

A Critical Review of Economic Analyses of Religion

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Abstract

Recent years have seen increasing interest in economic analyses of religion. We carry out a critical review of Economics of Religion (EoR) in this review essay. We find that on the one hand EoR has made a significant contribution to enhance our understanding of secular trappings of religion and to break the stranglehold of non-rational approach to religion. On the other it has failed systematically to address the core of religion, namely, belief in its purportedly supernatural basis. Furthermore the methodological foundations of EoR are far from settled. We identify the shortcomings of the literature and suggest remedial measures, wherever possible.

Key words: Church, Credence Goods, Economic Methodology, Inscrutable Markets, Religion

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Table of Contents

A Critical Review of Economic Analyses of Religion	1
Abstract	2
Table of Contents	3
I. INTRODUCTION	4
1.0 Agents of Mammon in the Temple of Gods?	4
2.0 Summary	8
II. BIRD'S EYE VIEW	11
3.0 Taxonomies	14
3.1 <i>Causal relationships</i>	14
3.2 <i>Products</i>	16
3.3 <i>Organizational forms</i>	18
3.4 <i>Nature of god</i>	19
3.5 <i>Objective of study</i>	20
3.6 <i>Analytical framework and level of analysis</i>	22
4.0 Marxist Analyses	23
4.1 <i>Demand side approach</i>	25
4.2 <i>Supply side approach</i>	30
4.3 <i>Demand/Supply side approach</i>	40
4.4 <i>Religious competition and regulation</i>	44
4.5 <i>Structure of religious organizations</i>	47
4.6 <i>Conversion</i>	50
4.7 <i>Interpretation of theology and mythology</i>	56
5.0 Weberian Analyses	68
5.1 <i>Protestant Ethic Hypothesis</i>	71
5.2 <i>Growth theories</i>	74
5.3 <i>Religion and conflict</i>	75
5.4 <i>Experimental studies</i>	78
6.0 Marxist/Weberian Links	79
6.1 <i>Religion and standardization</i>	80
6.2 <i>Political economy of religion</i>	82
7.0 Theoretical diversity within EoR	84
III. CLOSE-UP	86
8.0 Empirical Analyses	88
8.1 <i>Aggregate level analyses</i>	89
8.2 <i>Individual level analyses</i>	95
8.3 <i>Indexes</i>	102
9.0 Models of Afterlife	105
9.1 <i>Religious capital model (Modelling religion sans afterlife)</i>	105
9.2 <i>Modelling religion with afterlife</i>	107
10.0 The Market for Religion	112
10.1 <i>Religious beliefs and preferences</i>	113
10.2 <i>Primacy of beliefs</i>	120
10.3 <i>The market for religion</i>	123
IV. RECAPITULATION	127
V. FIGURES AND TABLES	129
Figure 1: Religion and Society	129
Figure 2: Economics of Religion	130
Figure 3: Pascal's Wager as a Search Decision/Game	130
Table 1: Evolution of Economics of Religion	131
VI. REFERENCES	132

I. INTRODUCTION

For *whatsoever* things were written aforetime were written for our learning, that we through patience and comfort of the scriptures might have hope. (Emphasis added)

- Roman 15:4, *Bible* (King James Version)

Those who cannot remember the past are condemned to repeat it.

- George Santayana, *The Life of Reason* (Chermol 1985: 9)

All submitted papers must also represent original work, and *should fully reference and describe all prior work* on the same subject and compare the submitted paper to that work. (Emphasis added)

- Submission Policy, *American Economic Review*

1.0 Agents of Mammon in the Temple of Gods?

Recent years have seen increasing interest in economic analyses of religion. However, it is widely believed that the tendency to analyze social phenomena, including religion, within economic framework originated in the 18th Century (Parsons 1979). That is when economics “sprang at least half grown from the head of Adam Smith” (Boulding 1952). Boulding traces back the origin of economic analysis of religion to Smith. But economists became interested in religion in a sustained manner only in the late 20th Century² because of their inability to explain interpersonal (Tomes 1985) and international (DeLong 1988) income differences using material factors alone (also see Chiang 1961), the rise of fundamentalism in both developed and underdeveloped countries (Schlicht 1997), and also as part of the general expansion of economics into contiguous fields (Azzi and Ehrenberg 1975, Pautler 1977).³ In any case the tendency to analyze largely secular phenomena within religious/supernatural

² In the early 20th Century the founders of modern economics like Alfred Marshall (1920) and F. Y. Edgeworth (2003) operated at a safe distance from the religious domain. Marshall (1920: 1), for instance, begins with the acknowledgement that religion is one of “the two great forming agencies of the world’s history”. But his engagement with religion ends with this commonplace remark.

³ Coase (1978: 207) and Stigler (1984: 312) suggest that the expansion of economics into contiguous fields had to wait till the discourse of economics attained a minimal level of “abstractness and generality”. Hirshleifer (1985: 59) seems to suggest that the expansion is inevitable. Coase (1978: 210), Hirshleifer (1985: 53), and Schlicht (1995: 113-114) suggest that these forays have an intrinsic motivation as well, namely, “to understand the working of the economic system itself”, “to become aware of how constraining has been their [economists’] tunnel vision about the nature of man and social interactions”, and “testing the limits of economic analysis”, respectively. Such intrinsic interests have at times inspired economic analyses of religion. See, for instance, Kane (1966), Olds (1994), Hull and Bold (1998), and Olds and Liu (2000). In this regard also see papers inspired by [Solomon’s Problem](#) (Section 4.7.3, *infra*). The hype around imperialist drive of economics notwithstanding the impact of economics on other social sciences has been modest. See, for instance, the general survey of influence of economics on sociology by Baron and Hannan (1994). Closer to our concern is the negligible influence of economics on sociology of religion as late as early 1990s (*ibid*).

framework is as old as mankind itself. A complete list of examples would turn out to be the history of mankind. Still to give a feel of the range of issues involved it is sufficient to note that from wars to marriages, from fertility of females to fertility of farms, from earthquakes to lightening anything and everything that comes to mind has been explained by invoking supernatural agencies in some form at some stage of history. Material setbacks were attributed to divine punishment for transgressions and victories were treated as rewards for righteousness. So the “pre-moderns”, as Oakley (2006: 15) has argued convincingly, saw almost everything through the supernatural prism.⁴ That this tendency is not confined to the pre-modern age should be evident from the massive influence of religion in the 20th Century (see, for instance, Iannaccone 1998 for survey based evidence in this regard). Also a cursory glance at a list of contributions dealing with religion in a variety of academic disciplines suggests that the tendency to explain anything and everything using religion continues to be pervasive in our times.

No wonder the role of religion in society has been debated intensely over the last few centuries, especially after the Protestant Reformation. On the one hand Adam Smith and Max Weber maintained that the right kind of religion can do wonders, even if indirectly. On the other David Hume and Karl Marx were at best skeptical of religion. We will argue later that insofar as almost everything religious is explained by invoking material forces there is a strong tendency within Economics of Religion (henceforth EoR) to look at religion *à la* Marx. For now the burden of the argument is that there seems to be a near universal consensus regarding some sort of link between religion and socio-economic outcomes. All parties to this debate invoke some measure of economic performance to support their claims. So economists cannot be accused to have invaded the scene with alien concepts. In any case the unresolved puzzles haunting other disciplines are not the primary concern of EoR, which has largely restricted itself to empirical analyses of the massive influence of religion in the 20th Century. While reviewing the literature we will see that it is also raising questions about hitherto ignored aspects of religion and economy.

Given the teleological consensus referred to above an economist could surely ask, and in fact should ask, if this consensus is helpful to one engaged in analysis of religion. Perhaps it is not helpful because the sheer diversity of outcomes attributed to religion in different times and

⁴ See Loewe (1994) for an extensive discussion on the place of supernatural in Han China (202 BC - 6 AD and 25 - 220 AD).

places is bewildering. Either the people are using the same label (religion) for entirely different things or religion is multi-faceted and can indeed produce such a diverse range of outcomes given suitable environment. In either case the consensus referred to above should serve as a warning that isolating the role of religion or even identifying its essential character is going to be quite difficult, if not impossible. The controversy around Weber's Protestant Ethic Hypothesis is a sobering reminder in this regard.

Religion is indeed astonishingly polyvalent and for that reason amenable to any number of interpretations, which perhaps explains why economists have generally steered clear of things divine. But a priori there is no reason why religious phenomena should not be amenable to economic analysis. There has, in fact, been a consensus within economics on the applicability of the formal methodology developed for analysis of markets to heterodox concerns.⁵ However, skepticism regarding EoR within economics surfaced soon after Azzi and Ehrenberg's (1975) pioneering contribution (see, for instance, Long and Settle 1977: 413, also Hutchison 1977: 96) and religion continued to be an ignored issue within economics as late as mid 1980s. For instance, Stigler (1984: 309) wondered if "economic analysis can contribute significantly" to the study of "religious piety" while Hirshleifer's (1985) forceful advocacy of "expanding domain of economics" has no reference to religion. EoR picked up momentum only towards the end of 1980s when a number of papers addressing a variety of issues ranging from historical roots of EoR on the one hand to nature of church-sect dynamics on the other appeared in economics and non-economics journals. Around the same time some non-economists, especially in USA, started engaging with EoR.⁶ This, however,

⁵ See Buchanan (1964, 1990), Becker (1976), Coase (1978), Schelling (2006 [1978]), Stigler (1984), Hirshleifer (1985), Posner (1987), and Ekelund *et al* (2006). Also see Gale and Shapely (1962), who put forth a general argument in favour of non-denominational character of formal methodology. In their justification for applying economics to religious phenomena McConnell and Posner (1989) restrict themselves to secular organizational issues. Olson (1971), Coase (1978), Chakravarty (1989), McConnell and Posner (1989), Frey (1997), and Gomez and Moore (2006) suggest limits to usefulness of purely economic models outside the market arena.

⁶ See, for instance, contributions to *American Journal of Sociology*, *American Sociological Review*, *Journal of Institutional and Theoretical Economics*, and *Journal for Scientific Study of Religion*. Rodney Stark is one of the most vocal proponents of rational choice approach within sociology of religion, where it is generally identified with economics (Stark 1997). Also see Warner (1993) and contributions by a number of protagonists of rational choice approach within sociology in Young (1997, Ed.). See Parsons (1979), Robertson (1992), Bruce (1993), Chaves (1995), Demerath (1995), and Ellison (1995) for a critique. The sociology literature is divided into institutionalist and rational choice camps. The former stresses the "cultural embeddedness of religious practice" (Miller 2002: 440). On critiques of rational choice within sociology in general see literature reviewed in Baron and Hannan (1994: 1115). See Iannaccone (1995b, c) and Ekelund *et al* (2006) for a defence of rationality assumptions in EoR. It is not that economists are unfamiliar with the institutionalist perspective (see, for instance, Sen 1973) but in economics it is not divorced from rational choice (Bernheim 1994, Kuran 1997). But not all economists are comfortable with the rationality assumptions made in EoR (see, for instance, Montgomery 1996a).

was not the end of the era of skepticism referred to above. The question whether or not economics can be applied to things divine, and, if yes, in what way, remains far from settled and continues to evoke interest both within and outside economics (for recent discussions see Ekelund *et al* 2006: Chapter 1, *Dialogue* in *Journal of Management, Spirituality, & Religion*, Vol. 3, No. 3, also *Symposium on the Rational Choice Approach to Religion*, *Journal for Scientific Study of Religion*, Vol. 34, No. 1). Amidst all this EoR emerged as a sub-discipline within economics in the late 1990s. This in short is how the agents of mammon (economists) became associated with religion.

This review began with an attempt to carry out a quick aerial survey of EoR in response to an innocuous question but ended up almost as a door-to-door census of the literature. The driving force for this circuitous journey can be traced to three disparate sources, namely, the [ancient reverence for all things written](#), [Santayana's caution against forgetting past](#), and [AER's ambiguous submission policy](#). The present essay provides snapshots from that rewarding journey. Any traveler back from a long journey faces the dilemma of what to share. Even though instinctively he wants to share everything in the end he has to make a selection. Hopefully the selections made for the present essay are of wider interest. As we will see in our discussion below the field is still in a state of flux and most of the methodological foundations are yet to be laid down. Therefore, in the present draft, which is also the first, we adopt liberal selection criteria to avoid Type I errors. Rest of this review essay is organized as follows. Section 2.0 of Part I provides a summary of the review. The next two parts constitute the bulk of this essay. [Part II](#) provides a bird's eye view of the literature. [Part III](#) critically examines the treatment of select issues like the nature of data generating process in the religious domain, the treatment of afterlife, religious beliefs, etc and then provides an outline of the market for religion. [Part IV](#) very briefly recapitulates the discussion. In this essay we use the word *church* to refer to religious organizations in general as well as Christian churches in particular. Around 90 entries in [References](#), which are not part of EoR literature, have been starmarked. The identification is not definitive since there is bound to be some overlap among the literatures of disciplines working in interdisciplinary domains. Actually another two dozen or so contributions that belong to the grey area between EoR and sociology and EoR and mainstream economics could have been marked out. We have not done that for a specific reason. A literature differs from a collection of writings in a crucial respect. It is marked by interconnectedness or cross-referencing. If this idea makes sense then we are not mistaken in treating the abovementioned contributions as part of EoR

literature. Note one more thing. We are emphasizing not only the interlinkages between EoR and other social sciences but also those between EoR and mainstream economics.

2.0 Summary

The last major review of EoR was carried by Iannaccone (1998) who reviewed the literature starting from 1975, which is when the first *well known* contemporary contribution to EoR appeared (Azzi and Ehrenberg 1975). Iannaccone (1995b, 1998) eloquently summed up the positive contribution of EoR *without* subjecting it to a critical examination. In addition Iannaccone's review did not examine a number of important, pre-1988 contributions. In this essay we will step further back and subject the progress in the field to a critical review. The first thing that strikes one is that almost all major ideas that dominated EoR in the 1990s have been overturned or severely challenged. Freeriding is no longer treated solely as a problem while providers of religion are not necessarily treated as rent seekers. Both demand and supply side theories of religious vitality have been subjected to severe methodological criticism and previous findings have been shown to be dubious in many cases. Sects are no longer treated as necessarily non-violent and free market for religion is no longer an article of faith. The causal relationships between education, crime, etc and religion are no longer taken for granted. Things are changing fast in EoR. While it took more than a decade for supply side approach to secularization to be challenged the newer theories that appeared after 1998, like the ones proposing a link between religious beliefs and economic growth, were challenged within less than five years. So EoR has indeed entered what Hirshleifer (1995: 54) calls the second phase of invasion of a new field "when doubts begin to emerge". In a parallel development the structure of discourse of EoR seems to be moving closer to mainstream economics and the field is becoming clearly distinct from its elder cousin Sociology of Religion.⁷ In other words it is the right time to carry out a thorough review of the literature.

The present review has three distinctive features. First of all this review *tries* to cover the entire literature (1776-2008). Secondly, it attempts a multi-level synthesis of the literature. The inter-linkages highlighted would hopefully help future researchers. To be precise

⁷ There is hardly any attempt in EoR to distinguish between *Sociology of Religion* and *Economics of Religion*. For limited attempts in this regard see Iannaccone (1995b), Ekelund *et al* (2006: 70-72) and Sherkat (2001). See Miller (2002) for a discussion on difference in management studies and SoR approaches to religion.

synthesis is attempted at three different levels. Firstly within EoR the review brings together well-known as well as less well-known but methodologically important contributions to a particular issue. Wherever required it draws from contributions to other issues in EoR as well. To this set are added critiques within EoR. At another level it draws upon contributions from other related disciplines such as Sociology of Religion, Management Studies, etc. We also refer to useful developments elsewhere in economics. Last but not the least we subject EoR to a rigorous critique, identify the areas in which it is found lacking, and suggest remedies wherever possible. In a number of places we sketch newer alternatives. Multiplicity of explanations for almost every religious phenomenon seems to be the most striking empirical regularity in EoR. The collage of models that emerges in this review helps to illustrate the primitive stage of theorizing in EoR and also drives home the message that if the same empirical regularity can be explained using different approaches none of them should be accorded primacy. In the rest of this section we will briefly discuss the key findings of this review essay.

EoR has made a significant contribution to enhance our understanding of secular trappings of religion and to break the stranglehold of non-rational approach to human behaviour within the religious sphere. To be precise its primary achievement has been to expose the mundane character of most of the things that were otherwise granted immunity from critical scrutiny owing to allegedly supernatural connections. Consequently, the enigmatic core of religion has shrunk considerably over the years. However, EoR has failed systematically to address the core of religion, namely, belief in its purportedly supernatural basis. It is with regard to this in particular that the methodological foundations of EoR are found lacking. The success has a Marxist tinge insofar as almost every religious phenomenon, institution or choice has been shown to vary more or less continuously with material factors. The failure has resulted in a secondary failure, namely, inability to generate positive externalities for other domains of economics from which EoR has borrowed so heavily. One indeed wonders that if EoR is all about demand and supply of goods and services, which for some reason are tagged as religious, then one does not need a separate field. The microeconomics used to deal with market for potatoes is sufficient. But hopefully in this review we have been able to show that EoR indeed has a more challenging side, namely, trade in a peculiarly inscrutable market where the pivotal good (afterlife/salvation), without which market for religion becomes indistinguishable from usual markets, defies traditional conceptualizations of a good.

All along in this review we draw attention to unresolved or untouched problems and their implications for our understanding of religious phenomena. In particular we draw attention to issues like the persistent dissonance between practice and doctrine, the inflexibility of doctrine and the ease *and* universality of evasion, the inertia of religious beliefs, the problematic dichotomy of believing masses and narrowly self-interested clergy, etc. We argue that further progress within EoR is possible only if we are prepared to address the above issues, which requires among other things opening up the hitherto untouched black box called religious preferences and beliefs as well as better coordination with other disciplines engaged in studying religion. Otherwise EoR is condemned to remain a net debtor to other fields of economics. In fact, large parts of post-1975 EoR are a by-product of George Becker's work on time allocation, human capital, household production, etc (e.g., Becker 1965, Becker 1976, Stigler and Becker 1977, Becker and Mulligan 1997, etc) and, to go even further back, Adam Smith's general insights. In other words Stigler's (1984: 312) concern about low returns from diversification remains valid at least in case of EoR. This calls into question the very sustainability of EoR because it has been argued that in the long run the stability of economists' foray into *another* domain depends to a large extent upon what it contributes to the core concerns of economics (Coase 1978: 211). We are, however, not the first to observe this with respect to EoR. More than half a century ago Boulding (1952) while reviewing economic analyses of religion pointed out that the contribution to EoR by "American economists in the generation before the First World War" failed to make a long term impact because "[n]one of them...made particularly significant contributions to economic theory" (also see Coats 1985: 1704). For a related concern within management studies see *Dialogue* in Journal of Management, Spirituality, & Religion, Vol. 3, No. 3.

