashtra, 2.2 in Karnataka, 1.8 in Madhya Pradesh, 2.1 in Jammu and Kashmir, 3.5 in Uttar Pradesh, 2.2 in West Bengal and 1.6 in Gujarat.

Table 2: Summary of the Religion Survey Research

Name of State	Number of Investigators	Travel days	Average visits per interview	Districts of India covered
Maharashtra	4	8	2.4	Nashik, Mumbai
Karnataka	4	8	2.2	Bangalore, Belgaum
Madhya Pradesh	3	4	1.8	Bhopal, Gwalior, Indore
Jammu and Kashmir	13	14	2.1	Jammu, Udhampur, Srinagar, Pulwama, Awantipur, Barmulla, Kupwara, Budgam
Uttar Pradesh	13	10	3.5	Muradabad, Rampur, Bareilly, Allahabad, Balian, Varansi, Devaria, Ghazipur
West Bengal	8	7	2.2	Kolkata, Burdawan, Howrah
Gujarat	5	2	1.6	Surat, Baroda, Jungadh, Amreli, Rajkot, Ahmedabad
Total	50	53	2.3	

4.2 Religious Motivation and Social Practices

In order to have a brief overview of religious motivation and social practices associated with religion in India today,¹¹ we asked the organisations to identify in rank order which factors, among them spirituality, service, protecting from impure influences and showing the right path, motivated them the most and their responses are grouped in Figure 3. In terms of

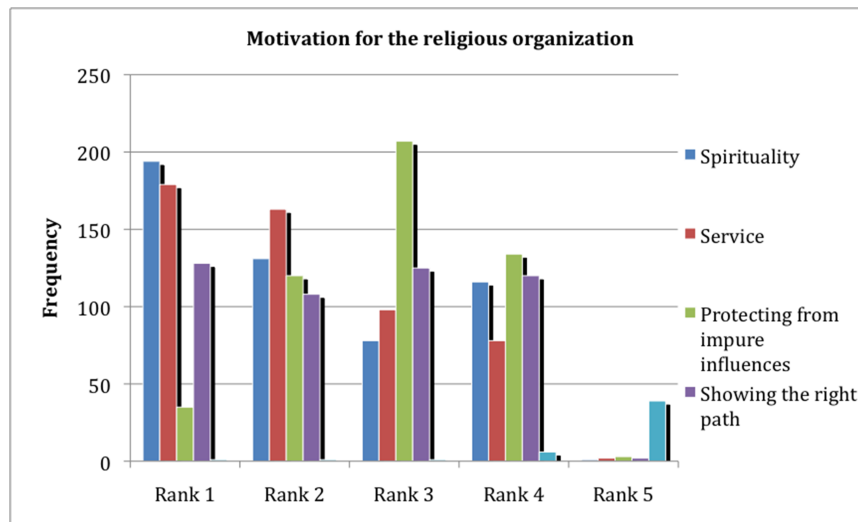


Figure 3: Motivation for the religious organisation.

motives for their activities, religious and otherwise, a majority of organisations said that providing spirituality and social service was the *raison d'être* of their work, followed closely by showing the right path, and protection from impure influences.

In order to assess how religious beliefs might also have affected social practice, we asked the organisations which social practices associated with religion were newly adopted and which practices had been abandoned. The organisations' responses are shown in Figure 4.

Figure 4 illustrates how social practices associated with religion have changed over time, and give us a preliminary idea about how religion in India is changing. Figure 4 suggests that the influence of caste is believed either to be declining, or staying the same. Marriage within the caste is also viewed as staying the same. A majority of organisations think that marriage at a later age occurs and that remarriage for both men and women is widely acceptable. Child marriage almost uniformly is a practice that is being increasingly abandoned. Untouchability (the practice of discrimination against the lower castes) was viewed as either having stayed the same or being increasingly abandoned. Regarding demographic matters, having large families was generally being abandoned, and the organisations believed that the preference for a son was also being abandoned. What is also interesting is that some organisations believed that the latter had stayed the same.

¹¹These 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 organisations' responses to questions in the questionnaire.

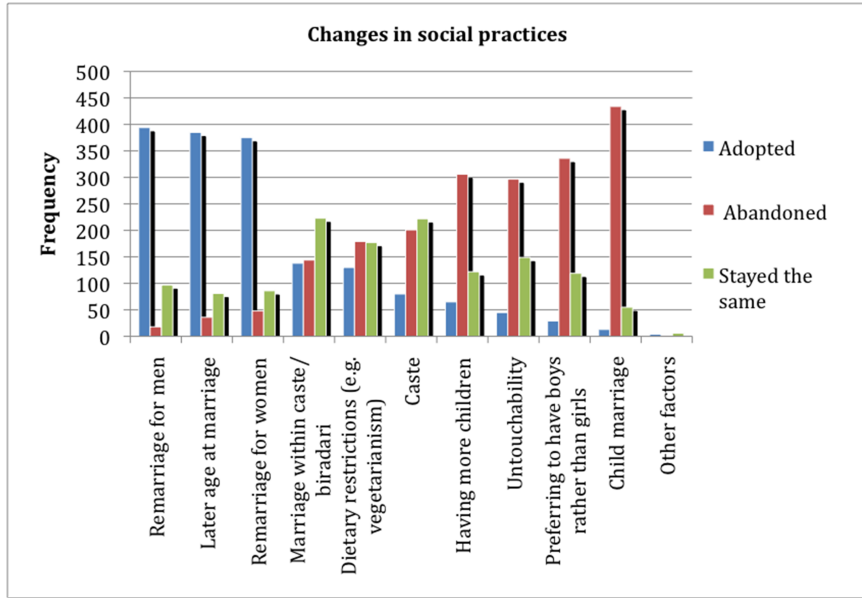


Figure 4: Changes in social practices associated with religion.

4.3 The Strength of Religious Beliefs

Proposition 1 of our theoretical model is a statement about the determinants of the strength of religious beliefs. We asked organisations how they would evaluate themselves in religious terms, and this is the measure of religiosity that we are using in this study. The organisations were asked how they would describe themselves in religious terms and Figure 5 illustrates the strength of religious beliefs of the religious organisation, grouped by religious affiliation. The figure shows that Hindus and Muslims were more likely to describe themselves as very strong. Other religions were more likely to describe themselves as mild.

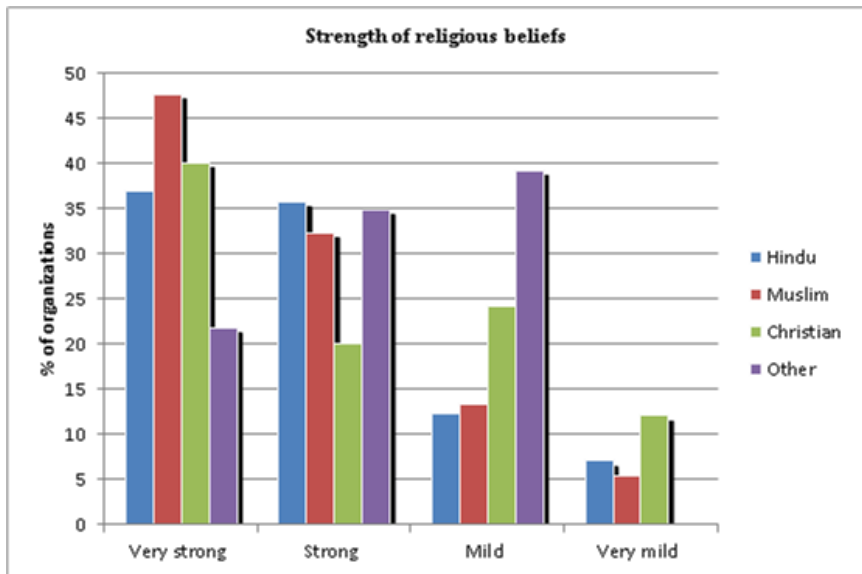


Figure 5: Strength of religious beliefs.

To further assess the strength of religious beliefs in India during the period of the

study, we asked organisations ‘What elements in your belief system (today) have received more/less emphasis from your organisation?’ The organisations provided a range of responses to this question, which encompassed religious practices, among them worship at places of worship, worship at home, and women going to places of worship; also religious beliefs including belief in God, fate and spirituality. Two aspects that received less emphasis were worship at home, and a belief in fate. In contrast, worship at places of worship, belief in God and spirituality, and women going to places of worship, all received more emphasis. This is a salient point because compared to Islam and Christianity, Hinduism typically does not emphasize communal worship. So our finding of increased reporting of worship at places of worship, and women going to places of worship, is important. We think that many of these factors underscored the organisations’ views on the strength of their religious beliefs.

4.4 Religious Services and Non-Religious Services

Our theoretical model emphasises the dependence of the religious beliefs decision on the decision to provide services. The core activity of the religious organisations was to provide religious services and non-religious services. By ‘*religious services*’ we mean *any faith-based services provided by the organisation*. By ‘*non-religious services*’ we mean *those services provided by the religious organisation for which there are secular substitutes that are available*.

Religious Services. Our survey asked a series of questions about religious service provision. For example, we asked: ‘What are the religious services provided by your organisation?’ And the main responses were propagation of the faith; weddings, funerals and divorce; religious education; and others. Of the religious services provided by the organisations, propagation of the faith and religious education were considered the two most important activities provided by them, as shown in Figure 7. Muslim and Christian organisations provided more by way of religious education, which was their main activity compared to Hindus, for whom propagation of the faith was the main religious service.

Moreover, we uncovered that the means to propagate religious services has also progressed with the times. For example, some organisations telecast through the Internet wedding and cremation ceremonies in real time for overseas relatives, and organised mass marriages for poor women to keep costs down. Others communicated with their congregations by using mobile technology services and a whole range of personal and non-personal communication and marketing channels (Iyer, Velu and Mumit 2014).

Non-religious Services. The organisations explained to us that the provision of non-religious services was a key way in which to propagate and expand their faith – over 55 per cent of organisations thought this was very important in the post-1991 period, and this increased substantially relative to the pre-1991 period. There were a range of non-religious services provided by the organisations and in the survey they were asked if they provided services including education, healthcare, employment, food distribution, childcare or others. The most popular non-religious services provided were education, food distribution and healthcare, followed by childcare, and then, a long way behind, by employment and other

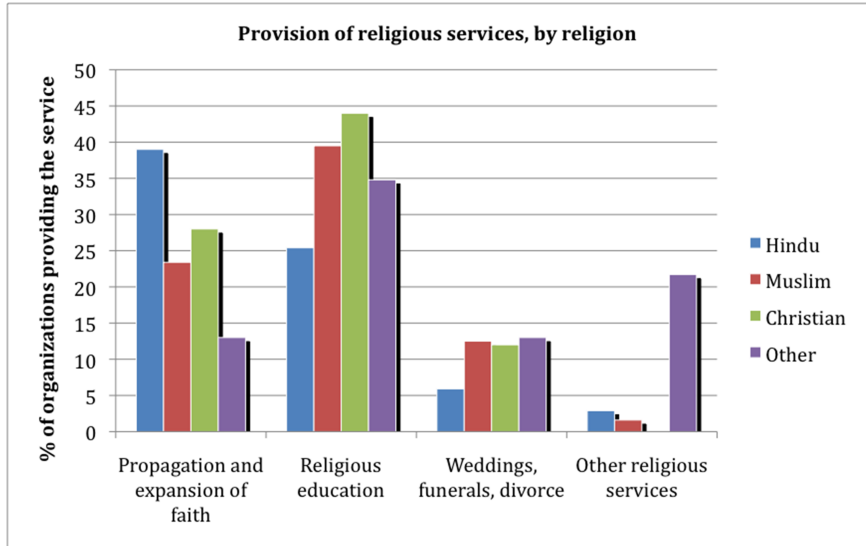


Figure 6: Religious services by religion.

services. It is noteworthy that over half the sample provided food and over 60 per cent provided education in the post-1991 period.

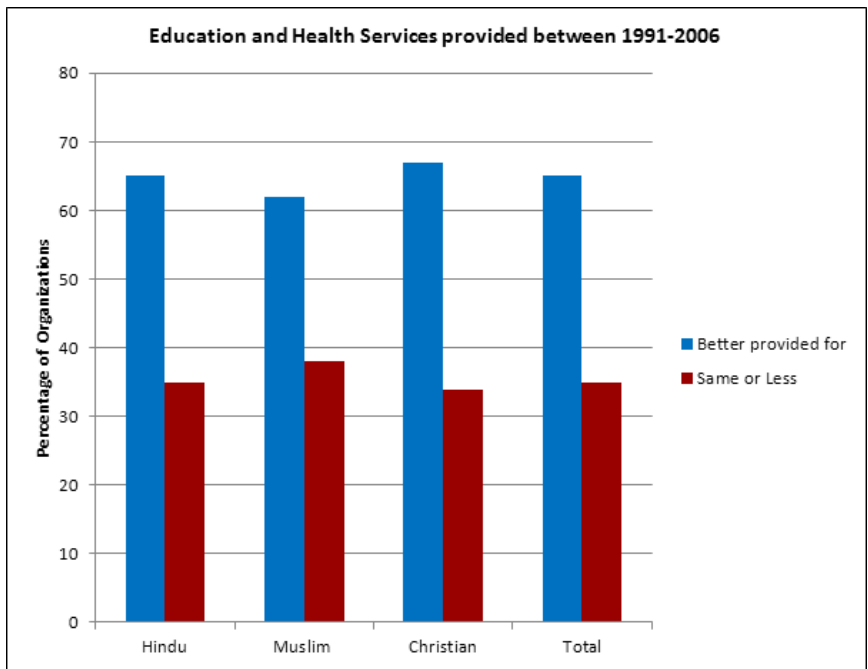


Figure 7: Education and health services provided between 1991-2006

If we examine the provision only of education and health services provided, then Figure 7 shows the responses to a question which asked the organisations if these services were better provided for relative to stayed the same or less well provided for between 1991-2006. We use this variable later in our testing of Proposition 2. The figure shows that 65 percent of the organisations across all religions thought that these services were better provided for between 1991-2006.