Another major shortcoming of this literature is that nowhere does one find any attempt to defend the status of EoR as a science.⁸ One does not even find a discussion of work in allied social sciences, which can support EoR's claim to be a science. If science of religion is not possible then EoR by implication cannot be a scientific discipline. It is not that the case of science of religion has not been defended (see, for instance, Balagangadhara 2005 [1994], etc) but the same has not been used in EoR as a starting point. Mere use of tools of economics

⁸ See Balagangadhara (2005 [1994]) for a critique of anthropology/sociology of religion. He argues that these disciplines are unscientific, a charge that easily sticks to EoR as well insofar as it accepts some of the prejudices of these disciplines without adequate scrutiny.

does not guarantee scientific structuring of the discourse. For instance, subjecting survey data to econometric investigation does not suffice to make a science out of EoR.

II. BIRD'S EYE VIEW

Before commencing the review it makes sense to provide a ballpark estimate of the size of the domain referred to here as EoR. One of the earliest uses of the phrase *economics of religion* can be found in Boulding (1952). However, religion had not been assigned a JEL classification number as late as 1998 (Iannaccone 1998: 1465). So locating *all* prior economic analyses of religion though desirable is not straightforward. This review was carried out in two steps. It began with a database search (ECONLIT, etc) and then relied on ancestry search (screening of bibliography of already identified studies) restricting to English language sources in the process. In addition Iannaccone's (1998) review of EoR, Oslington's (2003) collection of papers on economics and religion, and meta-studies like Baier and Bradley (2001) on crime and religion, Chaves and Gorski (2001) on religious competition and vitality of religion, and Durlauf *et al* (2008a, b) on theories of economic growth were referred to. In addition Arbaugh (2006) and Miller (2006) were referred to for contributions on religion in management studies.

As mentioned above EoR like everything else in economics began with Adam Smith in the 18th Century.⁹ Anderson (1988) provides a succinct summary of Smithian position on economic analysis of religious behaviour contained in *Wealth of Nations* (also *Theory of Moral Sentiments*). On the one hand Smith treated churchgoers as self-interested individuals on the other he saw churches as yet another firm. In short, he “attempted to apply the *same* principles of economics to understanding religious institutions that he applied to the understanding of ordinary commercial transactions” (*ibid*: 1068, emphasis added). Smith discussed the pros and cons of monopoly, high degree of polarization, and high degree of fractionalization in the market for religion and extended conditional support to a free market for religion (Rosenberg 1960, Anderson 1988, Ekeleund *et al* 2005, Leathers and Raines 2008). He also pointed out that even though a symbiotic relationship emerges between the

⁹ Incidentally, Blaise Pascal, the 17th Century French mathematician and theologian, was one of the earliest to formally apply rational choice approach to religious questions (see discussion on [Pascal's Wager](#) in Section 10.1.2, *infra*). Possibly one can find a similar approach, even though implicit, in scriptures of all religions. See, for instance, Brams (2003 [1980], 2007 [1983]) on the Old Testament and Smith (1999) on the Book of Revelation.

established religion and the state it is not without risks. The state risks creating a parallel centre of power whereas the established religion risks being coopted by a minority of the society, that is, the elite, to the detriment of its universal appeal. Roughly two centuries later Boulding (1952) noted that Smith's "observations represent everything that economists, *qua* economists, have said on this subject". The exceptions being pre-War Americans like Richard T. Ely, who incidentally was one of founders of American Economic Association and was also deeply involved in the Social Gospel movement, John B. Clark, Simon N. Patten (Boulding 1970, Coats 1985, and Bateman and Kapstein 1999), and Thorstein Veblen. Not much was written in the following decades. Interestingly, this gap in pre-War scholarship is despite the fact that during the intervening period a number of economists were "religious prelates" (Ekelund *et al* 2006: 21). For other early 20th Century contributions see Oslington (1999, Vol. 1 and Vol. 2, Part I) and Ekelund *et al* (*ibid*: 34).

Iannaccone's (1998) review of EoR covered the period starting from 1975. Since then religion began to engage economists in a sustained way and one finds at least one contribution per year by economists or in an economics journal dealing with religion as an explained or explanatory variable.¹⁰ But we will push the cut off further back to include some insightful but widely ignored contributions like S. D. Clark's (1951) *Religion and Economic Backward Areas* (also see Clark 1947), William Arthur Lewis's (1972 [1955]) *The Theory of Economic Growth*, and Kenneth E. Boulding's (1957) *Some Contributions of Economics to Theology and Religion*. Clark focused on Weber's Protestant Ethic Hypothesis in the context of North America. Without denying the impact of religion on material development he suggested an indirect, and only incidentally causal, channel of influence. While Lewis recognized the bi-causal relationship between religion and material development, and rejected both Marxist as well as Weberian orthodoxy, his treatment of religion is closer to Weber in spirit because religion, he argues, changes over a very long period. He suggested that economic (institutional, e.g., religious) change is at best sufficient but certainly not necessary for institutional (economic) change. He also highlighted the general disconnect between religious doctrine and practice and the difference between the impact of religious affiliation and demographic status - whether minority or majority, whether expatriate or not, of a community on its economic fortune. Next in line is Boulding (1957), who argued that

¹⁰ We are not denying the importance of contributions by non-economists in non-economics journals. In fact, we include a large number of such contributions in the present review. But relevant contributions began to appear in the 1980s and therefore cannot influence the choice of our cut-off date.

economic analysis of religion, even “questions of high theology”, makes sense and that churches could be treated as multi-product firms.¹¹ The first major contribution in this sense was Edward J. Kane’s (1963) *Justice and Welfare Economics: A Slightly Mathematical Approach*. Kane showed that modern Paretian economics and Scholastic thought were unlikely to be compatible. We will return to Kane’s methodological contributions later and presently turn to a justification for excluding from EoR other papers/notes dealing with similar issues.

For instance, there was a lively debate on Medieval Church’s economic doctrine in *The Economic Journal* (1931-1932) involving Bhalchandra P. Adarkar, K. E. Boulding, Edwin Cannan, J. M. Keynes, B. K. Sandwell, and H. Somerville. Likewise in 1950s Raymond De Roover wrote a series of articles on Scholastic thought in *The Quarterly Journal of Economics* and *Kyklos*. Elsewhere pre-First World War American economists like Richard T. Ely and others were interested in harnessing economics to fulfill their religion-inspired vision (Boulding 1970, Coats 1985, Bateman and Kapstein 1999). All these authors were concerned with either defending economics from, what Adarkar calls, “the ghost of Canonist doctrine” (attempts to provide modern economics with a Christian pedigree) or providing a sympathetic assessment of the Canonist doctrine. There was no attempt to subject religion per se to critical scrutiny (see, for instance, Veblen 1910 and Patten 1912). Knight’s (1939) partly polemical piece seems to be an exception insofar as it asks if at all we can unambiguously attribute specific social outcomes to causal forces that can be traced back to the religious sphere. Kane differs from earlier contributors in that he fruitfully employs formal methodology of economics to model human behaviour in the religious domain. There was a short gap between publication of Kane’s work (1963-1966) and nucleation of EoR as a sub-discipline of economics with the publication of Azzi and Ehrenberg (1975). [Table 1](#) outlines the major phases in the history of EoR.

Table 1 about here

Some of the post-1975 contributions reviewed here are not EoR in the true sense. For instance, just adding religion as a variable, with hardly any coherent theoretical justification, in an econometric model should not be counted as an exercise in EoR. Nevertheless in the run-up to this review any book/note/paper/working paper engaging with religion using some

¹¹ Boulding (1970) collects a number of his writings on religion, not all of which qualify as EoR.

sort of “economics” approach was counted in to avoid excluding any consequential contribution. This made sense especially because the foundations of EoR are far from settled and therefore it is desirable to look at all possible alternatives. Surprisingly even such a relaxed criterion could not admit more than a 1000 contributions, of which little more than half employ a minimal degree of rigor. Within this latter sub-set around a tenth of the contributions can be attributed to a handful of authors and their co-authors, e.g., [Iannaccone et al](#) and [Ekelund et al](#). With this crude estimate of the task at hand we can proceed to the literature. But first we will suggest a few taxonomies for EoR in the following section.

3.0 Taxonomies

The variety of taxonomies discussed in this section is an indicator of the richness of the issues with which we deal in EoR. Taxonomies suggested in Sub-Sections 3.1-3.4 relate to one or the other aspect of religion per se whereas those suggested in Sub-Sections 3.5-3.6 relate to purely methodological issues.

3.1 Causal relationships

We will begin with identifying the set of possible relationships between religion and economics in [Figure 1](#), which is a modified version of Paldam (2001: Figure 1), that will serve as a roadmap for this review.

Figure 1 about here

The links (1a) and (3a) in [Figure 1](#), between economy and social outcomes, have been the mainstay of economics. The link 0a (0b) captures the impact of religion (other non-material elements of society) on other non-material elements of society (religion). EoR consists of two broad, not always exclusive, categories of studies that focus on the *Weberian links*, which capture the direct and indirect impact of religion on social outcomes (including economic), and the *Marxist links*, which capture the direct and indirect impact of material factors on religion.¹² To identify Weberian links (0a, 0b, 2b; 0a, 4, 3a; 1b, 3a; 2b) in [Figure 1](#) start from

¹² We use the labels *Marxist* and *Weberian* without implicating either Marx or Weber though referring to the general intuition behind their approach towards religion. Marx discussed the origin and the evolution of religion in purely material terms and posited a unidirectional, irreversible historical process leading from origin to

the label religion and follow the arrows to reach material factors without retracing any line segment. Likewise we can identify Marxist links (1a, 3b; 1a, 5, 0b; 2a). One-part links capture direct effects (e.g., 2a or 2b) whereas multi-part ones capture indirect effects (e.g., 1a, 3b or 0a, 4, 3a). It is also possible to identify four-part links under both categories.¹³ Note that within each category certain nodes are shared by more than one link. This should serve as a caution that isolating the causal mechanism can be quite difficult. In this essay we will try to restrict ourselves to one-part and two-part links.¹⁴

In the last major review of EoR Iannaccone (1998: 1466) calls attention to “the line of research that interprets religious behavior from an economic perspective”, i.e., the Marxist links. However, we will explore both links because most of the religious outcomes of interest are simultaneously determined along with other socio-economic outcomes within larger processes. [Figure 2](#) provides a layout of the various issues discussed under Marxist and Weberian categories in [Sections 4.0, 5.0, and 6.0](#).

Figure 2 about here

eventual demise of religion. To him religion was never more than a superstructure thrown up by deeper material forces that govern the organization of human societies. Lobkowitz (1964) provides an insightful survey of Marx’s position on religion. Weber, while acknowledging the Marxist link, emphatically argued that there exist independent channels through which religion influences material development in the medium to long run (Weber 1995 [1920]). But were they the first to argue the way they did? Far from that both acknowledged their predecessors. However, we use them as mascots here since the 20th Century received the product of long lines of scholarship through their hands. Never before or after them have the ideas they championed – religion is a by-product of material developments (Marx) and material development is deeply influenced by religion (Weber) – been put forth with so much force.

¹³ This is not the only way of conceptualizing the inter-relationship between religion and economics. Welch and Mueller (2001) discuss a number of other schemes - economics separate from religion, economics in service of religion, religion in service of economics, and religion in union with economics. See Parsons (1979) for a broader set of relations among things religious, erotic, economic, and intellectual. We, however, find the scheme outlined in [Figure 1](#), which relates to Welch and Mueller’s first category, to be best suited for our purpose. Boulding (1952) suggests a general fourfold classification for economics *per se*: pure theory, study of contemporary institutions, historical studies, and policy studies. Within each of our sub-categories one can approach the subject of interest in one or more of the four ways suggested by Boulding. For an attempt to map the relationship between business and religion see Miller (2006: Table 1).

¹⁴ Without denying their importance we will skip papers dealing with inter-linkages between religion and a variety of issues like health, happiness, satisfaction, delinquency, etc. Readers might want to refer Iannaccone (1998) and Dehejia *et al* (2005, 2007) for the first three. Regarding the last readers are referred to a meta-study by Baier and Bradley (2001) who review 60 studies and find evidence in support of a weak deterrent effect of religion on individual criminal behaviour (also see Iannaccone 1998). Lipford *et al* (1993), Hull and Bold (1995), and Hull (2000), part of EoR tradition, were not included in the above study. Their findings reinforce the conclusion of the meta-study. Then comes Heaton (2006) who pointed out that most of this literature suffers from endogeneity bias. His analysis shows that religion has a negligible, if any, deterrent effect. Trawick and Howsen (2006) find an inverse relation between crime and religious homogeneity of a community. But they do not address the problem of endogeneity bias. It is commonplace in this literature to invoke the superior surveillance and punitive capacities of god to hypothesize lower crime rates in religious communities. This hypothesis is suspect. Brams (2003 [1980]: 176) suggests that the threat of divine punishment might induce some to be deceitful so that “God’s most punitive actions do not *necessarily* expunge evil from the world” (emphasis added).

3.2 Products

Given the dominance of market metaphor in EoR it makes sense to classify studies according to the products of religious sector examined. Following Hull and Bold (1989: 8) products of a church can be classified as: a) *temporal bliss* (“set of products which bring happiness in this vale”) - e.g., Iannaccone (1988), b) *public goods* - e.g., Anderson and Tollison (1992), c) *altered fate* (“method to alter what otherwise might be considered uncontrollable events”, e.g., intercession, laying of on hand, etc), and d) *deferred perpetuity* (salvation) - e.g., Azzi and Ehrenberg (1975).¹⁵ To this list one can add *club goods* - e.g., Iannaccone (1992a). EoR has so far attempted to model the market for the first two and the last product with some success. We are not aware of any attempt to model the market for the third¹⁶ while attempts to model the market for salvation, which is the core of religion, have been uniformly frustrating as discussed in [Section 9.2](#) (*infra*). What passes as salvation motive in EoR can be divided into two: afterlife and salvation. The latter refers to the need to live in a plausible world (Davies 1978: 90 and Schlicht 1995: 115). In most of the cases salvation in this latter sense can arguably be merged with public goods. It is, however, desirable to retain this distinction for two reasons. One, salvation can be individual specific (Davies 1978: 91). Two, salvation generally involves an element of transcendence unlike public goods, which are necessarily driven by material forces.

This attempt at classification notwithstanding one should not lose sight of two facts. One, religious goods are difficult to classify. For instance, “it is difficult to tell whether so-called mix-and-share groups constitute a "religious" good (e.g., fellowship and spiritual intimacy) or a "nonreligious" good (e.g., friendship, interaction, and conviviality)” (Ellison 1995: 92).

¹⁵ Azzi and Ehrenberg (1975: 32; also Boulding 1957, Kane 1966, Ekelund *et al* 2006) list three motives for individual participation in religious activities: a) salvation, b) consumption, and c) social pressure. The last two can be interpreted as private and public good, respectively.

¹⁶ One cannot be sure, however, because the talk about *New Religious Movements* is dangerously close to magic (e.g., Iannaccone 1995a). The work on religious rituals, however, is silent about magic. For instance, Miller (1993b: 488) acknowledges the possibility that rituals might be a “form of imitative magic” but proceeds to provide a legal-economic interpretation of textual references to sacrificial rituals. Ekelund *et al* (2006: Chp 3) provide a slightly detailed, but not very helpful, discussion on magic and religion (also see Iannaccone and Berman 2006). But they do not feel the need to differentiate the two for analytical purposes. Also note that insurance products of religion should be included among contributors to temporal bliss. Insurance indeed involves attempts to avoid loss due to “uncontrollable events”. But the papers, dealing with religion as a source of insurance, discussed in this review do not invoke anything like magic as the instrument of avoidance.

Two, “church”, as Boulding (1957) puts it, “is not a single-product firm” and “the purely “religious” product of the church is fairly small part of its total social product, even though this may be the ostensible excuse for its existence as an institution” (also see Ekelund *et al* 2006). Without the “small part” a religious firm is not different from other types of firms in the society. So as long as the “small part” is left unaddressed we are far from an economic explanation of the divine realm.

Ekelund *et al* treat the output of religious sector as Becker’s *Z-good* because “religious services are produced by combining capital goods (including money and time), labour, and market goods” (*ibid*: 55). They also observe that economic rationality can “derive from self-interest or public interest”, which in turn can be related in a market for religion with economic or spiritual hypothesis. To elaborate they add that in the latter “spiritual ends become collective expression of common good, and religious organizations motivated by public interest would be expected to behave in conformity to this proposition” (*ibid*: 37). This confounding of spiritual and public goods is not helpful because of two reasons. Firstly, the two belong to different categories and are thus not directly comparable. The first relates to tangible/intangible or this-worldly/other-worldly dimension whereas the latter relates to nature of production technology. Secondly, even otherwise what is traditionally understood as spiritual good generally relates to individual experience even when enjoyed in a group or produced on a mass scale.

Studies can also be classified depending on whether they treat products of a religious firm as search (quality can be determined before purchase), experience (quality can be determined costlessly after purchase), or credence (quality can be determined after purchase at considerable expense of time and/or resources) goods. So far authors have largely ignored this distinction. But in most cases religious goods are implicitly modeled as search goods. Exceptions include Poutvaara and Wagener (2008), who could be interpreted as modelling religious goods as experience goods, and Iannaccone (1995a) and Ekelund *et al* (2006), who discuss the influence of credence goods in organization of the market for religion. We will argue in [Section 10.3](#) (*infra*) that the core products of religion defy this threefold classification scheme.

Note two things before we close our discussion. The distinction between public, club, and private goods, as well as search, experience, and credence goods, produced by a religion is

not invariant to the state of technology, something that has not received attention in the literature. We are not denying that some products are invariant to the *general* technological progress, e.g., auricular confession continues to be a private good (Arruñada 2004). Secondly, it is easy to see that the classification of studies depending on the motive of adherents of a religion follows the four-fold classification for products discussed above.

3.3 *Organizational forms*

Since organized religion dominates personalistic religion, at least in the public spaces, study of organizational forms in the market for religion is extremely important. Studies can be classified depending on whether they deal with material and non-material aspects of organization. Under the latter category the most important distinction relates to whether a study treats theology/doctrine as endogenous (Kane 1966, Ekelund *et al* 1992, Smith 1999, Salmon 2008) or not (Allen 1995). The “material” category admits a number of distinctions among studies depending on whether religious organizations are treated as oligopolistic firm (Kane 1966), cartel-like (Ault *et al* 1987), rent-seeking organization (Ekelund *et al* 1989), monopolist firm (Ekelund *et al* 1989, Raskovich 1996), doctrine preserving organization, i.e., constrained by doctrine (Lipford 1992, Allen 1995), club (Iannaccone 1992a, Cassone and Marchese 1999), cooperative firm (Ferrero 2005, 2008b), social welfare maximizing entity (Anderson and Tollison 1992, Cassone and Marchese 1999), non-profit organization (Ben-Ner 1997), membership maximizing (Cassone and Marchese 1999, McBride *forthcoming*), Stackelberg leader/follower firm (Barros and Garoupa 2002), normative organization (Miller 2006a), longevity seeking (McBride 2007a), entrepreneurial firm (Poutvaara and Wagener 2008), entity concerned about its share in god serving activities of society (Salmon 2008), etc. These modelling approaches are not essentially exclusive. In fact, many papers combine more than one assumption about nature of organization listed above.