Some of the ‘other services’ that religious organisations provided were quite diverse, including organizing blood donation and other medical camps, flood relief, setting up drug rehabilitation centres, operating homes for the elderly, organizing group marriages for the poor, running sewing classes for women, organizing widow welfare programmes, HIV/AIDS awareness campaigns, book distribution, *sari* distribution, cow-lending and other innovative microfinance schemes, which were particularly striking. Most organisations had either introduced or were in the process of introducing computer education and computer-based learning schemes. While the main focus of non-religious service provision for most of the organisations was on education, many people were educationally backward in the key areas of operation in the organisations. More than 90 per cent of the respondents said that people in India needed education more than any other service. Healthcare provision was the second most popular service provided after education. Breaking down non-religious services by religion, the variations in the provision of non-religious services after 1991 by religion are shown in Figure 8.

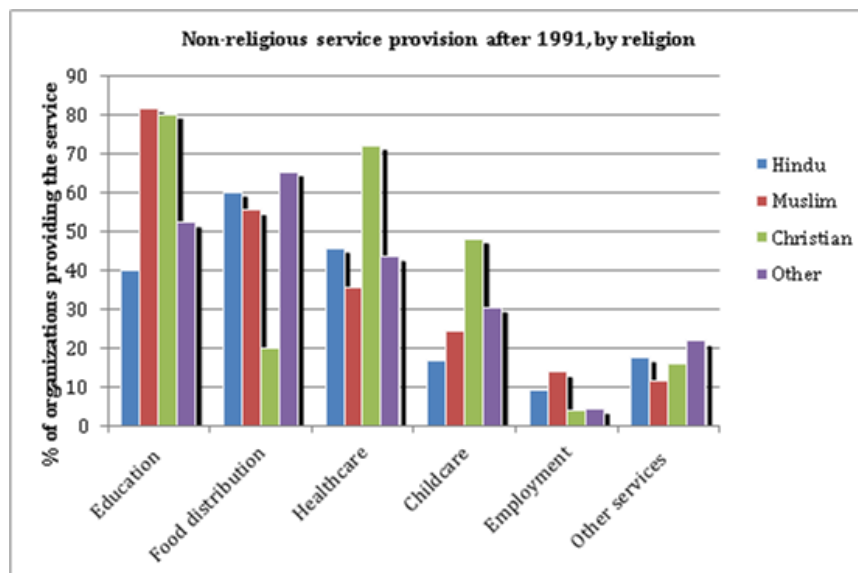


Figure 8: Non-religious service provision after 1991, by religion.

The religious variations are quite striking: the Hindus mainly provide food distribution. The Muslims and Christians provide the most education services and the Hindus provide significantly less. The Christians provide education, healthcare and childcare. What is striking is why the Christian and Muslim organisations provide so much more education than the Hindus? With the Christian organisations, many have been providing education through missionary and other activities since the colonial period, so this is less surprising. The fact that the Muslim organisations provided 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 and the supply side. In the Indian context, there have been economic history studies as well as 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

(Chaudhary and Rubin 2011; Borooah and Iyer 2005). Chaudhary and Rubin (2011) for example argue that religious differences in education have long historical roots - over the 19th century they show that Hindus used secular state schools more compared to indigenous schools including religious schools, compared to the Muslims. This may be related to specific groups having a monopoly over education in Hinduism compared to a relatively more egalitarian outlook to education in Islam. These differences are also reflected in more recent studies: for example, Borooah and Iyer (2005) found that even after controlling for other individual, household and village-level characteristics, Muslims in India enjoyed lower primary-school enrolment than did Hindus. There is also some evidence that parents might send their children to religious schools because most, such as *madradas*, provide free tuition and boarding. Another factor that might explain this finding is that non-religious services are structurally required in Islam through *zakaah*.

4.5 Religious Competition

Our model emphasises the role that religious competition plays in affecting organisations' decisions about beliefs and non-religious service provision.

We assessed organisations' knowledge of other organisations in the same geographical area. Specifically, organisations were asked both about the number and size of other organisations operating in the same area with the question, 'How many other religious (all) organisations also operate in your geographical sphere of influence?' There were 150 organisations who reported 1–2 others; 136 who reported 3–5 competitors; 96 who reported 6–10; 74 who reported over 10 organisations as competitors; and 112 who did not know their competition.

In order to assess competition among the organisations we asked whether an organisation provided a service because other organisations in the vicinity did so. The question we asked of the organisations was 'Have you provided a new religious service because other organisations in your area have provided a new service?' and they were asked to respond 'Yes' or 'No'.

4.6 Economic Inequality

Our model illustrates the role that economic inequality plays in influencing what services organisations will provide.

We asked the organisations questions about their perceptions of inequality, such as: 'How do you think economic inequality has changed in your district over 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?' It should be clarified that when thinking about inequality the respondents were evaluating the income of the poor relative to the income of the middle-class and the rich. We also asked them to categorise their responses between increased, decreased or stayed the same. In order to be consistent with our model, this response was also coded as a binary variable which showed whether they thought that income inequality had increased or not.

A majority of the sample believed that economic inequality had either increased (46.1 per cent) or stayed the same (21.8 per cent). The split was not dissimilar across the various religious groups. A majority of organisations agreed that there was an observable increase in income and overall standard of living of the general population, 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).

To provide some historical perspective, we note that in 1991 the Indian economy liberalised its trade policy. One outcome of this policy was economic growth which has been widely documented by economists (Panagariya 2008); the other consequence has been rising income inequality (Deaton and Dreze 2002). Based on their calculations of state-level inequality based on consumer expenditures, Deaton and Dreze (2002, p.3740) argue, 'To sum up, except for the absence of clear evidence of rising intra-rural inequality within states, we find strong indications of a pervasive increase in economic inequality in the nineties. This is a new development in the Indian economy; until 1993-94, the all-India Gini coefficients of per capita consumer expenditure in rural and urban areas was fairly stable.' As 1991 was a watershed year in Indian development policy, while focusing our study on religious organisations' service provision, we are especially interested in the post-policy period 1991-2006. We think that a major policy change in the Indian economy that increased growth and inequality might have consequences for our study.