So far the literature has largely ignored religious organizations concerned with universal dominance (except discussion in Bernholz 2006). Ferrero (2006a) deals with universal religions, “bound by a rule of free access”, which do not seek universal dominance. Based on their club-theoretic model of religious groups Carr and Landa (1983) argue against the possibility of universal dominance, in demographic terms, of any particular religion. Similarly religious organizations which inculcate the belief that at least some of their

products are pure public goods and some of the products of other religious or secular groups are pure public bads are widely ignored (except Kumar 2008a). Kumar (2008a) differs from Chen (2004) in whose model religious participation of poor generates negative externality for the rich, where both rich and poor belong to the same religion, because the latter contribute more to common pool managed by religious bodies and obtain lesser returns. In Kumar (2008a) a religious group can suffer due to the existence of other religions, which support different beliefs and preferences.

3.4 *Nature of god*

An overwhelming majority treats god as an intrusive wall hanging, better forgotten sooner than latter. Very few actually dare to invoke god and just one dares to play games with him. Salmon's (2008) god is endowed with preferences over division of power between state and church. He identifies five prototypical interpretations of divine preferences. State and church have preferences over interpretations of divine preferences. But once god's preferences are *revealed* he is out of picture and earthly players step in with all their material constraints. Viswanath and Szenberg's (2007) god designs rules, which address human externalities, to maximize inter-generational human welfare "subject to the constraint that they [rules] should be comprehensible to human beings... in the sense that they should be able to follow it, should make sense to the generation of human beings for whom the legislation is intended". It is not clear whether their god is concerned about non-believers. Kumar's (2008a) god judges individuals and distributes rewards and punishments depending on their religious effort. Brams' (2003 [1980], 2007 [1983]) god is the most colorful of all gods, endowed with varying degrees of immortality, incomprehensibility, omniscience, and omnipotence, ever concerned about his reputation and engaged in games with humans, who have freewill. "[M]anipulative, vindictive on the one hand and magnanimous, open, and forgiving on the other", "always suspicious and touchy", Brams' god is "other-directed with vengeance". Surprisingly his god loses a number of games. No prizes for guessing why Brams chose to play a game with God!

There is another way of looking at the nature of god, namely, identity. As discussed below (see [Section 3.5](#), *infra*) majority of the contributions are concerned with monotheism. There are hardly any meaningful contributions on non-monotheistic beliefs in the EoR literature.

Regressions with a dummy variable for a non-monotheistic religion cannot be counted in. Raskovich (1996), who deals with transition from polytheism to monotheism, is an exception. Kumar (2008a) introduces inclusive religions (all gods are equal, complete manifestations of the one true god/readiness to worship all gods) in addition to polytheism and monotheism in a model exploring propensity to secularism while Brams (2007 [1983]) has dealt with agnosticism. For more on difference between treatment of polytheism in Kumar and Raskovich see [Section 10.1.2](#), (*infra*).

All this is fine but one can surely ask if modelling god, or religion, presumes a positive belief in existence of god. Here Ekelund *et al* (2006: 48) come to our rescue. They argue:

[W]hether God is some exogeneous force independent of human beings or whether God is a product of evolution as an endogeneous creation of the human brain vital to survival [or whether God is an innocuous, but persistent, by-product of evolution] is beside the point of economic inquiry. A demand curve for magic and/or religion may be generated in either case.

It has been argued that existence of god could be treated as a state of nature (Brams 2007 [1983]). Machina (2002) has suggested that whether the states of nature actually exist or are conjured up is irrelevant for the purpose of normative use. So at least as long as we stick to normative exercises we need not care about the truth status of the claim about existence of god.

3.5 *Objective of study*

Contributions to EoR can be classified according to their objective. Most of the studies aim (a) to add to the explanatory power of economic models (e.g., De Long 1988), (b) to enhance the understanding of religious phenomena per se (e.g., Iannaccone 1988), or (c) to enhance our understanding of economics (e.g., Miller 2002). Within the second category contributions can be classified according to whether they deal with peripheral aspects of religion (e.g., charity - Iannaccone 1997b) or core of religion (e.g., basis of belief in god - Azzi and Ehrenberg 1975, Brams 2007 [1983], Montgomery 1992). Regarding the last category note Schlicht (1995: 113-114) suggested that religion can serve as a testing ground for models of man. The idea is that a boomerang effect can result from use of economic tools in non-market settings. Very few contributors consciously examine the boomerang effects arising out of

their engagement with religion (Miller 2002, 2006 and Gomez and Moore 2006, also see Montgomery 1996a, Hull and Bold 1998, and Olds and Liu 2000). Studies that fall under the first and second categories can also be classified depending on whether the objective is to build a theory of religion in general or a particular religion. Insofar as almost all the papers are silent in this regard it seems that the objective is to build a model of religion per se. But our discussion will reveal that most of the contributions are nowhere close to that implicit goal. Gomez and Moore (2006) have suggested that given the nature of market for religion it makes sense to restrict ourselves to “very close belief systems”. Another related scheme for classification relies on whether a study is normative (Iannaccone 1998, Clain and Zech 1999) or not. The normative studies do not prescribe how religion, etc *should* be. Rather they suggest suitable policy measures. For instance, Iannaccone summarizes the research that prescribes a hands-off religious policy for the state. Clain and Zech suggest that churches would be better off by working along with non-religious charities.

There is another category of studies, ignored in this review, referred to as *Religious Economics* in Kuran (1994: 770), which broadly refers to attempts to develop economic models inspired by one’s religious background or to justify “economic” models purportedly extracted from religious scriptures. Unlike Iannaccone (1998: 1466) we do not ignore this last category because “it is far removed from the research and professional interests of most economists” rather we find it impossible to engage in a *dialogue* with infallibilists.¹⁷ The line between *Religious Economics* and EoR is indeed very thin. Level of formalism is neither a necessary nor a sufficient discriminatory criterion. We ignored anything that smelt infallibilism. In particular note that some contributions employing economic imagery, not necessarily rigor, which allegedly attack religion, have been included in this version of the review because they pass the infallibility test. Of the large number of authors reviewed here less than a dozen reveal their own or others’, whose work they are reviewing, religious affiliation. In all the cases involving revelation of others’s affiliation the aim of the author was to improve the clarity of the argument being made. This assures us that our screening device is efficient. Also ignored in this review are contributions dealing with *economics as religion*, which explore the theological foundations or nature of modern economics.

¹⁷ See Kuran (1994, also 1995), Margolis (1997), Hardin (1997), Albert (1997), Bernholz (2006), and Hillman (2007) for difficulties that one faces in such a dialogue. Hopefully in future we can find a means to break the gridlock. Till then readers interested in the subject might want to refer Kuran (1994, 1995), Wilson (1997), Oslington (1999, Vol. 1 and Vol. 2, Part I), and Iannaccone (1998) and references cited therein. Since then no hell shaking development has visited *Religious Economics*.

Studies can also be classified depending on the geographical region and/or religion with which they engage. An overwhelming majority of studies seek to explain developments within Judaeo-Christian religious traditions of West Europe, North America, and Israel. The focus is so restrictive that at times EoR becomes America and Monotheism centric, blissfully oblivious of rest of the world and other religious traditions. For instance, very few studies engage with animism (Ekelund *et al* 2006: 98-101, Hull and Bold 1994). It is only recently that other regions and religions have started receiving some attention (see [Table 1](#)). This neglect can be attributed to several factors: non-availability of data for non-western countries, more per capita academics in the West, more funding available for EoR in America, West's predominant position in the world, and the willingness of American economists to engage with religion. To avoid misunderstanding it bears noting that one is not attributing the oversight to religious bias of existing scholarship. Economists from other regions and religious traditions are indeed free to contribute to the literature and a few have already done so. But we very strongly disagree with Ekelund *et al* (1996: 3) who suggest that “[a] *central* goal in social science is to explain the course of Western Civilization” (emphasis added). One wonders if the *central* goal of cardiology is to count the heartbeats of reindeers of Finnish Lapland.

3.6 Analytical framework and level of analysis

Contributions to EoR can also be classified according to the type of analytical framework used. Exceptions aside an overwhelming majority of contributors work within rational (utility maximizing individuals)/public (rational individuals embedded in institutional contexts) choice frameworks. For critiques of rational choice approach to religion see Schlicht (1995), Montgomery (1996a), Frey (1997), Zech (1998), and Sherkat (2001); also see Footnote 6 (*supra*). Assumption of full rationality is the norm within EoR. For an exception see Ferrero (2008b: 84) who assumes bounded rationality (“the inability for ordinary people to appreciate doctrinal subtleties and behavioural differences beyond some point”) and Montgoemry (1996a) who suggests a non-rational approach. Surprisingly so far social choice theory has not been harnessed within EoR. Kane (1966) and Bhagwati and Srinivasan (1986) contain a few clues though. Studies can also be classified depending on whether or not they use of spatial models. The use of spatial models to understand religious phenomena became

widespread only towards the end of 1990s before that it was used sparingly (e.g., Iannaccone 1988; also see Barros and Garoupa 2002, Pepall *et al* 2006, and Ferrero 2008b for recent contributions). Further studies using game-theoretic models can be classified according to whether they use non-cooperative or cooperative game theory. Aumann and Maschler (1985) is perhaps the only instance of use of cooperative game theory in EoR. Regarding empirical studies note that time series (Mourao 2006, Beckworth 2008) and spatial (Land *et al* 1991) analyses are very rare. Further according to the level of analysis studies can be classified in the following ways: ecological (locality/province/state/region/world), institutional (religion, church, sect, cult), individual (Ellison 1995: 89, Iannaccone 1995b: 78); religious, non-religious; inter-religious, intra-religious community; and demand, supply.

Finally we will discuss a hitherto overlooked distinction. The two kinds of problems a social scientist can engage with are *Plato's Problem* - "the problem of explaining how we can know so much given that we have such limited evidence", and *Orwell's Problem* - "how it is that we know so little, given that we have so much evidence" (Patnaik 2007). Neither problem has received attention in EoR. Of the two the former is more important for physical sciences whereas the latter is more important for social sciences. Orwell's Problem is essentially about the failure of people to use available information in an efficient way. Interest in Orwell's Problem cannot be reduced to an interest in behaviour of boundedly rational people because the formulation of the problem does not preclude the possibility that even rational agents fail to use information properly. In the present essay we will highlight Orwell's Problems buried in the existing literature (Part I & II) and argue that further progress within EoR depends partly on the successful resolution of these problems. The present state of knowledge within EoR does not allow us to raise Plato's Problems.

4.0 Marxist Analyses

Contributions towards understanding the process of secularization dominate this category. Studies in this category can be classified according to two largely congruent criteria: individual vs. aggregate/institutional and demand vs. supply. At the outset it bears noting that though closely related secularism and secularization refer to different things. The former refers to the *norm* that upholds the desirability of exclusion of religious considerations from non-religious relationships whereas the latter refers to the *process* of eliminating the control

or influence of religion. There is hardly any work on secularism within EoR (see [Section 6.2, *infra*](#)). However, there is a large literature dealing with secularization, most of it empirical. It is a different matter that consensus on the essential nature of secularization has not been achieved so far (Fox 2006: 540-541).¹⁸ The earliest formulation of the problem of secularization is perhaps due to the English clergyman John Wesley (Weber 1995 [1920]: 175). Wesley, and later Weber, talked in terms of a self-limiting cyclical process in which each round of secularization triggers a countervailing reaction. On the other hand scholars like Hume, and later Marx, went as far as predicting irreversible decay of religion contingent upon increasing influence of science. The empirical basis of the latter prediction is highly questionable, though. Demerath (1995: 110) points out that such a simplistic, black-and-white argument (irreversible decline of religion between “seamless sacral hegemony” and “mythical end point”) makes it very easy to reject the latter version of secularization hypothesis.

This discourse suffers from a two-fold problem. First of all it suffers from definitional problems. On the one hand “secularization, secularity, or the secular is always relative to some definition of religion or the religious” (Swatos and Christiano 1999: 213). On the other there is a widespread tendency in literature not to spell out (define) what exactly religion stands for.¹⁹ Secondly, no one stops to ask if in the first place it makes sense to think about secularization within the framework of EoR. If religion is an innate characteristic of human beings, encoded in their genes, then the question of secularization is beyond the scope of EoR. However, if religion is an acquired trait we can talk about the possibility of secularization as a historical process governed by among other things material forces. Insofar as the secularization literature skips the issue of origin of religion it seems to presume that religion is an acquired trait.

¹⁸ For instance, Hegel (Lobkowitz 1964: 338) and Adam Smith (Anderson 1988: 1082) viewed deregulation of religion, i.e., separation of state and church, as liberation of state while Alexis de Tocqueville viewed the same as liberation of religion (Chaves and Cann 1992 a, b and Tong 1992; also see Kaufmann 1997: 85). Also see Martin (2005) for the latter view.

¹⁹ Balagangadhara (2005 [1994]: 269), who avoids the definitional trap, argues that “[r]eligion is both the “encounter with the sacred” and a “profane” variant of itself”. As a result right from day one of its existence religion organizes the world into the religious and secular spheres. It is therefore unreasonable to expect religion to disappear due to secularization of a part of social space or to talk about secularization as if it were a modern phenomenon. From another perspective he argues that “the universalizing drive of a religion involves a double movement: proselytization and secularization”. The first helps in gaining demographic preponderance while the second contributes towards social dominance (*ibid*: 391, 438). The latter observation becomes clear when one looks at how non-ecclesiastic Roman practices were first declared idolatrous and then re-admitted to the public space as secular social practices after some modification (*ibid*: 444).

These controversies aside crudely speaking we know that in a limited sense there has been considerable insitutional secularization, i.e., reduction of role of religion in institutions of public interest. Martin (1969) has identified six broad patterns of secularization in the West - American, British, French, Russian, Calvinist, and Lutheran, to which we can add the Indian (massive religious beliefs in a multi-religious society confronting a state that is committed to secularism at the union level but not necessarily at the local level) and Islamic (occasional attempts to secularize evoking massive backlash) patterns. The institution of state religion is the most visible, though not always the most consequential, manifestation of lack of institutional secularization. Of the 188 states in Barro and McCleary's (2005) sample only 77 had no state religion in 1900. The corresponding figures for 1970 and 2000 are 116 and 113, respectively despite reinstatement or introduction of state religion in 19 states. But the binary coding of Barro and McCleary (2005) masks a remarkable development, which becomes evident when one reorganizes results of Fox (2006) whose sample includes 152 states (> 1 million population) rated on a 0-100 scale. Only 13 states, most of them Islamic, score equal to or more than 50 on Fox's scale.

Similarly there is some evidence that influence of religion has also declined at individual level. In rest of this section we will discuss a variety of contributions examining the Marxist links between religion and society. The first three sub-sections are organized around demand and supply side issues related to secularism. Latter sub-sections deal with other related issues but without an explicit demand/supply categorization.

4.1 *Demand side approach*

The supply side is treated as exogenously fixed and focus is on how demand varies with socio-economic changes. An inverse relation is posited both at individual and aggregate levels between socio-economic (income, degree of urbanization, life expectancy, etc) and scientific (education) advances on the one hand and the importance of religion on the other (Swatos and Christiano 1999: 214, McCleary and Barro 2006a: 49-50). We will refer to this as the *orthodox secularization hypothesis*, which subsumes what is known as *modernization hypothesis* in literature (see Barro and McCleary 2006a for a discussion). This hypothesis is in turn embedded in a larger discourse which presupposes a linear, unidirectional history of religion starting from primitive societies, which suffer from an excess of religion, on the one

hand to supposedly secularized, post-Enlightenment societies on the other through various shades of abstract religions in between (Swatos and Christiano: 219, Balagangadhara 2005 [1994]).²⁰ Studies based on this approach fail to distinguish between changes in demand due to change in population, social pressure, supply side infrastructure, and preference. The stress is on the last though. Interestingly in the long run all these factors are interlinked. A related hypothesis, articulated by Talcott Parsons, argues in terms of “structural and functional differentiation of the realms of human action” over the ages (Kaufmann 1997: 87, also see Martin 2005) of which division of labour in markets is the most well-known example. A large number of empirical studies have failed to confirm these hypotheses unambiguously either at individual²¹ or aggregate²² levels. We will now briefly examine studies dealing with the relation between religion and mortality, education, and insurance, all of which relate to uncertainty²³, intrinsic or extrinsic to religion.

²⁰ Fogel (1999) has drawn attention towards drastic reduction in time spent by people in rich countries to arrange not only necessities of life but also luxuries. The enormous amount of freed time is being invested in leisure activities and voluntary work. It is difficult to predict the impact of this development on religion. But one thing is clear, that is, religion is not necessarily on the way out. In fact, one suspects that it is going to take a relatively deeper hold even though its absolute share in population declines.

²¹ A number of empirical studies assess changes in religiosity (church attendance and contribution of time and money to church, belief in afterlife, etc) controlling for income, wealth, urbanization, education, etc. Demand side hypotheses posit an inverse relation between religiosity and the latter. For allocation/contribution of time see Azzi and Ehrenberg (1975), Long and Settle (1977), Ulbrich and Wallace (1983, 1984), Neuman (1986), Grossbard-Schechtman and Neuman (1986); for allocation/contribution of money see Reece (1979), Lipford (1995, 1996a and b), Zaleski and Zech (1992, 1995b, 1996), Forbes and Zampelli (1999), Hrung (2004), Chang (2005), and Klick (2006); for both see Ehrenberg (1977), Redman (1980), Sullivan (1985), Iannaccone (1990, 1992a, 1994, 1997b, 1998), Clain and Zech (1999), Sanders (2002), Gruber (2004), and Tao and Yeh (2007). A few studies attempt to explore other kinds of Marxist links. The next two studies examine the impact of demography on religiosity. Relation between religious practice and religious concentration (share of a religion in population) is explored in Gruber (2005). Mourao (2006) studies the number of people who join Catholic priesthood in Portugal. The following studies examine the impact of material setting/incentives on religious behaviour. Chaves and Montgomery’s (1996) experimental study examines the impact of framing on religious choices. They find evidence in favour of status quo bias/loss aversion in case of religious choices. Eckel and Grossman (2004) study the difference in propensity of religious/non-religious individuals to donate to religious/secular charities in response to subsidies through an experiment based on dictator game. They fail to find significant difference between religious and non-religious individuals. Soetevent (2005) studies impact of anonymity on church giving in Netherlands. In his experiment the lack of anonymity positively affects giving for some time but only for external causes.

²² Isaacs and Laband (1999) find that the number of suppliers in a market for religion (U.S. counties) increases with income, educational, and racial heterogeneity. They do not account for interaction between various heterogeneities and do not disaggregate the *white* group into Hispanics and non-Hispanics. For cross-country studies on state religion see Barro and McCleary (2005 - 188 states) and Fox (2006 - 152 states, population > 1 million). The former find that incidence of state religion and per capita income are unrelated while the latter finds that more modernized states (economically advanced) are more likely to have government involvement in religion. The two studies use different measures of separation of religion and state. Also Fox’s (2006: 562) results show a clear distinction between Islamic and other states with regard to separation of state and religion. Barro and McCleary (2005) code Central Asian states as state religion countries that partly biases their data against Islamic majority countries. Still they fail to find any significant difference between the two groups (*ibid*: 1367).