We asked questions of the organisations in the survey related to perceived changes in the economy such as subjective evaluations of inequality. First, the organisations 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 was now better developed, that awareness had increased, that there were better education and employment opportunities, that 'Brahmins had become richer', that 'everyone carries a mobile', that 'farmers are quitting farming', and that there was an increase in real-estate activity, but equally an increase in slum areas. Others pointed out that there was much development in the IT sector 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'.

Additionally, our measure of the perception of inequality is correlated with a more general measure of consumption inequality used by Banerjee and Iyer (2005). This measure is not a measure of income inequality but of inequality in consumption expenditure. It is measured at the level of the NSS region, which is above that of the Indian district and includes between 3 and 10 districts. Several hundred villages may comprise a district. In India there are no actual measures of inequality at the level of the village or town. Hence our measure of the perception of inequality at the level of the village or town was collected which is at a far more disaggregated level than the NSS region at which this commonly-used measure of consumption inequality is calculated. Nevertheless it is comforting that the correlation between our subjective inequality indicator and the Gini coefficient in 1987, as used in Banerjee and Iyer (2005) is 0.30 and significant at the 1% level. This suggests

that our measure may be a useful proxy for actual inequality in our sample.

5 Econometric Testing of the Propositions

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

Proposition 1. In the presence of competition in the provision of non-religious services, religious organisations differentiate their religious focal points.

Proposition 2. The provision of non-religious services by the religious organisations increases when there is a change in economic inequality.

Our theoretical model demonstrates that religious organisations will choose both a religious focal point and the amount of non-religious services as they compete for the adherents. We assume that the organisation's objective function is to maximize adherents subject to the cost of providing non-religious services for them. In this sense the organisation seeks to maximise the net benefit per adherent, in the face of competition from the other religious organisation. This is derived formally from the theoretical model in Section 3. Our model demonstrates that when there is competition between religious organisations for adherents, and when the population's demand for non-religious services increase, the religious organisation is faced with two decisions: a religious focal point, and the provision of non-religious services. The religious organisation differentiates itself religiously from others as much as possible in order to minimise the amount of non-religious services it needs to provide. This is the intuition behind Proposition 1.

We get Proposition 2 from the same model by examining what happens to the provision of non-religious services by the religious organisation in the presence of economic inequality. What we derive from the model is that when there is an increase in economic inequality in the population, all religious organisations will provide more non-religious services, as the poor demand more of them. This gives us the intuition behind Proposition 2.

We first test Proposition 1 by examining the dispersion of the strength of religious beliefs, and the effect of competition on this. We then test Proposition 2 by examining non-religious service provision, and specifically test whether education and health services have improved between 1991-2006 in response to a change in inequality. We present descriptive statistics by religion for the variables we use in testing our propositions in Table 3. We also consider the issue of clustering of the organisations by religion.

Table 3: Descriptive Statistics By Religion

Religion	Strength of Religious Beliefs						
	Education & Health ¹	Religious Competition ²	Very Strong	Strong	Mild	Very Mild	Inequality
Hindu	0.094 (0.293)	0.655 (0.477)	0.377 (0.486)	0.366 (0.483)	0.125 (0.331)	0.132 (0.339)	0.433 (0.496)
Muslim	0.119 (0.325)	0.619 (0.487)	0.478 (0.501)	0.324 (0.469)	0.134 (0.341)	0.065 (0.247)	0.455 (0.499)
Christian	0.042 (0.204)	0.667 (0.482)	0.400 (0.500)	0.200 (0.408)	0.240 (0.436)	0.160 (0.374)	0.600 (0.500)
Other	0.130 (0.344)	0.952 (0.218)	0.217 (0.422)	0.348 (0.487)	0.391 (0.499)	0.043 (0.209)	0.905 (0.301)
Total	0.105 (0.307)	0.652 (0.477)	0.416 (0.493)	0.339 (0.474)	0.145 (0.352)	0.100 (0.300)	0.468 (0.499)

1. Education and health services better provided for between 1991-2006.

2. New services provided because other organisations in the area did so.

5.1 Clustering of Organisations by Religion

Underlying the empirical analysis of our two propositions is the religious organisation, the unit of observation. The data on these organisations was collected based on a sampling framework in which an equal sample of religious organisations were collected across states, but within states organisations were randomly sampled.

In this context we can think of religious organisations, indexed by i , as forming L clusters based upon grouping by districts, with the l^{th} cluster containing n_l organisations. In deciding how to conduct inference when confronted with this form of clustering, two critical factors are whether the cluster effects are treated as fixed or random; and the number of clusters. The former relates to the question of how to model the correlation structure. With data varying over l and i , and the focus of the analysis on variables which vary by religious organisations, a fixed effects approach is attractive given that it allows these effects to be correlated with covariates that vary within clusters. As in the current set up, with large n_l the religion fixed effects can be treated as parameters to estimate. The question remains as to whether conditional on these fixed effects, together with covariates x_{il} , we can treat errors as conditionally independent. Although the use of fixed effects can in principle account for much of the within cluster error, it is still the case that, in theory, an error component contains a deviation from the demeaned error. Given that our data contains a large number of clusters and small cluster sizes, it is relatively straightforward to make inference robust to arbitrary within-cluster correlation and heteroscedasticity. Here we follow common practice and use sandwich estimators for the standard errors, which permit the errors to be heteroskedastic and arbitrarily correlated within clusters.

5.2 The Dispersion of Religious Beliefs

Our empirical evidence for Proposition 1 relies on two sets of analyses. First, we use goodness-of-fit tests to assess whether across religious organisations the distribution of religious beliefs is consistent with a model of independent choice, or whether there exists dispersion (agglomeration) of religious beliefs. We then examine whether there is an effect of religious competition on the strength of these beliefs, controlling for a number of other factors that might also affect the religiosity of the organisation.

To test Proposition 1 we first need a measure of religious beliefs. Consistent with our theoretical model and as discussed in Section 3, we asked organisations directly how they would evaluate themselves in terms of the strength of religious beliefs: *very strong*, *strong*, *mild* or *very mild*. To set the problem up we first define notation. We have data on L religions each represented by n_l religious organisations. Religious organisations make choices in a space of religiosity, each choosing between C options; the number of organisations choosing option c in religion l is x_l^c , and the probability of choosing option c is π_c . We let $\mathbf{x}_l = \{x_l^c\}$ denote a $C \times 1$ vector of choices for religion l and $\boldsymbol{\pi} = \{\pi_c\}$ is a $C \times 1$ vector of probabilities. For religion l the likelihood of observing a set of outcomes \mathbf{x}_l is given by

$$\mathcal{L}(\mathbf{x}_l, n_l, \boldsymbol{\pi}) = \binom{n_l}{x_l^1, \dots, x_l^C} \pi_1^{x_l^1} \dots \pi_C^{x_l^C}. \quad (22)$$

Letting \mathbf{X} denote the $L \times C$ matrix of choices over *all* religions, the log-likelihood for all organisations may be written as

$$\ln \mathcal{L}(\mathbf{X}, \mathbf{n}, \boldsymbol{\pi}) = \sum_{l=1}^L \ln \binom{n_l}{x_l^1, \dots, x_l^C} + \ln(\pi_1)^{x_l^1} + \dots + \ln(\pi_C)^{x_l^C}, \quad (23)$$

where \mathbf{n} is a $L \times 1$ vector of the number of religious organisations representing each religion.