²³ There are two views. According to the first uncertainty increases demand for religion. Hechter (1997: 154; also see Ekelund *et al* 2006: 62) relates belief in religion to its capacity to manage global, i.e. inter-personal,

4.1.1 Religion and ageing/mortality

If there is one thing that has been held responsible more often than others as the main reason for continued existence of religion then it is the fear of death. The small body of contributions addressing this issue adopts three distinct approaches. Starting with Azzi and Ehrenberg (1975) a number of papers deal with age and religiosity (attendance, church giving) positing salvation motive as the link (Ehrenberg 1977, Hrungr 2004, Chang 2005, Klick 2006). The idea behind this approach is that rational individuals invest in salvation towards the end of their lives to minimize costs. In addition Klick (2006) finds that Catholic doctrine of faith plus good works significantly increases the age effect for Catholics. But even without salvation a systematic link between age and earnings should lead to a similar result for believers as long as religious activities provide in-process utility. A second approach suggests that as people grow older their religious capital grows, i.e., they develop a taste for religion, which explains growing participation with age (Neuman 1986, Iannaccone 1990). Briefly religious capital refers to “familiarity with a religion’s doctrines, rituals, traditions, and members” (Iannaccone 1990: 299), which not only facilitate participation in religious activities but also enhance satisfaction derived from participating (for more see [Section 9.1, infra](#)). Even though the above models can claim some empirical support, based on analysis of cross-section data, a longitudinal analysis is highly desirable to address the concern of

uncertainty for individuals and groups while Khalil (1997: 154) stresses intra-personal uncertainty. In either case the demand for religion should be increasing in complexity of societies and it is unlikely that evidence from 20th Century will support the orthodox hypothesis. Hull and Bold (1989: 13-14) on the other hand argue that reduction in uncertainty (they give the example of efficient credit markets) should reduce impatience and thereby increase the demand for afterlife, the key product of religion. (But increase in uncertainty in this life could also render the prospect of a cosy afterlife more attractive.) Though Hull and Bold talk in terms of development of markets and other public institutions others have argued that any sustained (not to be confused with sustainable) decrease in interest rates should increase demand for religion, as is supposed to have happened in response to usury prohibitions during medieval ages (Hull 1989: 20). As per the second view uncertainty should decrease demand for religion. Hull and Bold (1998) argue that uncertainty due to increased product differentiation can lower religious participation. There are two issues here. Firstly the two views do not posit mutually exclusive channels through which changes in uncertainty influence religiosity. Secondly, even if we admit that uncertainty/volatility leads to increased religiosity one still has to grapple with evidence that its impact varies across socio-economic groups. Beckworth (2008), for instance, finds that the religiosity (measured in terms of attendance) of evangelical Protestants has a strong counter-(business) cyclical element while that of mainline Protestants is close to being pro-cyclical in USA. Note an important point before we end. Balagangadhara (2005 [1994]) argues that neither uncertainty nor capacity for abstract thinking/alleged innate longing for the divine can explain the origin of religion in human society. But we can say that appealing to uncertainty or capacity for abstract thinking to explain certain religious patterns or even trends subsequent to origin, say, in the 20th Century, is quite different from invoking the same to explain the origin of religion in the first place. In short insofar as EoR is not dealing with the origin of religion it can avoid the functionalist trap, while invoking uncertainty.

Wingrove and Alston (1974). They observe that the fact that elderly in a cross-section study are more regular church visitors cannot be used to infer that those presently young will also attend church more regularly when they grow old. They report attendance rates for five different American White cohorts over three decades each of which exhibits a different attendance-age profile and in addition there are marked variations between sexes. The third approach focuses on the rate of mortality per se. Richardson and McBride (2008) explain the acceptance of the institution of purgatory in medieval England by invoking changes in mortality rates. Their evidence supports the orthodox secularization hypothesis to the extent that acceptance of purgatory (belief in religion) and mortality rate were inversely related in that period.²⁴

4.1.2 *Religion and insurance*

Since religion has often been linked with uncertainty it is not surprising that its persistence has been explained by drawing attention to its role as a source of insurance. There are two ways, it is argued, that religion can provide cushion in bad times. It can directly provide tangible support in terms of medical aid, economic support, etc (Burnett and Palmer 1984, Chen 2004, Dehejia *et al* 2005, Gruber and Hungerman 2005, Hungerman 2005, 2007a and b, Beckworth 2008). It can also provide psychological mechanisms to deal with socio-economic shocks (Scheve and Stasavage 2006, Dehejia *et al* 2005). But there is a difference between potential and its realization. What enables religion to bridge this gap in the field of insurance? It has been argued that religious organizations should in principle be able to provide individuals with “consumption insurance against income shocks” because they can simultaneously limit both adverse selection as well as moral hazard (Dehejia *et al* 2005). The former is feasible as religions have certain entry barriers in the form of costs of religious participation, for instance, stigmas in Iannaccone (1992a), etc. The latter is feasible due to religion’s capacity to invoke divine/social support.²⁵ This double capability of religious organizations is also buttressed by the fact that in most of the cases religious organizations are manned by the local community, which also provides material inputs. The evidence so far

²⁴ In his study of impact of economic shocks on religiosity Chen (2004) also presents evidence that death did not enhance participation in religious activities (Koran study) in Indonesia during the last financial crisis.

²⁵ In Chen (2004) individuals choose intensity of participation depending on income shocks and religious groups manage to provide ex-post insurance through social sanctions, which overcome the constraints that would otherwise jeopardize the formation of ex-post insurance groups.

suggests that religion indeed plays an important role in society as a provider of insurance and that it is an imperfect substitute for secular sources of insurance, especially the state. The insurance effect varies across ethnic communities in intensity as well as channel of influence. The literature discussed above works with 20th Century data. The literature on usury deals with religion as a source of insurance in pre-modern times (See [Section 4.7.2](#) and [Section 4.7.3, *infra*](#)).

Another way in which a religion can provide insurance, which is more important from the religious perspective, is through its purported capacity to insure one against uncertainty with respect to afterlife. But neither the gain from insurance (are returns, positive or negative, from afterlife infinite in magnitude?) nor the appropriate price of insurance is known to either party (*cf.* Ekelund *et al* 2006: 50-51; for a detailed discussion on afterlife see [Section 9.2, *infra*](#)). There is yet another way religion can provide individuals with insurance. Khalil (1997: 154-155) suggests that belief systems (religion included) can help mitigating intra-personal uncertainty with regard to individual ability. So that resources invested in acquiring and nurturing a belief system can be seen as an investment in insurance.

4.1.3 *Religion and education*

So far we have discussed how religion purportedly helps humans in an uncertain secular space. But modern education, more generally reason, purportedly affects the plausibility of religious claims and increases uncertainty about the veracity of religion itself. Lewis (1972 [1955]: 426-427), however, points out that “[r]eason erodes not religion but authority, and it is only in so far as religion is based upon authority that the reasoning mind is hostile to religion”. Therefore education should be expected to precipitate secularization only if religion continues to be authoritative. Hardin (1997: 263) draws attention to the fact that the level of exposure to scientific knowledge required for successful secularization is limited to a few in any society. Therefore orthodox hypothesis is unlikely to hold at the aggregate level. Arruñada (2004) suggests that education redistributes individual commitment across the range of religious activities instead of causing inevitable attrition of religiosity across the board.

A number of empirical studies control for education (see Footnote 21, *supra*). Sanders (2002) rejects the entire mass of empirical literature that posits a causal link between individual's education and religiosity because "education is not an exogenous determinant" rather it "is probably just a correlate of an unobserved third variable that affects attendance and contributions". There are a few models on education-religion relationship. For instance, Sacerdote and Glaeser's (2001) model suggests a positive correlation between one's education and religious participation. But they model religious groups as yet another way to build social capital. In their model education increases returns to networking and at the same time decreases belief. Fan's (2008) model supports a positive correlation between next generation's human capital formation and one's religious participation. Individual human capital depends on parental human capital as well as social capital, the latter being governed by aggregate religious participation. It is not difficult to see that even an atheist, who otherwise reaps disutility from participation, would participate if sufficiently altruistic. Botticini and Eckstein's (2007) Jews reap positive externalities from religious education under certain economic circumstances. The same is true about Cozzi's (1998) agents who invest in religious learning to reap deferred benefits (see Section 4.6.1, *infra*).

4.2 Supply side approach

Irrespective of the failure to confirm demand side hypothesis it is undeniable that religion no longer enjoys primacy even in a majority of countries with state religions. But this does not automatically imply inevitability of total decimation of religion. Decline of existing churches and decline of religion *per se* are two different things (Stark and Bainbridge 1985 and Martin 1991, 2005). In the supply side approach demand is treated as fixed and the focus is on how religious phenomena of interest vary with changes in supply side of market for religion. This approach has spawned two lines of research - religious economy model inspired by Adam Smith and church-sect model inspired by Max Weber (introduction of the dichotomy), Stark and Bainbridge (denominational cycling, also John Wesley), and Dean Kelley (strength of strict churches). While church-sect dichotomy briefly appears in Adam Smith's writings (Anderson 1988: 1072) the idea that that state church is not conducive to vitality of religion makes a brief appearance in Weber (1995 [1920]: 152).

4.2.1 *Religious economy model*

This model posits an inverse relation between the degree of religious regulation/concentration and religiosity of people as measured by church attendance or membership, etc. Deregulation is supposed to increase participation directly (religious firm exerts itself in absence of guaranteed state support and provides higher quality services) and indirectly by eliminating barriers to evolution of product differentiated market, which is reflected in religious pluralism and increased participation. The idea is that in a religiously plural setting higher levels of religiosity are sustained, which is contrary to Emile Durkheim and Peter Berger's idea of religion as *a sacred canopy* that loses legitimacy in a plural setting. This model came into limelight with Finke and Stark (1988, 1989) who found an inverse relationship between religious pluralism (measured by one minus Herfindahl index) and religiosity in American cities (also see Iannaccone 1991 and Iannaccone *et al* 1997) and was immediately challenged by Breault (1989 a, b).²⁶ Breault pointed out that Finke and Stark's (1988) results depended on special controls for Catholic population. For quite some time the literature, dominated by empirical studies, remained plagued with a string of contradictory findings.²⁷ Here we will discuss a few major issues of contention. First of all the treatment of degree of religious pluralism in this literature, particularly its use as a proxy for competition/deregulation in market for religion, is problematic. Firstly, Chaves and Cann (1992a) argue that religious pluralism is not an appropriate proxy for religious regulation. Secondly, such studies suffer from omitted variable bias in absence of controls for level of regulation because the latter can affect religiosity directly and indirectly through its influence on pluralism. There is a two way causality between pluralism and regulation. *Ceteris paribus* higher degree of pluralism makes regulation less likely whereas greater regulatory controls can suppress pluralism.

Chaves and Gorski (2001) reviewed 26 studies (193 analyses) dealing with supply side hypothesis and concluded that evidence does not support a positive association between degree of religious pluralism and religious vitality. They also addressed other concerns like

²⁶ Pautler (1977) made one of the earliest attempts to test the impact of supply side changes (relative price of services offered by different religious groups) on distribution of consumers in market for religion. He found an inverse relation between relative price (captured by a surrogate variable constructed using average contribution per member for different churches) and market shares of different religious groups. Hutchison (1977) faults the study on two counts, namely, the presumptions that people necessarily participate and also contribute.

²⁷ Olds (1994) explores the impact of deregulation in Massachusetts and Connecticut on demand for preachers, growth in their salaries, and level of religious participation. He provides limited support for the supply side hypothesis. Though his study avoids some of the shortcomings from which much of this literature suffers, it lacks adequate controls.

the use of datasets which do not provide information for all religions, choice of level of aggregation, and differential treatment of Catholicism (also see Hull and Bold 1998). Voas *et al* (2002) went a step ahead and showed that positive evidence, if any, is inadmissible whenever measures for both pluralism and participation (a measure of religiosity) are constructed using the same data, which mechanically generates a positive or negative relation unrelated with the mechanism posited by the supply side hypothesis (see Iannaccone 1991: 175 for a related concern). They did not, however, deny the inherent appeal of the hypothesis, namely, more suppliers can cater to a variety of tastes, which should increase market penetration.

But the problems do not end with addressing Voas *et al*'s concerns. Montgomery (2003: 787) draws attention to yet another problem with the index. It "does not simply reflect the "supply side" of a market (i.e., the locations and effort levels of denominations), but also depends mathematically on the "demand side" (i.e., the distribution of consumer preferences)" making it unsuitable to capture supply side of the market. To avoid the above pitfalls Montgomery (2003) proposed "a partial order on the set of religious markets" to measure religious competitiveness. One market is more competitive than another if the set of denominations in the latter is a strict subset of the set of denominations in the former. He fails to find conclusive evidence in favour of the supply side hypothesis. Interestingly amidst this controversy one rarely comes across attempts to verify the claim that more competition leads to better quality services and hence improved participation. If we are prepared to accept the degree of involvement in social services as a proxy for quality of services provided by a religious organization then Pepall *et al* (2006) provide limited support from USA for the hypothesis that higher degree of religious pluralism/competition leads to better quality services.

Two, another line of criticism questions the narrow definition of religion used in the supply side debate. Boudon (1992) argues that it makes sense to treat "secular religions", e.g., social democracy, communism, civil religion (in the U.S. sense), etc, at par with traditional religions and develop a parsimonious theory of religion. There are three objections to this critique and one theoretical model partly in support. First of all this would lead to a very broad conception of religion so that anything that arouses popular passion would be counted in. Secondly, Chaves and Cann (1992b) point out that secular religions lack a identifiable supply side, which is an essential requirement to apply the supply side hypothesis. Thirdly,

Chaves and Cann (1992b) argue that nature and strength of civil religions is not independent of traditional religion. But in Barros and Garoupa's (2002) spatial model, and the following literature, presence of a non-church (i.e., the possibility of not be affiliated to any formal church) affects the equilibrium in market for religion. But the last result is conditional upon choice of spatial framework, namely, individuals distributed along a line segment rather than a circle.

Three, supply side approach does not control for policy-making setting. Roemer's (1998) model of interaction between tax and religious policies in an electoral setting suggests that the interaction could mitigate extreme policy stances like disestablishment and very high levels of redistribution. So we can say that the official regulatory regime could be divorced from ground reality because bundles of policies are subjected to bargaining by competing interest groups.

Four, it is not clear why current market structure (e.g., degree of pluralism) and participation rates should be correlated. If at all pluralism's impact on participation should be lagged. The system needs finite time to adjust to new information about change in level of pluralism, etc, particularly because religious choices are pretty sticky.

Five, supply side approach cannot explain a few empirical regularities noted in Poutvaara and Wagener (2008): a) differences in structure of markets for religion across USA, which are exposed to similar regulatory environment and b) different attitudes towards the regulation of market for religion in countries with similar levels of church-state separation, e.g., USA and France.

Finally we will suggest a novel test for supply side hypothesis. Kumar (2007) has drawn attention to the very strong relationship between monarchy and state religion. Throughout human history monarchy has almost always been sacral in character so much so that its survival has often been confounded with the very survival of religion. The most recent example of this is Nepal where monarchy was defended unsuccessfully in the name of religion. Monarchy-state religion bond responded to 20th century socio-political pressures in four different ways (both survive, both abolished, monarchy survives, and state religion survives). In many cases the institution of monarchy/state religion collapsed suddenly due to

shocks which are exogenous to the religious domain in the short run. Such events provide a natural experiment to check if change in supply side affects religiosity.

4.2.2 Church-sect model

This model explores the distribution of individuals among religious bodies, which are differentiated by the demands they place on members, and changes in this pattern due to income and regulatory shocks.²⁸ Churches “tend to adopt positions relatively close to societal (read *secular*) norms” whereas sects are marked by the distance they maintain vis-à-vis society (Iannaccone 1988: 256-257). Iannaccone (1988, 1990, 1992, 1994, 1997a and c) is the single most important reference for this line of research (also see Berman 2000, McBride 2007b). Montgomery (1996b) and Barros and Garoupa (2002) model denominational cycling alluded to in Stark and Bainbridge (1985), etc. Secularization is posited as a part of a cyclic process that keeps repeating over time in all societies. As older religions get enmeshed in the material world they suffer from sectarian secession. The stricter splinters then grow at the expense of the parent religion and might succumb to sectarian secessions in future, where strictness is the degree to which a group “increases the cost of nongroup activities”.

The church-sect model treats religious groups as clubs. Utility derived by the i th member of the club can be expressed by the following quasi-concave function (Iannaccone 1992a: 276-277):

$$U^i = U(S^i, R^i, Q^i) \tag{1}$$

where S^i denotes private secular consumption, R^i denotes individual participation in the religious club, and Q^i denotes the quality of the club. Q^i depends on the average participation of other members of the club and the number of members of the club. It is easy to see that the club good is “anti-congestible”. Insofar as individual participation generates positive externalities it will be underprovided. The club should in principle subsidize participation to achieve Pareto-optimal outcome. But since quality of participation is not readily measurable the club turns to prohibitions and penalties, which effectively increase the cost of secular

²⁸ Redman (1980) made one of the earliest attempts to test differences between strict and liberal churches. She found that the former have higher levels of participation. For an early usage of church-sect dichotomy in mainstream economics literature see Clark (1947, 1951).

consumption whenever R^i and S^i are close substitutes (relative to expenditure share of prohibited secular commodity) and there is a strong complementarity between R^i and Q^i (*ibid*: 278-280).²⁹

The major insight of the church-sect model is that stricter churches (more sect-like) screen out potential freeriders.³⁰ Those who continue derive more satisfaction from higher intensity of involvement of other participants and in turn increase their own level of participation. Under the screening process perfectly rational individuals accept stigmas and sacrifices, which are essentially “seemingly unproductive costs” born by members that constrain extra-sect activities, especially close substitutes.³¹ Though not ideal this is a “second best solution”. In any case owing to these stigmas sects are in a state of tension with the surrounding society, where tension is the “disagreement with the dominant surrounding culture and social institution”. Strictness and tension are related but not co-extensive. Sects are associated with behavioural strictness resulting in tension. But churches are known to induce tension with the society by espousing divergent ideological values (Miller 2002: 438). The degree of tension with the social/secular norm is a measure of strictness of a sect. Sects have been found to grow faster than the liberal churches. But strictness is only a necessary and not a sufficient condition for growth (Iannaccone 1994: 1205). Beckworth (2008; USA), and also Chen (2004; Indonesia), finds that stricter religious groups grow during economic downturns whereas earlier Iannaccone (1994; USA) found that poor are more likely to adhere to stricter churches.³²

We will discuss some objections to the church-sect model and then examine some issues related to spatial models of church-sect competition. One, focused on behavioural strictness the model fails to address the issue of doctrinal strictness (Ferrero 2006b). But we are not

²⁹ Coşgel and Minkler (2004a) argue that consumption restrictions observed by believers might not be meant to address the problem of freeriding. Adopting consumption norms could as well serve the purpose of expressing ones identity to others in an uncertain world, where individuals have imperfect knowledge about others. It is not clear how one can disentangle consumption restrictions as communication devices and stigmas/sacrifices.

³⁰ Models following Iannaccone (1992a) are not always clear with regard to difference between screening and sanctioning. Brennan and Hamlin (1995) have stressed that screening and sanctioning relate to different assumptions regarding motivations and therefore institutional arrangements.

³¹ One of the earliest club theoretic models of religion can be attributed to Carr and Landa (1983) who model personalistic exchanges. They also suggest that religious clubs demand unproductive sacrifices to screen out free riders and maintain higher quality of output for subscribers. Their religious clubs do not proselytize. In fact, they argue that “economic advantages accruing to smaller religious groups... may explain why no single religious group has dominated the world scene” (*ibid*: 152).

³² Discussions on [Pascal's Wager](#) also suggest that ceteris paribus a strict church, which posits a punitive god, is more likely to be successful than lenient ones (Landsberg 1971: 100, Montgomery 1992: 120; also see [Section 10.1.2, infra](#)).

sure if the behavioural strictness in church-sect models cannot be interpreted at least to some extent as doctrinal strictness. At one point Iannaccone (1994: 1190) indicates in passing that the two are highly correlated. Two, Sherkat (2001: 1485) has a related but more serious complaint. He draws attention to the fact that the decline of liberal churches in USA is coterminous with secularization of these churches in the sense that they no longer cater to the popular need for, what Stark and Bainbridge (1980) refer to as, supernatural compensators. Church-sect theorists would probably respond by drawing attention to the abovementioned correlation. But given this correlation it is difficult to distinguish empirically between weakness of supernatural dimension (which is part of doctrinal strictness) and lack of behavioural strictness as the cause of de-vitalization of liberal churches. Which kind of strictness is primary? Doctrinal strictness possibly supersedes behavioural strictness but it is also well-known that there can be serious disconnect between the two for long periods. This issue needs further research since religions employ both instruments to manage their flock. But Ferrero (2006a) has a valid concern insofar as universal religions, once past a threshold size, cannot use behavioural strictness because the community of non-believers becomes irrelevant, where universal can be interpreted as non-ethnic/non-territorial and committed to free entry.

Three, Iannaccone (1994: 1184-85) argues that freeriding could arise both due to heterogeneity (groups with differing levels of intrinsic commitment or even religious preferences) as well as opportunism within homogeneous groups. Strict churches flourish due to their relative effectiveness in checking free riding. But to sustain itself across generations and attract new members a church needs to allow individuals to acquire some familiarity and comfort before they start contributing. Within a spatial setting McBride (2007a, also 2007b) shows that churches have to tolerate some amount of freeriding so as sustain themselves over time. Similarly heterogeneity is required for the group to reach out to newer communities. In any case evidence for freeriding is mixed (see [Section 8.2](#), *infra*).

Four, it is argued that sects are more likely to attract poor and less educated, i.e., people with “limited secular productivity”. A corollary to this is the movement towards liberal denominations in response to material success (Iannaccone 1988: 261 and 1992a: 387, Sherkat and Wilson 1995: 995). But one would like to know why do only a fraction of poor people join sects (Kuran 1994: 773)? This reminds of a valid but completely ignored observation of Hutchison (1977: 96), namely, at the end of the day one has to buy potatoes or

some suitable substitute to survive whereas there is no such compulsion at least in free societies with regard to religion. The proposed income-based sorting rests on at least three presumptions. First, religious bodies are incapable of product differentiation, which does not hold in most cases, leaving aside some extremist sects. Sect leaders, particularly those heading extremist or minority sects with a majority of poor, would not want to lose rich clients/patrons who are a source of protection/donation. Anecdotal evidence suggests that the wealthy routinely get exemptions or customized services. Second, the upwardly mobile in a society prefer liberal churches, which is not necessarily true. Third, religious identity is not linked to other identity markers. But it is well-known that many a times religious identity is deeply linked to, if not co-terminus with, other aspects of identity (Ellison 1995: 93). So that dissociating from the church might imply a general dissociation with one's ethnic group.

Five, Baron and Hannan (1994: 1137) argue that “[i]n imputing interests to collectives, [instrumentalist] approach takes as given the existence of social boundaries demarcating “groups””, which is questionable because “creating and sustaining a group identity is much of what collective action is all about”. In other words group identity could be an end in itself, a possibility widely ignored in EoR, where groups serve as vehicles to fulfill some shared religious purpose. Exploring sectarian identity as an end in itself could help understanding violent manifestations of competing religions.

Six, Iannaccone (1992a: 285) argues that to avoid freeriding sects erect high entry barriers and under self-selection the production of religious capital and products increases. Frey (1997: 283) points out that stricter controls crowd out the intrinsic incentive to belief, which if true would imply that religious capital that which accrues due to beliefs and experience does not necessarily increase in strict sects. One also wonders why religions do not use any positive measure in the models following Iannaccone (1992).³³ Seven, the transition from sects to churches in the product space is not smooth since unlike sects, which produce club goods, churches also produce public goods (Ekelund *et al* 2006: 54). So the sect-centric nature of church-sect models limits their ability to deal with churches. Ferrero (2008b) presents a model of religious organization as a cooperative, which can deal with both churches as well as sects. Eight, while costs due to accepting stigmas solve first-order free

³³ In a different context Hull and Bold (1994) speculate about the rationale for introducing hell in addition to heaven in Christianity. They invoke endowment effect as part of their explanation. Also see Smith (1999) on the introduction of the idea of apocalypse in early Christianity.

rider problems it is not clear if stigma based organizations are insulated from higher order free rider problems (*cf.* Oliver 1980). Nine, Ekelund *et al* (2006: 71) suggest that this model “seems to maintain that consumption cost (price in terms of sacrifice) is a measure of value and that the higher the price, the greater the quantity demanded and greater the utility provided”. Is the demand curve upward sloping in this case?

Ten, desirability of strictness is one thing while feasibility is another. Iannaccone has focused on desirability. The interesting question, however, is why only some religious organizations succeed in imposing strictness (Miller 2002). Miller questions the very desirability of strictness from two different perspectives. Firstly, he argues that “[d]ifferentiation can increase per capita organizational resources by exploiting switching costs across sub-cultures. Hence, a strategy of focused differentiation may result in more loyal participation, with loyalty expressed in terms of longevity of involvement as well as resource commitments. This strategy prescription appears to contradict the contention that strictness results in strong religious organizations (Iannaccone 1994). Strictness requires placing demands upon religious adherents, rather than accommodating their preferences. However, accommodating distinct preferences can foster high commitment” (*ibid*: 445). Strictness can thus be seen as an outcome rather than cause of membership (*ibid*: 451). Secondly, he points out that even though strictness makes sense in a static setting in a dynamic setting relaxing strictness for newcomers is desirable when growth has positive externalities for existing members while new members have higher price elasticity (*ibid*: 445).

Finally, empirical relevance of club models is limited insofar as it presumes voluntary nature of religious sector, which is not true in many parts of the world, including rural south in USA where, according to Ellison (1995: 93), “black Church” is a “semi-involuntary institution”. For a recent examination of empirical evidence related to the church-sect model see Ekelund *et al* (2006) who observe that the evidence is not unambiguous even for a country like U.S.A., which has been the subject of analysis for over three decades. A related concern is that the model has not been tested outside Judaeo-Christian milieu where sects seem to attract at least in some cases the upwardly mobile as happens in India, and also Africa and Latin America. In India legions of tech savvy sects are teaching yoga and art-of-living at a price to the middle class. These sects demand more time and money than the traditional religion, which is closer to a fish market. Most sects of Hinduism starting from 19th century have focussed on the emerging middle class in towns and cities. It is only since 1990s that such

sects have begun to reach villages due to telecommunication revolution. Ekelund *et al* (2006: 61, 71) raise a similar concern about USA when they observe that some of the fastest growing sects not only have higher average levels of education and incomes but also place higher demands on followers.

We now turn to the issue of identification of religions/churches, interpretation of normative distance from the perspective of suppliers and consumers, and the significance of terminal points of continuum characterizing religious organizations in spatial church-sect models. Iannaccone (1988) identifies each point in a normative space as a potential religious body and differentiates religious bodies as per their normative distance from secular norm, with the distance being more for sect-like bodies. This definition cannot differentiate among different religions or sects belonging to different religions. It also cannot differentiate in a straightforward manner between sects of the same religion. Rodero and Branas (2000) define extremism as the degree of proximity to limits of normative space and radicalism as distance to close substitutes. Without getting into the propriety of using *radicalism* and *extremism* in this context it is worth noting the alternative perspective they provide by defining the measures with respect to the limits of normative space or inter-organizational normative distance. In particular note that groups closer to *either* end of the normative space qualify as extremist. Moving between Rodero-Branas and Iannaccone definitions is not feasible unless secular norm in Iannaccone corresponds to minimal strictness in the former. Even this is a necessary but not sufficient for moving between the two models.

In Barros and Garoupa (2002) suppliers and consumers perceive distance differently. While distance in either direction is weighted equally for suppliers, which is the usual approach, it is weighted unequally for consumers. More precisely consumers see an asymmetric cost of going to a church different from one's most-preferred church; going to a less strict church is less damaging than going to a more strict church. Finally, a few words on the limits of normative space would be in order. There are two issues here. One, non-church is at times modelled as "a dummy firm with strictness zero" (Barros and Garoupa 2002). Two, so far no model treats the other end of the scale, maximum strictness, as a firm location by default, which is surprising because prophets, purists, and pretenders, of whom there is no dearth in any society and age, prefer that location. But see a recent paper, Ferrero (2008b: 84), for an exception. Pepall *et al* (2006) provide yet another way of looking at the problem. Instead of modelling a society with people uniformly distributed along a straight line they assume

people distributed along a circle, which bypasses the question of nature of firms at extreme locations. Before we end a minor point would be in order. These models do not take into account capacity constraints, which would help in explaining existence of multiple organizations, with more or less identical ideological position, operating in a given market segment.

4.3 Demand/Supply side approach

Given the inadequacy of demand and supply side approaches a few authors combine the two. The empirical studies under this category have failed to find unambiguous evidence in favour of one or the other secularization hypothesis.³⁴ Theoretical discussions/models, however, provide explanation for the mass of contradictory findings. In this section we will first discuss contributions which provide an alternative to the demand and supply side orthodoxies and then raise a few questions.

Hull and Bold (1998) argue that it is not unlikely that increased product differentiation (supply side effect) raises cost to people in the form of increased uncertainty, etc (demand side effect) and lowers participation in the process (also see Miller 2002: 449).³⁵ They also

³⁴ Hull and Bold (1998) reject supply side hypothesis in case of USA. Gill (1999) rejects demand side explanations in favour of supply side ones to explain the growing religious pluralism in Latin America. Barro and McCleary (2003 - 59 states, 2006 - 68 states) and McCleary and Barro (2006a - 81 states) find weak evidence for positive relation between pluralism and church attendance while various measures of religiosity were found to decline with per capita income. They also find that state religion and attendance are positively related while state regulation (whether the government appoints or approves the domestic leaders of religions) and attendance are negatively related. North and Gwin (2004 - 59 states, 46 of which are common with Barro and McCleary 2003) find strong support for negative relation between state religion and religiosity and insignificant impact of pluralism on religiosity. Smith and Sawkins (2003) adopt a fresh approach and nest supply side model within a larger model, accounting for effect of religious capital and social interaction, which is tested using cross-country data (16 states, including East Germany) aggregated at the level of regions (163 regions). They find support for both demand as well as supply side factors. Future work should find a compromise between historic-cultural and legal affiliations, e.g., Bavaria in Germany is religiously closer to neighbouring regions across the Austrian border. Another problem with their study is that they use religious participation at the age of 11-12 years to proxy for religious capital. In this case recall is likely to be faulty because present choices would interfere with individual response to questions about past choices. Arruñada's (2004) analysis of auricular confession (a kind of third party enforcement) suggests that the institution is decaying due to two complementary effects. On the demand side rising education levels have increased the salience of first party enforcement. On the supply side falling productivity of personalistic priestly activities relative to other economic activities in society and increased efficacy of secular law have decreased both the supply and scope for supply of confession.

³⁵ The demand side counterpart of the supply side plausibility argument discussed above is as follows. Consider a society with multiple religious groups, incomplete information about individual religious preferences, and imperfect checks on freeriding. Increase in individual heterogeneity or increase in uncertainty about individual heterogeneity can reduce participation across groups.

suggest that it is quite plausible that a nationally plural market indeed consists of locally concentrated markets. Similarly, McBride's (2008) spatial model supports a variety of equilibria depending on the level of aggregation, e.g., town, province, country, etc. In other words empirical studies need to fix aggregation problems otherwise all kinds of results are possible depending on the level of aggregation (also see Chaves and Gorski 2001, Voas *et al* 2002, and Montgomery 2003). In a spatial setting Barros and Garoupa (2002) show that pluralism and participation are not unambiguously related due to strategic nature of choices faced by religious organization whereas McBride (*forthcoming*) shows that fall in demand does not necessarily cause demise of religion as long as the supply side adjusts accordingly.

Poutvaara and Wagener (2008) show that demand and/or supply side differences are *not* necessary to explain the differences across markets for religion because such differences can also arise as a result of pure chance. In their model leaders are rent-seeking while consumers are uncertain about leadership quality and learn the same *ex post*. Following Brams (2007 [1983]: 121, 166), who models the interaction between gods *aka* superior beings and humans using two person non-cooperative games, the observed spatio-temporal differences could as well be explained to be entirely unconnected to supply side and/or demand side factors. Brams shows the possibility of cycling of strategy in a number of games, which can be interpreted as variations in level of religiosity, etc. Also following Brams (2003 [1980]: 192) we can bypass the EoR orthodoxy in yet another way. Assume that religiosity peaks due to some shock in two societies. Now if the average recall rates in the two societies are different then after some time the two would have different levels of religiosity. Next consider Carlton and Weiss (2001: 275), who suggest that difference in birth rates among religious, agnostic, and secular in different communities coupled with cognitive dissonance³⁶ can lead to difference in degree of religiosity independent of any of the standard supply and demand side determinants of religiosity. Finally consider Cozzi's (1998) model of religion as a bubble phenomenon, which would suggest that exogenous material shocks can deeply affect religiosity (represented in his model by time devoted to acquire religion) independent of supply side changes.

Before closing our discussion on the secularization debate a number of issues need mentioning. One, what constitutes secularization needs explicit definition. Is it decline in

³⁶ Cognitive dissonance is a state of psychological tension arising from holding two inconsistent ideas, attitudes, beliefs, opinions, etc.

religiosity? What measure (or how many measures) of religiosity should count and how to determine the relative importance of the measures? What extent of change should be treated as positive evidence? How long should the decline continue to be counted as positive evidence or what are the symptoms of irreversibility of secularization? What if parallelly the hitherto secular elements of a society sacralize in the meantime (see, for instance, Demerath 1995)? Is it decline in public role of religion? Should state induced, i.e., top-down, secularization count? (Such attempts have failed everywhere.) What is the appropriate level of aggregation to study secularization and how to translate findings from one level to another?

Two, so far few studies directly account for decline in plausibility of religion amidst the much celebrated competition, the key argument of demand siders. Product variety in market for religion enhances uncertainty because each supplier is making claims about the ultimate reality, which undercut the claims of his competitors (Hull and Bold 1998). Exceptions like Glaeser and Sacerdote (2001), etc are not interested in competition in market for religion. A number of empirical studies account for level of education, which is expected to adversely affect plausibility (see [Section 4.1.3](#)). Another indirect control for plausibility is income (see Footnote 21). Higher income is generally associated with greater exposure to modern economy and therefore technology as well as urbanization, both of which are expected to reduce plausibility and utility from religion. There is another way of looking at this issue. For instance, Hardin (1997) observes that religion takes a deeper hold on individuals when it is contested, i.e., there is competition. Two related explanations could account for this observation. Firstly, when a religion is challenged it is also construed as an attack on the identity of the believers. A defeat on the religious front might lead to reduction in social bargaining power in general. So defending religious boundary becomes an end in itself independent of cost-benefit analysis intrinsic to the religion concerned (*cf.* commitments associated with identity in Coşgel and Minkler 2004a, b). Secondly, status quo and home team biases work against accepting the implausibility of long held beliefs, when confronted by *others*. The possible link between religiosity and conflict brings us to an entirely new question, namely, between religious polarization and fractionalization which is more likely to enhance religiosity? For more on these two measures of demographic fragmentation see [Section 8.3.2](#) (*infra*).

Three, the presumption in most of the studies that each religion/sect can cater to only one type of need or taste is questionable. Iannaccone *et al* (1997) draw attention to the wide variety of tastes that Catholicism, and also Islam, can cater to. But so far none of the studies has proposed any measure for intra-religion diversity for allegedly monolithic religions. Four, regulation is not only about supply side manipulation it can also affect tastes (demand side) through indoctrination so that deregulation might not lead to increase in pluralism. It is possible that in certain contexts tastes are homogeneous so much so that regulation or no regulation the market cannot support many firms. Incidentally Das and Datta Ray (2008) find that competition between Hindu temples in eastern India is monopolistic even in absence of institutional entry barriers. Five, the demarcation between supply and demand sides in a market for religion is not unproblematic. Olds (1994) suggests that a dichotomous model of market for religion, divided between supplier churches and consumer individuals is misleading.

Whether one treats privatization as a supply or demand effect depends on how one “slices” the market. Privatization affects the churches that are intermediate organizations matching parishioner-consumers and preacher-suppliers. If one views the market from a parishioner’s standpoint, the church is the supplier of religious services and privatization is a supply-side effect... I am viewing the market from the preacher’s standpoint. Preachers are offering services to meet churches’ demands (*ibid*: 284).

Six, it is desirable to account for conversion dynamics, which can influence religiosity through channels that are independent of the causal mechanism proposed by either hypothesis. Neo-convert syndrome refers to higher level of observance among new converts. Converts are allegedly more Catholic than the Pope. If some religion is relatively successful in proselytizing that could bias results in its favour in a study on religiosity. However, one could as well argue that new converts would take time to learn and build religious capital *a la* Iannaccone (1990). But that too will bias results. In either case the change in average religiosity of the religious community under consideration would have nothing to do with that religion per se. This problem could be addressed partly by controlling for the number of years the religion has been in a given society, still better if average “religious” age of converts is available. But can we not link missionary success with intrinsic traits of religion? We can but it bears noting that many a times the success is unrelated with religion itself, e.g., organizational problems in rival camps, firstmover advantage, etc.

In the next two sub-sections we will deal with religious regulation and structure of church, both of which influence religious competition, in greater details.