The question we wish to address is whether the observed choices in terms of religiosity recorded in \mathbf{X} , is consistent with independent random choice, or alternately arises as a result of a process of agglomeration or dispersion. If religious organisations make *independent* choices then the observed choices for each religion, namely $\mathbf{x}_l = \{x_l^c\}$, would be the same as the aggregate. If religious organisations make *similar* decisions then we would observe a process of *agglomeration* in the distribution. Alternately, if organisations seek to differentiate themselves from one another in a space of religiosity, then we would observe a more *dispersed* distribution.

The null model is specified based upon independent choices. Specifically we test the hypothesis: $H_0 : \boldsymbol{\pi} = \boldsymbol{\pi}_0$, where $\boldsymbol{\pi}_0 = (\pi_{01} \dots, \pi_{0C})' = 1/C$. In evaluating whether the observed distribution of strength of beliefs deviates from this benchmark, a natural starting point is the classic large sample goodness-of-fit tests for discrete data, based upon the Pearson chi-square statistic. While the classical Pearson goodness-of-fit test is able to discriminate between an independent null distribution and alternatives, it cannot indicate the *direction* of any deviation from the null i.e. whether there actually is agglomeration or dispersion. To circumvent this problem we construct a general multinomial test for agglomeration and dispersion (MTAD) along the lines of Rysman and Greenstein (2005).

Our test statistic is based upon two log-likelihood statistics: one generated by a set of independent random choices drawn from a multinomial probability density function and the other, $\ln \mathcal{L}(\mathbf{X}, \mathbf{n}, \boldsymbol{\pi})$, the log-likelihood statistic constructed using the observed data. A likelihood ratio-test allows us to determine whether this difference is significant and if so, the sign of the test statistic points to either excess dispersion or excess agglomeration relative to independent random choice.¹² We report the results of our tests on the strength of religious beliefs in Table 4. Exact p-values are approximated by Monte Carlo sampling from the null distribution.

Based upon the positive and significant LR test statistic we conclude that religious organisations are dispersed more widely than would be expected if they were choosing their strength of religious beliefs independently of each other. This supports Proposition 1 and what we expect would happen to the religious organisations. Using a method developed by Andrews (1988a), we extend the above tests to their conditional (on covariates) counterparts. The covariates used are age of the organisation, expenditure, number of adherents, religion and state fixed effects. Age is measured as the organisation's age in 2006 based on the year in which it was founded. We also use the total expenditure of the organisation as measured in Rupees, whether the organisation spent in total less than Rs. 99,999; from

¹²This approach is based upon the Cressie-Read power divergence family of statistics. See Read and Cressie (1988).

Table 4: Test of the Distribution of Religious Beliefs

Goodness-of-fit Statistics		
Without Covariates		
	Statistic	<i>p</i> -value
Pearson's χ^2	154.9	0.000
MTAD/Likelihood Ratio (LR)	162.2	0.000
Cressie-Read	156.2	0.000
With Covariates		
Pearson's χ^2	124.4	0.000
MTAD/Likelihood Ratio (LR)	136.2	0.000
Cressie-Read	127.1	0.000

100,000 to Rs. 999,999; or more than Rs. 1,000,000. The adherents are measured by whether an organisation had less than 10,000; between 10,000 and 100,000 adherents; or greater than 1 00,000 adherents. We also include state and religion fixed effects.¹³

Predicted probabilities are obtained by fitting a multinomial logit model by maximum likelihood. The predicted probabilities for each category of religiousity are then compared with the observed counts, and an independent non-parametric bootstrap is used to generate *p*-values for these statistics. As presented in the bottom half of Table 4, relative to the test with no covariates, the results are not qualitatively altered such that the dispersion of the strength of religious beliefs is robust to the inclusion of covariates in the model.

5.3 Competition Effects

Having illustrated the dispersion on the strength of religious beliefs, this suggests that the organisations are not making their decisions independently of each other. We assess whether religious competition has an effect on the strength of their beliefs and how it might have an effect.

Proposition 1 states that in the presence of competition in the provision of non-religious services, religious organisations will differentiate their religious focal points. As was demonstrated in Section 3, our theoretical model shows that when there is competition between religious organisations for adherents, and when the population's demand for non-religious services increases, the religious organisation is faced with two decisions. First, having to differentiate itself religiously from other organisations, and secondly, having to provide non-religious services to meet the demand. In these circumstances, as Proposition 1 argues, the best strategy for a religious organisation is to differentiate itself religiously from others

¹³The state fixed effects included are: Madhya Pradesh Gujarat, Jammu and Kashmir, Karnataka, West Bengal, Maharashtra, and Uttar Pradesh. The religion fixed effects: are Hindu, Muslim, Christian and Other.

as much as possible in order to minimise the amount of non-religious services it needs to provide.

We measure religious competition by an indicator which recorded the response to the question: *'Have you provided a new religious service because other organisations in your area have provided a new service?'* We use an ordered probit regression with the strength of religious beliefs variable as our dependent variable, measured as whether the organisation described themselves religiously as 'very strong, strong, mild or very mild'. In addition to the competition variable discussed above, the controls are the age of the organisation, number of adherents, total annual expenditure, and whether communal riots had increased in the area in the last 5 years.

In Table 5 we report parameter estimates, together with the threshold constants $\alpha_j, j = 1, 2, 3$.¹⁴ In Table 6 we report the marginal effects. Specification 1 has only the state and religion fixed effects and the competition variable. Specification 2 includes all of the above and the organisation-level controls. We observe that the presence of competition in the provision of non-religious services positively affects the probability of an organisation being stronger in its religious beliefs. For example, we find that for organisations that provide a new service in the face of competition, increases the probability of an organisation being very strong in its religious beliefs by 16%. This effect is robust to the inclusion of state and religion-fixed effects (FE).

The empirical evidence in support of Proposition 1 is based upon on goodness-of-fit tests for the dispersion on the strength of religious beliefs; and on the use of Ordered Probit regressions. Our results reveal that the distribution of religious beliefs across organisations are more dispersed than they would have been if they were choosing their beliefs independently. This is consistent with a wider historical and sociological literature on India that suggests that in the post liberalization period, there has been an increase in the practice of religion, with some organisations becoming more radical as for example in discussions about Hindutva (a form of radical Hinduism) and radical Islam in the sub-continent. In addition our results provide support that in the presence of competition for providing non-religious services, the religious organisations are differentiating on the strength of their religious beliefs.