4.4 *Religious competition and regulation*

Spatial (Rodero and Branas 2000, Barros and Garoupa 2002, Montgomery 2003, Pepall *et al* 2006, McBride *forthcoming* and 2008, Ferrero 2008b) and contest (Ferrero 2002, Epstein and Gang 2007) models of competition address this issue in a very limited manner. These models can at best handle intra-religious competition. Hull and Bold (1998) argue that the standard model of product differentiation has been applied in EoR disregarding the fine print according to which product differentiation results in greater market penetration in absence of uncertainty, search, and commitment costs and network externalities. In addition it is important to keep in mind the limits to product differentiation in markets for religion dominated by a handful of focal points - individual, family, community, society, and mankind; one god (monotheism), many gods (polytheism), infinite gods (pantheism); revealed or not revealed, etc.³⁷ Very few papers posit a hierarchy of competing organizations in the market for religion. Barros and Garoupa (2002) treat churches as Stackelberg leaders with sects as followers (also see Ferrero 2008b). Discussions on organizational strategies to keep afloat in market are few and far between. Miller (2002) discusses issues like organizational strategies for sustaining competitive advantage and manipulation of market structure. The former requires making credible commitments, maintaining legitimacy and inimitability, and targeted marketing whereas the latter requires building bridges with other competitors. Goff and Trawick (2008) provide an empirical test for inter- and intra-brand competition's impact on market for religion. Even though their econometric specification is problematic the discussion there could serve as a starting point for future studies. Ferrero (2008b) compares the organizational and doctrinal strategies available to sects and churches: a sect controls membership and quality through behavioural strictness whereas a church relies upon doctrinal strictness. Interesting topics awaiting research include lobbying in a regulated market for religion (*cf.* Iannaccone 1991: 161), emergence of "black" market for religion in a

³⁷ This implies discontinuity in the set of products on offer (*cf.* Schlicht 1995: 129). In other words not every point in the normative space can serve as a "firm" location. Convexifying this set from the supply side perspective is problematic because religious firms generally do not employ mixed strategies in matters related to core beliefs. In equilibrium cognitive dissonance drives believers to focal points sanctified by religion/tradition. Also see the last point in discussion on church-sect model where we discussed the use of spatial framework to model interaction between religious organizations ([Section 4.2.2, *supra*](#)).

state or socially regulated market for religion, etc. The issue of standardization will be discussed later ([Section 6.1](#), *infra*).

Demand side analyses are generally not followed by policy prescriptions whereas the very idea of religious regulation is made to look unfashionable in the supply side approach.

Theory and data thus combine to suggest that government regulation of religion tends to reduce individual welfare, stifling religious innovation by restricting choice, and narrowing the range of religious commodities... Beyond the question of deviant sects and cults, one encounters a broader but related set of issues concerning the overall consequences of regulating religion. Here again we find Smith claiming that competition would not only generate more religion but also *better* religion (Iannaccone 1998: 1489).

As we have seen above the supply side approach has been severely challenged in the meantime. The supply side argument, not entirely objectionable, is two fold. State regulations hamper natural equilibrium in religious sphere. But then what about deviant cults/sects that make severe demands? Since people who join these cults are rational individuals and make decisions based on their preferences there is no room for state intervention. In rest of this section we will discuss a number of objections to this hands-off recommendation.

One, alternate approaches have explained decision to join extreme sects by invoking indoctrination (see Akerlof 1991). Two, the informational structure of market for religion is completely ignored in supply side approach. Starting from customer side uncertainty Poutvaara and Wagener (2008) show that even a rational individual might land up in an abusive sect, which he would not have joined under perfect information. Three, the case for deregulation is advanced sans welfare analysis. The ease with which the recommendation was taken for granted for quite some time rested on a not quite unproblematic distinction between market for ideas and market for goods (*cf.* Coase 1974). Let us not forget that in economics proper it would be sacrilegious to forward a regulatory recommendation without a thorough welfare analysis. Four, neither the product range (religion provides a combination of private, club, and public goods generally bundled together) nor the nature of firms (studies mostly assume common firm type for different religious groups, which is not true as discussed in [Section 4.5](#), *infra*, also see [Section 3.3](#), *supra*) in market for religion is taken into account while suggesting deregulation.

Five, unregulated competition in market for religion is assumed to be necessarily beneficial, which is not true. Using a contest theoretic model Epstein and Gang (2007) show that contest between sect leaders would induce a race to top, i.e., higher levels of strictness (*cf.* Ekelund *et al* 2006: 50, Levy and Razin 2008). In [Section 5.3.1](#) (*infra*) we will discuss the possibility of radicalization of unregulated sects, which then indulge in violent activities. Following Rose-Ackerman (1996) we can adopt a more reasonable approach to regulation in this field. She suggests that in service sectors catering to widely varying tastes and beliefs “regulation should not impose uniform quality standards but should focus on health and safety issues and on preventing obvious abuses” and at the same time ensure that the regulations do not “undermine the benefits of ideological diversity and service differentiation” (*ibid*: 724). Incidentally, Adam Smith’s position on state regulation of religion is closer to Rose-Ackerman’s prescription (*cf.* Leathers and Raines 2008, also Rosenberg 1960).

Six, McConnell and Posner (1989) and Posner (1987) have argued that regulation does not necessarily retard religiosity, at least in USA. The same can be said about India. Seven, while state regulation can be a source of conflicts among religious groups and also between the state and an aggrieved group it is also possible that conflict leads to state regulation, e.g., the Bulgarian decision to recognize Orthodoxy as the state religion can be seen partly as evidence for the latter, an issue completely ignored in supply side analysis. In other words direct or indirect religious conflict can accentuate religious identity leading to adoption of supply side controls. So at least in some cases regulation might be an outcome rather than the cause.

Eight, supply side view is based on a static conception of the market. A dynamic analysis would examine two distinct possibilities. Firstly, competition could lead to standardization in religious sphere due to convergence among religious firms (see [Section 6.1](#), *infra*). Competing religions could learn from each other through a mechanism not so different from yardstick competition (see Salmon 1987) or state socialization (see Arreguin-Toft 2005). Secondly, cost of competition can induce self-interested firm-owners/managers to form cartels and mergers (*cf.* Miller 2002). In the long run any of these possibilities can materialize and in each of these cases in the end people would be left with fewer choices due to lack of regulation. For a study on transformation of a competitive market for religion sans regulation into a monopolized one see Raskovich (1996). Miller (2002) discusses the variety of possible cooperative arrangements that can emerge in a contested market. He suggests that undifferentiated religious organizations come together to harness economies of scale whereas

related ones seek technology sharing and unrelated ones come together to face non-religious problems. Actually both inter-religious conflict as well as common threat like government intervention in market for religion can lead to alliance among unrelated religions. So far the impact internal specialization and supply side market fragmentation on firm strategies has not received attention. Presence of too many firms might rule out collusion due to collective action problems whereas in case of too few firms the legacy of sustained competition with clearly identifiable opponents might obstruct collusion.

Last but not the least it makes sense to check if a government would necessarily like to control religion. Given growing religious pluralism within societies over time and parallel increase in voice of sub-state players probably state finds it unprofitable to associate with any particular side and get discredited. This mirrors Tocqueville's rationale for liberating religion from incumbent partisans in a state and protecting its universal appeal. Since whosoever (state/individuals/community) tries to monitor and regulate deviant religious groups has to bear disproportionate cost, in the form of conflict, monitoring and regulation would be underprovided. Here state *and* other groups or individuals in a society are players in a public goods game setting, where monitoring and regulating deviant sects is a public good. In other words proliferation of sects that place severe demands on followers might be a consequence of state/citizen collective action problem rather than increased degree of toleration. Once in place such sects might contribute to increased tolerance via belief adaptation due the realization that curbing them is costly.

4.5 Structure of religious organizations

Though an important determinant of nature of competition in market for religion the structure of religious organizations is not controlled in empirical studies discussed above. In fact, it is common to assume identical firm structure for all religious groups. The structure of religious bodies is influenced both by material (market structure, labour supply, etc) and non-material (doctrine) factors. Lipford (1992) and Allen (1995) explain organization of religious bodies assuming doctrine as an exogeneous determinant, which in turn helps to secure the reputation of the organization in the market. Religious organizations with similar doctrines have similar structures and vice versa. Mao and Zech (2002) provide game-theoretic foundations for Allen (1995). The basic intuition is that where leadership has more powers it is hobbled with

organizational restrictions to avoid agency problems. For example, notwithstanding their differences both Mormons and Catholics have prophetic doctrines and similar corporate structures. But why should one believe in doctrine of this or that religion? Iannaccone (1995a) is inspired by this uncertainty intrinsic to any religious enterprise, one is never sure if the desired outcome follows a prayer. He focuses on risky nature of religious activities and suggests two strategies adopted in market for religion to reduce the risk of fraud. Religious organizations either adopt collective structure with large inputs of voluntary labour and donations or provide for a private fee-for-service arrangement. In the former freeriding is kept in check by “exclusivity and costly prohibitions” whereas in the latter individuals insure themselves against fraud by holding a diversified portfolio. Iannaccone, however, does not explain which one of the two strategies would be adopted in a particular environment and why. Berman (2000) models changes in the structure of collective-type religious organizations in response to environmental changes, e.g., changes in subsidies for religious participation, etc.

A number of contributions look at agency problems affecting religious organizations. The issue of agency problems came to forefront after a series of contributions by Ekelund *et al* based on the assumption that the Medieval Church was a profit-maximizing enterprise (see [Section 4.7.2, *infra*](#)). Earlier Fama and Jensen (1983) explored means of addressing agency problems within non-profit organizations in general, namely, separation of control and ownership. While Protestant and Jewish congregations seem to follow this strategy the Roman Catholic church does not, in which case the specificity of human capital investments made by church officials is supposed to allay the concerns of Catholic consumer-donors. Raskovich (1996) discusses franchise monopoly as a solution to agency problems in ancient Judaism. Ben-Ner (1997) argues that durable religious organizations are like non-profit organizations with substantial involvement of adherents. Ferrero (2002) suggests that the Catholic Church induces a multi-prize, open contest in the form of competition for sainthood to solve agency problems and counter the inertial character of its large bureaucracy. Ferrero (2005) argues that to solve agency problems religious groups turn into producer cooperative but face a free entry constraint because religion is not proof to imitation (which amounts to presuming *absence* of sunk/fixed costs). The organization controls freeriding by manipulating the level of its extremism. There are two objections to the last modelling approach. Miller (2002) has stressed that successful religious organizations maintain inimitability. Also one is not sure if the level of extremism can be altered in the short run. If anything the level of

extremism should be quite inertial because it depends on a number of socio-economic factors, which are beyond any organization's control. For instance, Huntington (1997) has argued that the youthfulness of a society is an important determinant of its propensity to religious extremism.

There is not much work on leadership of religious organizations and how these organizations arrange salaried manpower (for contribution of time and money by laity see Footnote 21, *supra*). We will discuss these issues very briefly and focus on two specific problems. Regarding the first issue note that charismatic figures serve as sites for nucleation of cults, sects, etc. Just think of Calvin, Khomeini, and Luther, if any example is needed. The idea of superstar effect ("In certain kinds of economic activity there is concentration of output among a few individuals, marked skewness in the associated distributions of income and very large rewards at the top") due to Rosen (1981, 1983) is of some relevance in this regard. Further even though organized religions dominate the religious sphere entrepreneurs play a very important role in shaping its contours, especially, in countries like India and U.S.A. But there is not much work on entrepreneurial firms in the market for religion. See Poutvaara and Wagener's (2008) model for an exception. There are a few contributions on salaried manpower in market for religion. Condon's (2002) empirical study of U.S. market for clergy suggests that Catholic Church is a monopsonist for Catholic clergy, which is consistent with its inability to attract sufficient candidates. Mourao (2006), however, finds that in Portugal the reason for decline in number of Catholic priests can be attributed to changing fertility patterns rather than economic factors. Arruñada (2004) suggests that supply of priests declined due to decline in productivity of personalistic priestly activities *vis-à-vis* other economic activities. Olds (1994) studies the fortunes of preachers in the wake of deregulation in two U.S. states. He finds that deregulation increased the demand for preachers (also see Footnote 27).

Note that while discussing religious organizations we did not bother to ask *why religious organizations in the first place*. Levy and Razin (2008) try to answer this question. Unlike Iannaccone (1995a) or Ekelund *et al* (2006), who advance a safety in numbers argument, they begin with two observations, namely, belief is always individual whereas manifestation is often collective. In their model economically valuable actions are tagged with uncertainty, which individuals trace to divine justice. There are two objections to their model. First of all one is not told why they assume that "those individuals who choose to be religious *must*

participate in some observable activity” which they “interpret as religious rituals”. In fact, most of the religions support both highly personalistic as well as collective expressions of faith and also attach value to inwardness. Further one is not sure if sharing similar beliefs and being more cooperative towards those with whom one shares beliefs makes a religious organization. Individuals can share beliefs without being part of an organization. How do we distinguish between a close network of bullish stockbrokers and a Christian congregation? Without claiming to provide solutions to these answers we can try to search for some clues. To begin with we need to make clear two distinctions. If religion is built into genes then it can survive sans social support. However, if it is an acquired trait then it is essentially a collective phenomenon. In the latter case we can look at social network theory for answers. Following this approach if we are prepared to admit that not all information is available for purchase in market and that “availability, nature, and value of information as products” might depend on social relations then we can say that “it may not be possible to decouple the information from its social structural base; nor would the information be available to actors, *regardless* of their level of investment or search, *absent* the social connections that provide access to the information in the first place” (Baron and Hannan 1994: 1133, emphasis added). The other distinction to which we would like to draw attention relates to the root cause of need to organize. In case of religion we need to distinguish between religious beliefs per se and structure of human societies as sources of the urge or compulsion to organize.

4.6 Conversion

Given the primacy of proselytization in Christianity it is surprising that the issue has not received the attention it deserves. We have already noted the near total lack of work on religions with ambition of universal dominance and those which believe that religious practices of others generate negative externalities for them (see [Section 3.3](#), *supra*). Discontinuous conversions across religious boundaries - Saulus/Paulus types like changing from left to right hand driving system, remain one of the biggest challenges for EoR. For methodological and empirical issues facing a credible economic explanation of religious conversion see Vanberg (1997) and also Frey (1997). Zech (1998) discusses applicability of different economic models of organization to the issue of congregational growth. Here we will first look at the issue of doctrinal conversions and then discuss the conversions driven by material considerations. Finally we will look at hitherto ignored issues related to conversions.

4.6.1 *Doctrinal conversions*

The existing models of religion in EoR are woefully inadequate for this task because majority of them differentiate between churches/denominations/sects by strictness (Iannaccone 1988: 256-258, Iannaccone 1992a: 283, Montgomery 1996b: 84, Barros and Garoupa 2002: 563, Epstein and Gang 2007: 260; also see the last point in the discussion on church-sect model in [Section 4.2.2, supra](#)) and by relative importance of private and social motives (Iannaccone 1988: 256-257, Redman 1980: 332, 336).³⁸ The limitation of these models becomes clear very easily. Consider two religions equally strict about frequency of prayers. In the above models these religions are identical! Models dealing with conversion per se are also not of much help. Shy (2007) models conversions between secular and religious groups assuming a mechanically programmed fraction of population, which converts necessarily subject to some costs. Botticini and Eckstein's (2007) Jews are driven by utility considerations. Bisin and Verdier (2000) and Bisin *et al* (2004) model religious conversion completely driven by parental investment in socialization of children (paternalistic altruism) and demographic parameters, ignoring that parents not only want to socialize their children to their own religion but also want to see them successful in the secular world. These two objectives might not be compatible for a minority parent, an issue discussed by Lazear (1997) with regard to language transmission. In Levy and Razin (2008) conversion is limited to accentuation of belief within a religion, including the possibility of going secular, in response to material shocks. But we know that religions insure themselves against disbelief triggered by material shocks by instilling the belief that bad times are but a passing phase during which god tests believers (see Carlton and Weiss 2001: 260 and Nutzinger 1997: 239). Otherwise the entire world would have gone Protestant by now.

By an abuse of language we can interpret raising children to become religious as an act of proselytization. Some of the models discussed above deal with this issue. Here we will focus on a particular model (Cozzi 1998) and summarize others briefly. In Cozzi's overlapping-generations model culture, which can be interpreted as religion, is treated as a "public input"

³⁸ Empirical tests in line with these models include Sherkat and Wilson (1995) and Sherkat (2001), who examine religious mobility in USA, and Barro and Hwang (2007), who examine the same for 40 countries. Also see Beckworth (2008) for a time series analysis of strength of US Protestant groups, which throws some light on the issue of conversion.

in the production process of future generations. Individuals invest in learning culture, which is “completely unproductive at the individual level”, when young in anticipation of its resale value when they are old and themselves serve as teachers. As youngsters they incur two costs in learning culture: direct cost paid to teacher and opportunity cost. Now it is easy to see that price of culture is strictly increasing over time. “[L]earning would therefore be a way of saving and investing in an asset carrying no positive market fundamental, that is, in a bubble” and the intergenerational link depends on the bubble. If the economy does not grow then the bubble will not be sustainable so that the survival of culture itself depends on its positive impact on output at the aggregate level (*ibid*: 377). Carlton and Weiss (2001) examine the issue of competition in Torah and suggest that the free competition in the field of Torah teaching ensured the inter-generational survival of Judaism (also see Liebermann 1981: 297 and 1985: 388-389 on the importance attached to religious education within Judaism). In McBride’s (2007a) overlapping-generations model adults tolerate freeriding by children till the latter acquire religious human capital, which binds them to religion (*cf.* Miller 2002). Botticini and Eckstein (2005, 2007) have discussed the mutually reinforcing links between Jewish religious education and their economic fortunes.

We will now move to the issue of discontinuous conversions. Following Iannaccone’s (1990) [Religious capital model](#) one can say that “the likelihood of conversion between particular religious groups should be greater the more similar the groups”. But it is possible to model the process of conversion in a different way so as to show that conversion, if at all it takes place, matches an individual to a significantly different religion (Kumar 2008b). This discrepancy arises because of the following reason. Iannaccone and others do not model conversion explicitly so one is really not sure what exactly they mean by conversion in their model. A closer reading suggests that they are at best talking about behavioural aspects, without being explicit about the doctrinal issues. Contrary to Iannaccone’s prediction it can be shown that in a world with sufficient uncertainty doctrinal conversions will involve two sufficiently dissimilar religions.

Conversions involving mutually exclusive core beliefs are indeed qualitatively different from conversions involving peripheral aspects. It should be evident by now that none of the above contributions addresses the question of how people switch from one belief system to another, Saulus/Paulus type conversions, which involve drastic change in worldview. We will start by noting that one of the distinctive features of religions is their capacity to render the cosmos

“explanatorily intelligible” to the faithful (Balagangadhara 2005 [1994]: 324-325). An individual can compare another religion with his religion only after the new religion has made the cosmos explanatorily intelligible for him. But simultaneous testing is impossible since religions provide exhaustive and mutually exclusive accounts of cosmos. There is another reason why comparison between two religions is not feasible. Each religion supplies both its own hypotheses as well as test procedures. But for comparison to make sense test procedures need to be standardized *and* independent of the hypotheses being tested. We know that one belongs to this religion or that but never to both. Hence, any conversion between religions cannot be rational in the sense that when a follower of a religion makes a decision to switch to another religion he has *no* idea where he is headed towards (*cf.* Gomez and Moore 2006: 206, Coşgel and Minkler 2004b: 331).

There is another way of looking at the problem. Chaves (1995) draws attention to the strong evidence in sociology literature that actual conversion at the level of beliefs comes much later after initial, outward conversion (also see Ellison 1995: 91). Frey (1997) also notes the lack of concern for doctrinal issues at the time of conversion. These authors suggest that to begin with people change tags due to material factors, including network effects. Modelling such conversions is not difficult. See, for instance, some of the models discussed above. But we are still left with the problem of essentially religious conversion. Next with the help of two short examples we will highlight the problems one faces while trying to explain such conversions.

Example 1: Consider an extreme example first. Let Religion A (B) prescribe eternal hell (eternal heaven) for fox eaters. Under what temptation would a believer in one of these traditions turn apostate, especially when the reward/punishment will be revealed only after one dies, i.e., at a stage when one cannot take any corrective action? Unless we have a mechanism explaining how the threat of infinite punishments is scaled down we cannot explain conversion between these two religions.³⁹ Without such scaling down the religion that is receiving the convert has to offer infinite rewards to offset the penalty imposed by

³⁹ Actually the above problem belongs to a broader class of problems referred to as [Eve’s Problem](#) (Section 9.2.2, *infra*). For example, it shares the basic structure with the following. Think of a person who believes that a certain place is haunted by ghosts. Under what conditions will this person agree to change his belief? It seems that imperfect recall, natural or induced, plays a big role in all such situations. This issue needs to be explored further. Within EoR Schlicht (1995) is the closest we come to a psychological perspective of problems at hand including recall. For a model involving memory see Benabou and Tirole (2006). See Rabin (1998) for a survey of interface between psychology and economics.

parent religion. But how does one compare two infinities? But once scaling down takes place then the recipient religion can offer a very large or even infinite reward for conversion.

Example 2: Now consider a variant of the above example where the reward/punishment is not infinite. Let us assume that the followers of the two religions truly believe in the uniquely truthful character of their respective religion's prescription and by implication of the false character of the other religion. No matter what the other religion promises a person will not convert simply because, howsoever attractive, the other religion by construction is an illusion. It is like a choice between a real currency note worth a dollar and a picture of 100 dollar note downloaded from the internet. Our examples seem to suggest that if only there were a worldly dimension to religion conversions between antithetical religions would not be difficult to explain. But this is not true because we will have to explain how people forget the other-worldly dimension and trade places based on this-worldly calculus. Hopefully we have been able to show that explaining religious conversions is an entirely different ballgame. For more on belief transformation see [Section 10.1.2 \(infra\)](#).

4.6.2 *Geographical dispersion of religions*

Why and how did monotheistic religions manage to grow at the expense of others? Military superiority of Islamic and Christian empires over the last two millenia *alone* cannot explain much. The Mongols who defeated all major powers of Asia eventually converted to the faith of the conquered peoples. Much later Islam expanded in Africa (Ensminger 1997) and South East Asia (Jomo 1997) right under the nose of Christian colonists. EoR's focus on one religion, namely, Western Christianity, and its sects might be behind the lack of any work in this regard. Ensminger (1997), an anthropologist, is an exception in this regard, who invokes arguments from transaction cost economics without much success to explain pro-Islamic swing in colonial Africa.

We have suggested above that religious conversion at the level of belief is an extremely complicated matter. But we have also noted that in most of the cases religious conversions involve little, if any, doctrinal deliberation. In other words material factors must have a role to play. Given the very little work done in EoR in this regard as a first step it makes sense to check the empirical validity of hypotheses advanced in other disciplines. In fact, there is a

rich literature in other disciplines that links the spread of religion with all kinds of material factors - diseases, transport and communication technology, printing, etc - leading to a variety of hypotheses about path dependence of religion (Park 1994, Johnson 1967). Consider, for example, Johnson (1967: 171-176) who points out that favorable climate, easy access, and dense settlements attracted Christian mission activities in Africa. As an example he cites the case of South Africa, with a promising climate, relatively hospitable terrain, and easy port access, which was *over-supplied* with missionaries. Note that he suggests a very strong test for importance of material factors in missionary activity, namely, oversupply missionaries in a hospitable target. Also population density, colonial status, etc of a target region governed the choice of missionary targets.

In economics Acemoglu *et al* (2001) discuss how settler mortality influenced European settlement patterns (and institutions and therefore economic development) in the Third World (also see Freyer and Sacerdote 2006). Within EoR Richardson and McBride (2007) link acceptance of particular religious doctrines to mortality rates and Ekelund *et al* (2006: 80-84) discuss the role of technology in success of Protestant Reformation. Before we close our discussion one additional point bears mentioning. Cross-country studies of conversion need to grapple with another issue. It has been argued that among non-Semitic “religions” the notion of conversion has no meaning (*cf.* Balagangadhara 2005 [1994], A.D. Nock cited in Ferrero 2008b: 75). This criticism does not apply to Barro and Hwang (2007) the major cross-country study in EoR because their sample is completely dominated by Semitic religions. But future studies covering eastern “religion” dominated countries need to account for this ambiguity.

4.6.3 *Miscellaneous*

Conversion as a means to reduce cognitive dissonance is an unexplored subject. Goldin and Metz (1991) draw attention to an instance of conversion in Guatemala where a certain group’s lifestyle was changing over a period in way that contradicted time intensive traditional religious practices. The group ultimately started converting to Protestantism, which is less time intensive and relatively better suited to modern lifestyle. Religious change in this case can therefore be seen as “rationalization of a broader, more profound cultural change”, which validated the emerging behavioural patterns and consequently contributed to

reduction of cognitive dissonance. Further if we accept that religion involves commitment then we are only a step away from seeing conversion as a signaling and screening device. Both these lines of argument need further research.

4.7 *Interpretation of theology and mythology*

This is an area whose importance warrants more attention than it has received hitherto. We will discuss the feasibility and nature of economic analysis followed by a discussion on efforts to understand Christian and Jewish religious traditions. By the way contributions related to the former are primarily focused on the historical Catholic Church whereas in the latter case the focus is on scriptures and legal precedents (also see [Section 6.1, *infra*](#), especially for the latter).

4.7.1 *Is economic analysis possible?*

We will begin with a discussion on hurdles facing rational analysis of religion, polyvalency and presumed inscrutability of religious discourse, and then provide outlines of what one should expect from economic analysis and implications of the same.

Rational analysis The problem with rational analysis of religion is that religious claims cannot be disproved (Landsberg 1971). A stylized summary of religious discourse should make things clear. Religions present a tripartite dogma: a) belief that there is a true god with certain characteristics, b) with *verifiable* manifestations reserved for true believers, and c) contrary manifestations, if any, are either temptations (by a testing god) or a satan. Mythology and theology of all religions are replete with graphic details of (c) simply because contrary manifestations dominate the experience of believers.⁴⁰ Given this dogma there is no possibility of disproving religious beliefs (also see Balagangadhara 2005 [1994] and Leiter 2008 for insulation of religion from reason and evidence). Religion ultimately reduces to a technology to feel good in a world contrary to one's beliefs (Nutzinger 1997, also see Carlton and Weiss 2001: 260 and Ekelund *et al* 2006: 65). No wonder the stress within religious traditions is always on *belief* rather than *knowledge* (Hardin 1997: 272).

⁴⁰ See Hull and Bold (1994) and Smith (1999) who attempt to explain why religions stress negatives.

But this should not foreclose the possibility of rational analysis of religion. The tendency to rule out rational analysis of religion by identifying it with irrationality/non-rationality (e.g., Demerath 1995: 108) does not make sense. Just because something is “itself beyond rationality” does not imply that it cannot be rationally pursued. Following Brams (2007 [1983]: 14-15), who suggests that “[r]ationality of theistic belief is independent from its truth - a belief need not be true or even verifiable to be rational”, we can say that while subjecting religion to rational analysis we can ignore its epistemic or ontological status. Closely related to religion-is-not-rational is the tendency to identify it with categorical demands, which require suspension of rationality. Consider once again Demerath (1995: 108, also Bruce 1993) who finds the following claims contradictory: (a) “secularization has been proven wrong” and (b) “religion has increasingly become a matter of individual rational choice within a religious market”. This is not a valid criticism because one cannot, as Demerath, does argue that religion is multi-faceted, comprising of both transcendental and mundane elements, and then reduce this multiplicity, without any explicit reasoning, to a single attribute, namely, *absolute* categoricity.

We are not denying that rational analysis of religion is problematic. To the contrary we are going to engage with the debate in management studies on the applicability of strategic calculus in the religious domain, something we never had within EoR (for partial exceptions see Frey 1997, Ben-Ner 1997). We will draw from Gomez and Moore (2006), who draw attention to boomerang (learning about tools by applying them to newer problems) and surrogate validation (validating solution to a new problem by using tools validated elsewhere) effects. They begin with the observation that while religion is a “total phenomenon” the social sciences are reductionist, an incompatibility that should alert us towards the possible limitations of using our tools to understand religion (*ibid*: 201). They ask two related questions: a) is there a market for religion and b) is rational choice possible in religious matters. Regarding the first note that to apply tools developed for firms operating in a market we need to ascertain (a) if there indeed is a distinction between market and firms, i.e., between suppliers and customers and employees and clients and (b) the nature of value creation, which is what is subjected to economic calculus.⁴¹ We can separate market

⁴¹ Ekelund *et al* (2006: 39) identify three prerequisites in addition to “rationality axioms” for applicability of economic approach: (a) “clearly defined product”, (b) “operational notion of demand”, and (c) “operational notion of demand”. But they leave the issue after noting that most of the studies fail to meet these requirements.

exchanges from non-market ones using these conditions. The first requirement can perhaps be met by dividing religious bodies into a collection of employee-like “deep” believers and client-like “fuzzy” believers (*ibid*: 204-205). This then is the first constraint that they would like to impose on analysis of religion.

The second issue is trickier. What is the value of an indulgence to a Protestant? Value of products of a religion is a function of beliefs of buyers. Thus, they observe, “[i]n joining a religious organization, the belief that is manifested is not the price attributed to the supernatural compensator; on the contrary the belief determines the value to be attributed” (*ibid*: 205-206). They conclude, “[g]iven that belief is profoundly subjective, a believer is therefore unable to objectively compare religious ‘products’...There is understandably no possibility for pricing and logically there is no market...the real value created by the religious organization is not “supernatural compensators” but just the ability of certain believers to enthusiastically transmit convictions to the old and new believers, whatever the convictions might be. In effect, rationality is totally replaced by mimetism” (*ibid*: 206). Thus they rule out the possibility of a market for religion, for the core products of religion, in the sense it is understood in the literature at present. It is to address such concerns that we introduce Gambettas’s inscrutable markets to characterize the market for religion ([Section 10.3.3, *infra*](#)). The next issue they take up relates to the possibility of rational choice in the religious domain.

Rational strategy making in a market “supposes that economic products are objective and objectivable independently of the beliefs of the evaluator... [and] that decision makers do not simultaneously question both their own preferences and the quality of product they are buying or producing...The simultaneous questioning...leads to indetermination and uncertainty”. If we agree that *beliefs* are exchanged in a market for religion then, “the principle of non-simultaneousness would affect and distort the consideration because the calculations of “economic decision makers” simultaneously concern “the belonging to the church or sect” and “the belief into the values of the church or sect”. It would mean that the consumer uses her/his preferences to buy her/his preference” (*ibid*: 208). Now a second constraint emerges: rational choice based analysis has to restrict itself within religious boundaries (*ibid*: 209). At this stage we can pause and note that Gomez and Moore offer constructive criticism. Instead of ruling out rational analysis completely they restrict its scope so that the conclusions derived are more reliable. Very few studies engaging with the market

for religion observe such restrictions, including Miller (2002) critiqued by Gomez and Moore. Now following Gomez and Moore (2006: 210) we can argue that large parts of the existing literature are essentially metaphorical.⁴² Relying on metaphors has interesting implications.

One feature of associating a well-known framework with an unknown object is that this leads the reader to concentrate her/his attention on the application of the framework without necessarily validating the appropriability of the application. As such a surrogate validation effect is achieved when propositions made in the unknown field acquire their legitimacy and their respectability from the proxy use of a very well known concept...The metaphor finally disciplines the imagination of both the reader and researcher⁴³, creates an impression of realism, and ultimately makes even a “simplified view” of religious organizations “that excludes essential aspects of religion” acceptable (*ibid*: 210, emphasis added).

Polyvalency and inscrutability There are, however, other reasons why economists have been suspicious of theology, etc. The dangerously polyvalent language with which one has to negotiate is one such hurdle, which reminds of Stigler (1984: 309) who was not sure if economics had anything to say about language. But the tradition of economic analysis of linguistic problems stretches back to Marschak (1965), if not earlier. Recent contributions include Lazear (1997) and Rubinstein (2000). Then there is the widespread belief that scriptures are inherently inscrutable. A few economists have spanned the divide between religion and economics and justified economic analysis of theology using arguments from the arsenal of theologians. Boulding (1957) made a general case in favour of economic analysis of theology. His argument in short is that even though (Christian) religion essentially transcends the material world it is experienced within the bounds of human body that is subject to material constraints and its teachings are meant to be followed by humans with finite resources, which makes theology amenable to economic analysis (*cf.* Ekelund *et al*'s 2006: 1-3 argument for rational analysis of “organized” religion and Ekelund *et al*'s 2002: Footnote 6 argument for rational analysis of salvation or redemption). Viswanath and Szenberg (2007) come to a similar conclusion starting from Judaic sources. They add that

⁴² “[A] metaphor as a peculiar feature of speech, is a blending of words used figuratively while others are used literally...the rhetorical efficiency of a metaphor comes from the subtle combination of literal and figurative use of the words in the same discourse, the former creating a context that makes that makes sense of the latter” (Gomez and Moore 2006: 209-210).

⁴³ This is not inevitable. See, for instance, Brennan and Hamlin's (1995) use of the metaphor *economizing on virtue*.

revelation in the first place *presumes* comprehensibility, even though imperfect.⁴⁴ The arguments in sources cited here do not depend on characterization of religion as a market phenomenon.

Nature of economic analysis Three things need to be taken into account while forming expectations about the output of economic analyses of religion. Firstly economic interpretations will further our understanding of scriptures but it is possible that actual practices vary dramatically from scriptures and the degree of doctrine-practice gap itself varies across believers. Secondly, more than anything else economic explanations of religious doctrines need to account for the inertia of these doctrines, which have resisted pressures due to material changes over extended periods.⁴⁵ A high degree of inertia implies inevitability of doctrine-practice disconnect, which has serious consequences for both Marxist and Weberian studies, but more so for the latter. To add to the conundrum religious doctrines are, in fact, marked by a peculiar inflexibility coupled with amazing flexibility. On the one hand religions intend to punish small deviations with heavy penalties and on the other even outrageous criminals are promised heaven if only they agree to surrender to Lord, in most of

⁴⁴ Also see Deuteronomy 30: 11-14, Brams (2002 [1980], 2007 [1983]), Balagangadhara (2005 [1994]: 298-301), and Leiter (2008: Footnote 34). The Calvinist discourse, however, poses a truly inscrutable, unimpressionable god.

⁴⁵ On why religions have to frame their messages in inflexible, extreme forms see Miller (1994) for a legal-economic efficiency point of view. In a society where transmission was costly it was desirable to retain tough cases dealing with extreme situations in scriptures and ensure stability of expectations by making it difficult to easily tamper scriptures. Though not directly related, Miller's (2006b) discussion on the apparent extremism of pre-modern legal systems is also helpful in understanding the inflexibility of pre-modern religious discourse. The idea there is that rigid standards provide benchmarks, the limits of the solution space. Miller (2006a) provides a technological explanation focusing on the difference in substitutability of different types of religious products vis-à-vis religious products of other firms as well as secular products available in usual markets. Salvation, for which there are hardly any substitutes, is a high strictness product line where a few changes are required over time whereas other products like schools, etc have secular substitutes. The low strictness product lines have to change along with technology driven secular substitutes. A non-material argument is put forth by Ensminger (1994: 752) who suggests that rigidity of a discourse might "provide its very legitimacy" and is therefore valued by religions.

We will now look at the problem from a cognitive perspective discussed in Schlicht (1995), which reinforces the argument in Miller (1994). Human memory or senses work on the principle of approximation so that any information is recorded in extreme forms to make it easy to store and recall later on. He argues that "[o]ur perception, memory, and recall tend to maximum clarity. This means that divergences between the schema and the item it refers to tend to be either accentuated or minimised. These effects of 'levelling' and 'sharpening' are quite systematic and may be seen as an attempt of our minds to achieve maximum clarity" (*ibid*: 129-130). In order that individuals follow its standards a religion has to promise higher returns from observance compared to non-observance. This means that true belief *plus* any, possibly infinitesimal, positive difference between returns from observance and non-observance of religious precepts would do. Without this positive difference in returns a religion would undercut itself because true belief is necessary but not sufficient for observance. So starting with a finite difference between returns it is possible to land up with infinite difference after some generations due to cognitive distortion or starting from a minimally rewarding/punishing god a society can slip towards elaborately imagined heaven and hell.

the cases without paying any substantial fines! It has been argued that *ex ante* infinite punishment prevents people from straying whereas *ex post* religions rope the deviants back by positing an occasionally forgiving god, etc (*cf.* Harmgart *et al* 2006, Cassone and Marchese 1999). This theological rigidity coupled, intentionally or otherwise, with ambiguity (that provides for flexibility) helps religion to preserve and propagate itself across space and time. Closely related to inertia of doctrine is the obstinacy with which religious beliefs are held. Even if the doctrine is inertial there is no inherent reason why it should be tenaciously believed by the laity. Caplan (2001) attributes the obstinacy to the low cost one has to pay for holding such beliefs in most of the cases (see [Section 10.1.2](#), *infra*).

Lastly, providing material explanations of religious doctrines is as good as suggesting that material factors could have been the *actual* causes behind the origin of the doctrines in the first place. Since majority of the literature explains anything and everything through “material” arguments one wonders why they stop short of saying that the non-material dimension of religion is at best inconsequential. We will briefly illustrate why even very convincing studies cannot rule out the non-material dimension. Consider, for instance, Ekelund *et al* (2002) who provide a purely material explanation of the incidence of the Reformation, which seems to be an alternative to the widespread belief that moral considerations were at the root of the event. A notable feature of religious beliefs is that place categorical demands on human actions: “demands that must be satisfied, no matter what an individual’s antecedent desires and no matter what incentives or disincentives the world offers up” (Leiter 2008). If this is true then moral indignation is required for breakdown of categoricity and only then believers begin to care for calculus, a possibility that is difficult to rule out. So one can as well say that Ekelund *et al* have not provided an *alternative* explanation rather they have provided an explanation of how things worked out after breakdown of categoricity.