6 Non-religious Service Provision and Economic Inequality

Our model puts forward two propositions which deal with strength of beliefs and non-religious service provision. We now examine non-religious service provision. Proposition 2 states that the provision of non-religious services by the religious organisations increases when there is a change in economic inequality. In order to test Proposition 2 on our data we need a measure of whether the organisation provided non-religious services. We use the provision of education and health services between 1991-2006 measured by whether the organisation stated that this provision was better provided for, or not, in this period. We are interested in whether this is affected by the perception of inequality. Our perception of

¹⁴Note that since the dependent variable is ordinal - recording whether the organisation described themselves religiously as 'very strong, strong, mild or very mild', then we report three threshold parameters.

Table 5: The Effect of Competition on Religious Beliefs - Parameter Estimates

	Specif. 1	Specific. 2
Jammu & Kashmir	-0.666** (-2.78)	-0.612** (-3.18)
Karnataka	-0.504** (-2.43)	-0.455** (-3.19)
Maharashtra	-0.549** (-2.20)	-0.500** (-2.55)
Madhya Pradesh	1.071** (2.21)	1.103** (2.00)
Uttar Pradesh	-0.383 (-1.27)	-0.360 (-1.38)
West Bengal	0.107 (0.46)	0.199 (1.16)
Muslim	0.274+ (1.65)	0.327+ (1.68)
Christian	-0.146 (-0.59)	-0.448 (-1.43)
Other	-0.251 (-1.02)	-0.396 (-1.45)
Services provided because others in area did so	0.328** (2.27)	0.496** (2.62)
Age		0.002** (2.34)
10,000 < Adherents < 100,000		-0.012 (-0.08)
Adherents \geq 100,000		0.125 (0.53)
100,000 < Expenditure < 999,999		0.308 (1.05)
Expenditure \geq 1,000,000		-0.381 (-0.75)
Communal Riots		-0.109 (-0.76)
α_1	-1.485** (-5.83)	-1.200** (-2.99)
α_2	-0.823** (-3.63)	-0.397 (-1.12)
α_3	0.211 (0.94)	0.735** (2.33)
Observations	538	451

Gujarat is reference state and Hindu is reference religion

Adherents < 10000 is reference category

Expenditure < 99999 is reference category

t statistics in parentheses

+ $p < 0.10$, ** $p < 0.05$

Table 6: The Effect of Competition on Religious Beliefs - Marginal effects

Average change in Religious Belief	Provide a new service because others do so	
	With Controls	Fixed Effects
Pr(Religious belief = Very mild)	-0.067***	-0.051**
Pr(Religious belief = Mild)	-0.070***	-0.041**
Pr(Religious belief = Strong)	-0.021*	-0.018*
Pr(Religious belief = Very strong)	0.158***	0.110**

* (**) (***) significant at 10, 5, and 1 % respectively

inequality variable is measured by whether the organisation thought that inequality in the district had increased, or not, between 1991-2006.

We also include a range of organisational-level control variables to capture factors that might affect the demand and supply of education and health services. Factors that affect the supply of services would include organisation's age, donations, employees and religious networks. The demand possibly would be driven by the number of adherents, rural or urban location, religious riots, and the perception of inequality.

On the demand side, we account for organisation size using the number of adherents. The adherents are measured by whether an organisation had less than 10,000 adherents; between 10,000 and 100,000; and over 100,000 adherents. We also account for whether the organisation operated in an urban or a rural area. We explore if religious networks are important for service provision by including a variable for whether the organisation had formal networks with other organisations either national or international. We include a measure of whether the organisation reported that communal riots has increased in the area in the last 5 years. We include state and religion fixed effects with Gujarat as our base category state as it is the richest state in our sample, and Hindus as the base category religion as they are the majority religious group in India.

On the supply side, the age of the organisation would be important as organisations that are around longer may provide more services. Age is measured as the organisation's age in 2006 based on the year in which it was founded. We also use the total expenditure of the organisation as measured in Rupees, whether the organisation spent in total less than Rs. 99,999; between Rs. 100,000 and Rs 999,999; and greater than Rs. 1 million. We measure donations by whether the organisation received donations of less than Rs. 99,999; between Rs. 100,000 and 500,000, and greater than Rs. 500,000. Employees are measured by whether the organisation had less than 10 employees; between 10 and 49 employees; and

greater than 50 employees.

To test proposition 2 we estimate the following binary probit model

$$E(h_i|\mathbf{x}_i, I) = \Phi(\mathbf{x}'_i\boldsymbol{\theta} + \tau I_i + \alpha_s S_i + \alpha_r R_i), \quad (24)$$

where $\Phi(\cdot)$ denotes the standard normal cumulative distribution function. h is a binary indicator of whether provision in health and education services between 1991-2006 had improved or not. I_i denotes the perception of inequality, measured by whether organisations believed that inequality had increased or not over the period 1991-2006. \mathbf{x}_i denotes a vector of organisation controls. S and R denote region and religion fixed effects. As discussed in Section 4.4, there were 318 (65 per cent) organisations who thought these services were better provided for. All estimation results are reported with clustered robust standard errors with the clustering done on the district.

6.1 Interview Design and Measurement Error

In considering the impact of economic inequality on the provision of education and health services by religious organisations, a key issue is that both variables are not directly observed at the level of the village or town. Since this is the relevant unit of observation for religious organisations, we use perception data. The data for the inequality variable was generated based on the answer to the question:

*Q1: How do you think economic inequality has changed
in your district over the past 20 years?*

where the set of response are *stayed the same*, *increased* and *decreased*. The data for the dependent variable was generated based on the answer to the question:

*Q2: How do you think Education and Health Services have changed
over the past 20 years?*

In our analysis we face the existence of measurement error in both the inequality variable and dependent variable. Below we consider the implication of these errors in the recording of both these responses. At the outset we will assume that these errors are independent, and for the sake of exposition we initially treat both measures as continuous. If the measurement error is of the classical errors-in-variables (EIV) setting, we may write

$$I_i = I_i^* + \omega_i, \quad (25)$$

where I_i denotes the response to *Q1* by organisation i , I_i^* the true value, and ω_i denotes the measurement error. In this set up the identification assumptions are that $\omega_i \perp I_i^*$ such that $E(I_i|I_i^*) = I_i^*$, and we say that I is an unbiased measurement of I^* . Measurement error bias then derives from the correlation between the error in the structural equation and I_i .

A critical but rarely noted feature of this model of measurement error is that the agent (respondent) plays a passive role. An alternative model of measurement error has

the respondent aware of the lack of precision of his measure. Letting \tilde{I} denote this noisy measure of I_i^* , we then write

$$\tilde{I}_i = I_i^* + \omega_i, \quad (26)$$

where ω_i is independent of I_i^* as in the classical EIV model. The critical difference between the two error models is that in the classical EIV model the reported value and \tilde{I}_i are the same. For the alternate model the respondent reports his best estimate of the underlying true value, based upon the noisy measure, namely $I_i = E(I_i^*|\tilde{I}_i)$.

This measurement error model is referred to as the optimal prediction error model (OPE), precisely since in this context I_i is the best predictor of the underlying true value given the noisy measurement \tilde{I}_i .¹⁵ This type of model has been considered by a number of analysts, including Hyslop and Imbens (2001), who emphasise that the choice of model for measurement-error issues requires greater attention than is ordinarily given by both social and physical scientists. The application of this measurement error model to data based upon self-reports is appropriate since individuals may be aware of the uncertainty in their estimates and effectively adjust for this by reporting a form of average value, based upon the information available.¹⁶ In the linear model the presence of OPE means that the measurement error is ignorable in terms of bias.¹⁷ However, given that in this particular context the true value of I_i^* is categorical, measurement error is recast as a misclassification; a misclassification error is well known to be negatively correlated with I_i^* . In addition, and as noted by Chen, Hong and Nekipelov (2011), we cannot resort to the use of instrumental variables - i.e. other measurements - as a source of identification when the underlying model is nonlinear.

In anticipation of these issues we sought to mitigate the consequences of misclassification errors in both the dependent variable¹⁸ and regressors by utilising the *semi-structured conversations* method proposed by Manski (2004), and discussed in Section 4.1. Although economists have traditionally been skeptical of the use of perceptions data, Manski has argued that one way to use subjective data more effectively is to *require intensive probing of persons to learn how they perceive their environments and how they process new information*. The flexibility of the semi-structured format derives from the fact that the interviewer does not simply passively record responses, as would a physical measurement device.¹⁹ Rather by adopting a semi-structured approach, the interviewer can effectively

¹⁵This measurement error model is also referred to as Berkson-error model in the statistics and medical literature.

¹⁶See Schennach (2013) for an interesting study on the use of nonparametric techniques to deal with Berkson errors.

¹⁷See Hyslop and Imbens (2001) for further details.

¹⁸We are aware of alternate ways of dealing with measurement error in a binary dependent variable. For example, Hausman, Abrevaya, and Scott-Morton (1998) demonstrate that the maximum likelihood estimates from the unmodified log-likelihood with misclassification ignored are generally inconsistent. Christin and Hug (2005) replicate their results for different sample sizes, and find that the maximum likelihood estimator is preferable for samples of 5000 observations or greater. However, for smaller samples, the standard probit estimator has smaller root-mean-squared-error than the estimator that takes account of misclassifications. In this sense the authors recommend that it is only advisable to use the maximum likelihood estimator of Hausman, Abrevaya, and Scott-Morton (1998) for large samples.

¹⁹Other advantages are that they are usually used when 'the subject matter is very sensitive, if the questions are very complex or if the interview is likely to be lengthy' (Mathers, Fox and Hunn, 1998).

triangulate between the true value I_i^* , the noisy measure \tilde{I}_i and the response recorded in the questionnaire, I_i . In this regard, where interviewees (respondents) are likely to be aware of their own uncertainty when responding to questions, such that measurement error is of the OPE form, a semi-structured interview format can be used as a form of averaging device.

One part of the questionnaire related to background changes in the economy in order for us to assess perception of inequality in the area more generally by the organisation.

This can be illustrated by considering how we sort to illicit views on inequality given that actual inequality at the level of the local market for religion is not available in India. To set the stage for a wider discussion around these issues, the interviewer would start with an open-ended question on 'What are the most important economic changes that you think have happened in your area in the last 5 years?' In posing these broader questions, the interviewer seeks to expand the information set available to the respondent, and thereby reduce measurement error. The interviewer would then follow with more precise questions which included the specific question on inequality: 'How do you think economic inequality has changed in your district over the past 20 years?' As a result, we note that the interviewer first engaged in an open-ended discussion about the economic status of the population that the religious organisation served, which was then followed by specific questions on perceptions of inequality. The key point is that the semi-structured format allows the interviewer to engage generally with the respondent, and use this technique to obtain more accurate responses to specific questions of key interest.

In this context one might think of our interviewers (INT) as providing additional information, say Z_{INT} , which seeks to mitigate for the presence of measurement error. We may then write the best predictor for I_i^* as $I_i = E(I_i^* | \tilde{I}_i, Z_{\text{INT},i})$, where the best predictor is based upon whatever information is available.²⁰ However, just as the use of instrumental variables may introduce bias, we sought to reduce errors on the part of the interviewer through training and more time spent in the interview listening rather than the interviewer talking. In addition, and as discussed in Section 4.1, we made several visits to each organisation to understand the religious ethos of each organisation before asking questions about the economic variables we were interested in. Frequently, these conversations concerned theological debates in the religion, scriptural support for service provision, and understanding the mythology associated with the religious institution.

6.1.1 Correlated Responses

In the discussion above we have considered the existence of misclassification errors for regressors and a dependent variable separately. However, since respondents provide information on both variables, we face possible bias as a result of correlated responses. For example, if an individual responds positively to the question as to whether education and health services have increased in the area covered by her organisation this might induce an increased likelihood of reporting an increase in inequality. This problem is referred to as *common method bias*. To circumvent this bias survey questions were targeted at three

²⁰We thank Dean Hyslop for pointing out this observation in a personal communication.

different people in the organisation: questions on religion were posed to the temple trustee or official priest or organisation head, questions on inequality were targeted to the officer responsible for financial matters in the organisation. Questions on education and health service provision (which we use on the left-hand side of our regressions) were asked of the administrative officer. By asking different questions to different persons in the survey we reduce the likelihood that the responses to questions are correlated.

We have sought to address problems of endogeneity that arise from the use of perception data by the use of a semi-structured interview format, in conjunction with the use of responses from different individuals. We also include a rich set of organisation-level variables, along with a set of state and religion fixed effects. The reason for including these fixed effects is due to the fact that the provision of non-religious services in India varies by state and religion. It varies by state partly because education and health are state-level subjects, decided upon mainly by state governments, and so there is considerable variation in public sector provision of health and education in India by state.²¹

6.2 Results

Based upon the binary probit model as presented in equation (24), Table 7 presents the average marginal effects. Note that we present results for a number of specifications, with each including the binary regressor 'Inequality'. A *Baseline* model includes this variable together with state and religion fixed effects. In moving from models *M2* to the full model, we are able to account for any sensitivities which are due to a specific set of controls. Model *M2* includes state and religion fixed effects and controls for adherents and age which assess the size of the organisations. The full model includes these variables and a range of organisational controls.²² We find that the average probability of providing *more* education and health services conditional upon an increase in the perception of economic inequality, *increases* by approximately 8% to 10%, depending on the specification. This finding provides support for Proposition 2 given that we observe a consistent relationship between non-religious services increasing when there is some inequality. This finding is important as it is the main effect under study. Many would argue that with economic growth in India, many things have changed. Yet, much of the focus of this research has *not* been on the effect on religious organisations, an area relatively ignored by economists of India. Our findings here shows that even seemingly unrelated areas such as religion, were affected by the liberalization due to the increase in the perception of inequality. Our finding also suggests that we should explore much more deeply than we have at present, the relationships between economics and religion.

Other covariates are also important: for example, non-religious service provision is greater with increasing expenditure. Non-religious service provision is also greater if an organisation has more employees. We do not find an effect of religious networks or religious riots. The effects for states are significant for Jammu and Kashmir, Maharashtra, Madhya Pradesh, Uttar Pradesh, West Bengal which provide more services. This is consistent

²¹Provision also varies by religion. See, for example, Borooah and Iyer 2005 for a detailed discussion.

²²Standard errors are robust to arbitrary heteroscedasticity.

with our hypothesis that the poorer or more unequal regions of India are those in which religious organisations are providing more education and health services. If the organisation is Muslim rather than Hindu then it is providing less services as a result of the change in inequality. One reason for presupposing a difference between religious groups in their provision of education and health services is the Islamic theological requirements to give charitable donations, either compulsorily or voluntarily. This might be an important reason why Muslim organisations might provide more services than the Hindus or other groups. Consequently, with a change in economic inequality, we may expect Hindu groups to be providing more services than others. We think this is because Muslim organisations were already providing many more education and health services than the Hindus.

We emphasise the different motives for religious differences in non-religious service provision. For example, in Islam, charitable giving is considered one of the 'pillars of Islam' and it is perceived as an indication of the sincerity of one's faith. There are two types of charitable giving prescribed in Islam - the *zakaah*, which is an obligatory form of charity and the *sadaqah*, which is voluntary giving. It is believed in Islam that 'Charity extinguishes sins as water extinguishes fire' and so the *zakaah* is considered an act of worship in which a Muslim is required to donate about 2.5 percent of their idle wealth to charity. This desire on the part of Muslims to contribute to charitable giving was evident in our sample as well, as many of the organisations spoke eloquently of the reasons for providing education services including that it was important to 'Educate people about Islamic law' or to provide 'Islamic law to the common people'. They pointed out that they provided 'interest-free loans for higher education' and that 'Hindi and English are taught in the *madrassa*'. Hindu organisations spoke more about 'We are trying to educate farmers about farming' or 'We are providing free medicines for poor people.' These differences in motives for providing services may be quite important in explaining religious differences in non-religious services among the religious groups in this study as at least in the case of one religion, Islam, there is an explicit theological mandate to engage in charity. It might possibly explain why in our data the Muslim organisations are providing much more education services than the Hindus.

On balance, 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 organisations perceived that inequality had increased, they also said that education and health services were better provided for. Hindu organisations are providing more services. Other factors that are driving their decision-making seems to be total expenditure and employees. The state effects are particularly noteworthy and include both Muslim-majority and Hindu-majority states suggesting that our findings are important for all religious groups.

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*

Table 7: Determinants of Non-Religious Service Provision - Marginal Effects

	Baseline	M2	Full Model
Jammu & Kashmir	0.461** (3.67)	0.444** (3.15)	0.69** (5.4)
Karnataka	-0.0453 (-0.32)	-0.0338 (-0.23)	0.143 (1.20)
Maharashtra	0.0367 (0.27)	0.002 (0.01)	0.283** (2.4)
Madhya Pradesh	0.334** (2.02)	0.289 (1.51)	0.592** (4.39)
Uttar Pradesh	0.296** (2.24)	0.290** (1.98)	0.05** (4.34)
West Bengal	0.386** (2.99)	0.356** (2.39)	0.615** (4.35)
Muslim	-0.067+ (-1.81)	-0.075+ (-1.94)	-0.091** (-2.44)
Christian	-0.028 (-0.44)	-0.058 (-0.88)	-0.067 (-1.48)
Other	0.116 (1.02)	0.111 (0.98)	0.025 (0.25)
Inequality increased in the district	0.091+ (1.84)	0.106** (2.32)	0.082** (1.96)
10,000 < Adherents < 100,000		-0.097** (-2.15)	-0.034 (-0.92)
Adherents ≥ 100,000		-0.0039 (-0.06)	-0.092 (-1.33)
Age		0.0001 (0.48)	0.0002 (1.01)
100,000 < Expenditure < 999,999			0.476** (5.56)
Expenditure ≥ 1,000,000			0.425 (1.57)
100,000 < Donations < 500,000			-0.084 (-1.09)
Donations ≥ 500,000			-0.048 (-0.51)
10 < Employees < 49			0.103** (2.31)
Employees ≥ 50			0.002 (0.0)
Network			-0.080 (-1.38)
Urban			-0.047 (-0.60)
Communal Riots			0.024 (0.48)
Observations	483	460	323

Gujarat is reference state and Hindu is reference religion.

Donations < 99999 is reference category; Adherents < 10000 is reference category.

Expenditure < 99999 is reference category; Employees < 10 is reference category.

t statistics in parentheses

+ $p < 0.10$, ** $p < 0.05$

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 organisations 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 that 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 organisations in the past.

This paper has examined the economics of religion in India in the present day. In particular, we highlight the provision of religious and non-religious services such as education and health by religious organisations 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 stylized Hotelling-style model in which religious organisations choose a religious focal point and decide upon the non-religious services provided. We showed in the model two central predictions. First, that the organisations will differentiate themselves on the strength of religious beliefs. Second, that in equilibrium, economic inequality alone is sufficient to make the organisations increase their provision of non-religious services.

To examine the issue empirically, we present our unique primary survey data collected between 2006 and 2010 in India from 568 Hindu, Muslim, Christian, Sikh and Jain religious organisations spread across 7 major Indian states. Using our theoretical model, and testing the two key propositions from it on our survey data, we highlight that religious organisations in India are choosing to differentiate themselves on the strength of religious beliefs with respect to other organisations. We find evidence that organisations of all religions in India have substantially increased their provision of religious and especially non-religious services, and that this is related to their perception of economic inequality. 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 large, positive, significant and robust.

We acknowledge that while this study presents one argument for why service provision has increased among religious organisations in India so rapidly, there may also be other possible explanations. For example, there could be changes in religious regulation, increased missionary work from outside the country, other factors related to economic growth, and so forth. While our study does not emphasise these factors, we do acknowledge that the growth of religion and service provision in India has complex roots, grounded in the history, politics and sociology of the subcontinent. Religious organisations across India, irrespective of religion, are playing a very important role in local communities by providing education, health, or other services. This is a very *positive* role that they play in their communities, by contributing to both religious and non-religious activities that build social capital and address economic necessity. In this study the links we highlight between the sacred and the secular demonstrate simply how one economic channel, economic inequality, may interact to influence religious and non-religious service provision by religious organisations in India.

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