If we look at the literature from the perspective of *as if* (material factors alone mattered) analysis we find three distinct types of contributions. One, Ekelund *et al* (1996) provide perhaps the most ruthless, though not always coherent, dissection of the historic, and to some extent contemporary, Church. They explain a number of developments in Christianity assuming rent-seeking church hierarchy. Even though their priests are as corrupt as they could be Ekelund *et al* do not *question* the scriptures. In fact, for them scriptures are as good as non-existent, which is indeed characteristic of most of the literature. Two, Smith (1999)

explains the genesis of the idea of apocalypse by invoking the need to hold the nascent church together in a hostile environment. What is new about his treatment of doctrine is the idea that doctrinal messages work on imagination capital of followers and alter, in his case, their time preferences *a la* Becker and Mulligan (1997). This change reduces “their discount on afterlife outcomes and removes the incentive to participate in pagan idolatry”. Although self-avowedly deferential, Miller’s (1993 a, b and 1996) interpretation of Old Testament, like Smith (1999) discussed above, debunks the superhuman inspiration of scriptures. Biblical characters are shown to be mere convenient foils against which society economically constructs socially useful narratives *aka* scriptures. Ferrero (2008b) explains the doctrinal changes in early Church simply by taking into account the nature of competition and religious policy of the state. The above explanations are self-contained and leave no room for divine intervention or inspiration. Three, in contrast Brams (2003 [1980]) who has analyzed Biblical stories using game theory ends on an explicitly skeptical note because of the undecidability faced by his human players in a large number of potential games against superior beings. So humans cannot be sure whether their experiences can be attributed to a superior being. The divergent conclusions emerging from Brams and Miller are despite the fact that both examine Old Testament. In any case we find that at least some contributors are prepared to take theological positions. We will return to Brams in [Section 10.1.2](#) (*infra*) and presently engage further with Miller’s argument. To be precise we will see what he has to say about structure of texts.

Structure of scriptures Miller (1993 a and b, 1994, 1996) argues that high cost of recording and transmission in pre-modern age is bound to influence the format of religious scriptures and suggests a legal-economic approach towards interpreting theology/mythology. Following his discussion we can say that alternative texts containing socially beneficial rules are subjected to a process akin to natural selection. The texts that eventually survive contain rules embedded in stories/case studies, which maximize expected social welfare (by minimizing expected transaction costs for an average follower), and are easy to transmit across generations. These texts originally served as devices for establishing, promulgating, and enforcing norms in primitive, often stateless, societies. Carlton and Weiss (2001: 258) suggest that rules chosen by a religion have to satisfy a few conditions: (a) should enhance belief, (b) should lead to complementarity of actions of believers and non-believers, (c) assure relatively higher gains to believers who observe rules compared to observant non-

believers, and (d) should be amenable to intergenerational transmission. In addition religions have to specify mechanism of choosing both rules and the mechanism itself.

Historical analysis of scriptures Interestingly but for possibly one exception none of the contributors has claimed to provide answers to issues like dating Biblical texts. But shouldn't this be the target if we agree that framing of doctrines is constrained by the material environment? Raskovich (1996) models the Old Testament market for religion and then shows the conditions under which it would undergo monopolization, which leads to higher prices at shrines. Combining the last with price of services given in different Biblical books Raskovich argues that Deuteronomy predates Leviticus.

4.7.2 *Christian tradition*

Economic analysis of Christian tradition begins with Kane (1963, 1964, and 1966), who showed the theoretical incompatibility between Scholastic and Paretian welfare principles. He also argued that given a church doctrine it is not impossible to accommodate secular pressures for change. "Periodic modernization" of doctrine, he argued, could be treated as "an optimality problem". The engagement with Scholastic literature ended with Melitz (1971), who examined the Scholastic position on usury at length. Since then two issues have attracted most of the attention in recent years: usury and afterlife.⁴⁶ Most notable feature of these contributions is the diversity of objective functions assumed for the Church. But first we will briefly discuss contributions on evolution of ancient Church.

Early Church We have already seen that Smith (1999) explained the evolution of the doctrine of Apocalypse by invoking the need to hold the nascent church together in a hostile environment that offered lucrative outside options to neo-converts. He provides a preference based explanation for introduction of the doctrine of Apocalypse. The vivid descriptions of hereafter enhanced its value to the followers of church by changing time preferences. The

⁴⁶ A number of other issues have received fewer contributions. See for crusades Anderson *et al* (1992); for cathedral building Bereca *et al* (2005); for sainthood Ferrero (2002); for reformation and counter-reformation Ekelund *et al* (2002, 2004), also Allen (1995: 114) and Kane (1966: 439); for marriage Davidson and Ekelund (1997), also Anderson and Tollison (1998); for sex trade Ortona (2007); for contraception Kane (1966); for medieval monasteries Davidson (1995); for miracles (Harmgart *et al* 2006); and for medieval state-church separation (Salmon 2008). Ekelund *et al* (1996 and 2006) collect a number of papers by Ekelund *et al*.

doctrine also promised early return of Christ thereby reducing the relative value of current consumption. Smith ignores a belief based explanation (*ibid*: 453), according to which the doctrine might have enhanced the subjective belief in existence of afterlife. While Smith looks at a very small development within early Church Ferrero (2008b) attempts to explain the entire trajectory of Church, beginning with its obscure origins as a Jewish sect culminating with its establishment in the late Roman period. When it was a small, dispersed sect, oftentimes underground, it did not have the luxury to control the quality of doctrine. It relied like any other sect upon behavioural strictness-based control mechanism. When it emerged as the established church, with monopoly rights, it opened its doors to all (*free-access condition*) and switched to doctrinal strictness-based control mechanism to maintain the quality of returns for its members. The distinctive features of his model include accomodating both church and sect within the same framework as cooperatives, which are constrained by fixed factors including leadership. Other novelties of the model include a spatial representation of competition in market for religion with both ends of the normative space, minimum and maximum strictness, being default locations of firms, Paganism and Judaism, respectively. Furthermore the firm locations are constrained by a *minimum critical distance* they need to maintain, which is governed by the inability of laity to distinguish between sufficiently close doctrinal positions.

Medieval Church Let us begin with usury. Melitz (1971) argues that the doctrine of usury was a byproduct of misunderstanding of Roman Law (also see Marshall 1920: 485-86). Ekelund *et al* (1989) argue that the Medieval Church tampered the doctrine with rent seeking motives. Hull (1989) suggests that usury prohibitions in medieval times were tied to the ecclesiastical position on afterlife, which was tending towards a more fine-grained distinction between different stages of afterlife. Posner (1995) argues that Church being the major welfare provider in medieval age had to induce credit rationing for the poor to check the possibility of moral hazard. Glaeser and Scheinkman (1998) justify usury prohibitions assuming a social welfare maximizing church that aims consumption smoothing. Assuming a self-interested membership maximizing Church, which changes doctrine of usury in line with degree of substitutability between capital markets and traditional consumption smoothing devices, Reed and Bekar (2003) are able to better explain the changes in doctrine over the entire history of the church. They assume lexicographic preferences for Church: “Its foremost goal is to keep all members of the population alive because this increases the value of Church

lands *and* the number of souls that can be saved” (emphasis added; for a related assumption see Hull 1989 and Anderson and Tollison 1992).

The other prominent issue in this literature is the church doctrine on afterlife. Medieval Church devised a very complex system of afterlife management consisting of auricular confession, distinction between mortal and venial sins, purgatory, and indulgences. While Ekelund *et al* (1992) assume a hardnosed rent seeking church in the market for sins/salvation, to explain the evolution of church’s position on afterlife, others tread more carefully. Hull (1989) and Cassone and Marchese (1999) assume a welfare maximizing Church to explain introduction of doctrine of purgatory, etc (also see Arruñada 2004, Harmgart *et al* 2006). While these authors suggest that the Church aimed something like optimal enforcement and deterrence Ekelund *et al* (2002, 2006) argue that historical evidence supports a contrary inference, namely, the church position was driven by pecuniary motives of its hierarchy. Based on insights drawn from a spatial model of competition between churches Barros and Garoupa (2002) argue that changes in churches position can be seen as “a rational response to competition from the non-church and potential entrants”. Richardson and McBride (2007) explain the acceptance of the idea of purgatory by appealing to changes in mortality patterns without invoking active oversight/interference of Church hierarchy. Another factor behind the introduction/acceptance of purgatory could be as follows. One need not necessarily conjure up rent-maximizing popes at least as long as the laity believes that all licit work is pious and shifting to a more productive but equally pious work and financing other requirements is acceptable. Then shift to a less time intensive practice is not unthinkable particularly because the West began to witness higher growth rates in that period. This brings us to Hull (1989) and Hull and Bold (1989, 1994) who argue that evolution of the position on afterlife is tied to socio-economic developments with peak obtained at an intermediate level of development just before the emergence of modern state. Afterlife was made complex to address the requirements of a society becoming more complex over time without matching evolution of secular contract enforcement mechanisms.

Contemporary church We will now look at contributions to a contemporary doctrinal development, namely, the papal decision to relax the requirement to abstain from meat on Fridays. Ault *et al* (1987) argue that the decision was a consequence of shift in balance of power in favour of meat producing countries within the College of Cardinals. They treat the College as a cartel. Their evidence is at best suggestive and can be used in absence of positive

evidence regarding lobbying to arrive at a contrary conclusion. Since their explanation is contingent upon a certain distribution of seats in the College they also need to explain why similar distributions in past did not lead to a similar relaxation. Thornton (1992), who extends their work and suffers from the same problems, argues that the leather interests tipped some European cardinals in favour of the change. Actually the earliest contribution to this issue was Bell (1968), where the impact of Papal decision on fish industry in North East USA was examined. Bell found that the decision negatively influenced fish prices.

Orwell's Problem (Part I) Let us return to Ekelund *et al's* questionable assumptions and treatment of agency problems within Catholic hierarchy. A full discussion is ruled out due to space constraints⁴⁷ so we will restrict in particular to two assumptions or rather presumptions: a) popes' utility has no room for number of souls saved or reduction in level of sin in society, which is what his Lord is supposed to judge him for, i.e., popes are godless and b) people are god fearing. These assumptions together lead one to Marx: poor people *aka* believers in the trap of remorseless opium peddlars *aka* church authorities. The problem with Marxist theology is that it presumes unchanging class demography (Horowitz 2000 [1985]). Before making these assumptions one needs to explain why, how, and when did the two classes diverge with respect to belief in god. Why did the lower class not learn? Information problems alone are not sufficient to explain this divergence because given the relatively low levels of mobility in pre-modern society on the one hand people could easily learn through observing the local church and on the other it is more likely that a symbiotic relation evolved between the laity and local church due to repeated interactions. In any case the charge of atheism is least likely to stick to pre-industrials when the opium in religion appealed to people cutting across class lines. Furthermore, even if we assume that the Church hierarchy was corrupt and godless that in itself does not imply that it must necessarily fail to provide quality services to its members. Modern theory of organizations suggests that organizations manned by purely self-interested individuals, prone to moral hazard, can devise mechanisms to protect their customers from fraud.

If we choose to stick to Ekelund *et al's* assumptions then we need to define religion as whatever supernatural excuse comes handy in conning people and religious community as a collection of extortionists - carrying supernatural labels, and the extorted - people who have

⁴⁷ See also Schmidtchen and Mayer (1997), Ben-Ner (1997), Erlei (1997), and Cassone and Marchese (1999).

preferences over labels or some external compulsion/internal commitment to choose a particular label. Apriori there is nothing wrong with such an assumption except that it leads to Orwell's Problem: how it is that we know so little, given that we have so much evidence?⁴⁸ In [Section 3.6](#) (*supra*) we reformulated Orwell's Problem as one of inefficient use of information. We have argued that lack of information is not the main issue in case of Medieval Christianity. The interesting question then is not *how much profits popes managed to amass* rather *why do people consistently hold beliefs contrary to observed reality*. We are not rejecting Ekelund *et al*'s conclusions straightaway. We are only drawing attention to the hitherto overlooked realm into which they drop us, without a map. We will return to a complementary [Orwell's Problem](#) in [Section 8.2.4](#) (*infra*).

4.7.3 Jewish tradition

Contributions to interpretation of Jewish scriptures begin with Brams (2003 [1980], 2007 [1983]), who provides a game-theoretic analysis of a number of Old Testament stories. Miller (1993 a, b and 1996) provides a law and economics interpretation of Old Testament stories. Raskovich (1996) models the market for religion following Pentateuch. Carr and Landa (1983) provide a club-theoretic rationale for Talmudic sanction against lending at interest within the Jewish community, which ensured consumption smoothing via mutual insurance. To give a glimpse of the difference between Brams and Miller we consider their interpretations of the Biblical story in which Esau sells his birthright to Jacob. Miller concludes that the crisp story upheld the validity and enforceability of contracts in a stateless society, "even if made under conditions of extreme inequality of bargaining power". He observes that this story, among other Biblical stories of this kind, sanctified contractual obligations by citing precedents set by revered figures. Brams on the other hand shows that tit-for-tat (give food if Esau sells birthright) was the dominant strategy for Jacob given that Esau made the first move in a two-person, complete information, non-cooperative game. In equilibrium famished Esau sold his birthright in exchange for food. Miller would argue that by making the first move and declaring private information Esau lost bargaining power. Brams would, however, suggest that the dominant strategy of Jacob left Esau without any option irrespective of the revelation of private information.

⁴⁸ See Patnaik (2007) for discussion of the standard Orwellian puzzle in the context of Hindu mythology. Horowitz (2000 [1985]) provides a detailed discussion closer to our concern in context of ethnic movements but without linking it to the Orwellian puzzle. Within EoR see Kuran (1997) for a related discussion.

Solomon's Problem One story of Old Testament that has inspired a number a very interesting mechanism design papers is that of Solomon, who had to identify the true mother between two claimants to a newborn. Brams (2003 [1980]: 118-123) shows that both the true mother and impostor had a dominant strategy, namely, protest king's order to cut the baby into two and don't protest, respectively. Brams also points out that the outcome is invariant to the sequence of moves. The outcome changes only if the impostor is also endowed with altruism or maternalistic preferences, a possibility ruled out by the Biblical text. This story provides one with an interesting problem: how to allocate an indivisible good to one of many agents subject to the constraint that the recipient values it most *and* receives it without making any payments. The standard second-price auction provides a straightforward solution to this problem sans no-payment constraint. A number of attempts have been made to provide a general solution to this problem with the no-payment constraint. Glazer and Ma (1989) provide an implementation mechanism for many agents and one prize, where agents know each others' valuations and the allocation agency knows the vector of valuations but cannot relate it to individuals (also see Moore 1992). Perry and Reny (1999) and Olszewski (1999) relax the information requirement in a two agent setting by assuming that each agent knows which of them has a higher valuation without knowing the precise value. Bag and Sabourian (2005) provide a solution to the general version of the problem, which involves multiple agents and multiple indivisible goods in the Olszewski-type relaxed information setting. Bag (1996) provides solution to the problem involving a limited amount of divisible good and multiple agents.

5.0 Weberian Analyses

Under this category one finds studies on impact of religion on society and economy. In principle within this category contributions can be classified according to whether they stress demand side or supply side. But very few contributions in this category consciously see themselves in this manner (e.g., Ekelund *et al* 2002, 2004, and 2006). The original contribution is by Weber (1995 [1920]) who propounded the Protestant Ethic Hypothesis or PEH.⁴⁹ Weber suggested that the right kind of religion (in his case Protestantism) can foster

⁴⁹ It seems that PEH was anticipated in one or the other way by a number of people, including Adam Smith, before Weber (Weber 1995 [1920], Anderson 1988, Anderson and Tollison 1992, and Ekelund *et al* 2006: 209).

growth. Protestantism, in particular Calvinism, elevated secular work to the level of religious calling and made this-worldly saints out of commoners. This had two effects, emergence of a hardworking, industrious workforce and increased thrift, which in turn aided wealth creation. He then links these developments to origin of industrial capitalism. He was not unaware of the Marxist link. To the contrary he does discuss (and rule out) the possibility of reverse causality. Notably the economic impact of development of Protestant ethic was, according to Weber, an unintended side effect of the Reformation. Though Weber has been challenged on a number of fronts the idea behind his approach continues to inspire loads of studies. In his review of EoR Iannaccone (1998: 1474) observed that lack of empirical evidence is the most noteworthy feature of PEH. Since then a number of theoretical and empirical studies have appeared. We will look at papers dealing directly with nuts and bolts of PEH followed by work on growth theory, conflict, and experimental studies. Before engaging with these studies we will quickly refer to a few broad brush treatments of PEH and the problematic nature of most of the studies inspired by the basic intuition behind PEH.

Giddens (1976) provides a succinct summary of Weberian position and its critiques (also see Anderson and Tollison 1992, Iannaccone 1998, Collins 1997). Clark (1951, also 1947) questioned the empirical basis of PEH in the context of North America and suggested that pro-economic atmosphere developed partly as a *reaction* and partly as an *after-effect* of the advent of Protestantism. Even though Protestantism was more dismissive of material world compared to Catholicism, its negative influence was limited by the continual process of fission. For a devastating critique of Weber see Samuelsson (1961) who observed that there was no association at all between Protestantism and economic progress to warrant a study of the causal content of the same. Knight (1939), as noted above, discussed the difficulty in defending a causal hypothesis linking social outcomes with religion because of the ambiguous nature of religious doctrine. Friedman (1972) discusses the problematic character of explanations linking religion (Judaism) and socio-economic outcomes. Carr and Landa (1983) suggest that small, tightly knit religious communities (they deal with ascriptive ones in general) succeed in markets where trust is essential, *irrespective* of actual religious affiliation. This amounts to distinguishing between religious and demographic (minority) effects, a distinction also made in Weber and Lewis. But the latter do not address the group size problem modelled in Carr and Landa. Others have argued that religion is quite malleable and certainly not difficult to bypass. So it can at best constrain growth by increasing transaction costs. But in any case the costs are never prohibitive. Hence, in the medium to

long run it should not prove to be a barrier to growth (Marshall 1920, Lewis 1972 [1955], Samuelsson 1961, Schlicht 1995, and Kuran 1997). A widely ignored, though very critical, aspect of Weber's argument is the great stress it laid on the superior moral values, even though instrumental, of this-worldly saints produced by Protestantism. But looking from a distance, i.e., the perspective of colonized, one cannot be faulted for concluding that Weberian-saints were not significantly different from their Catholic counterparts.

We will now turn to be issue of lack of care with which PEH has been used in literature. A number of cross-section or panel studies use 20th Century data to check if religion can influence economic outcomes directly through its impact on trade, returns to human capital, etc or indirectly through conflict, corruption, institutions, entrepreneurship, tax policies, savings, etc.⁵⁰ The evidence as usual in EoR is mixed. One finds that these contributions suffer from a common shortcoming. In most of the cases a relation between income, etc and religion is hypothesized just because adherents of some religion seem to be different. Very few step back and ask what does it mean to belong to religion x , which of these attributes are necessarily part of religion x but not a part of other religions. Since there can be a sustained divergence between religious doctrine and practice once the set of necessary and independent attributes of religion x is identified one still needs to justify a priori why these attributes are expected to influence the outcome of interest. Without this exercise many studies end up treating religion as the sum total of a community's historical experience, which is clearly inappropriate. We are not denying the consequential nature of religious affiliations. Affiliations indeed matter but a more careful methodology is to be followed to establish that they do so in a given case. Further these studies need to observe the distinction between policy and statistical significance because most of us are any way convinced that religion is the culprit this way or that way. Otherwise marginal findings will fuel unnecessary debates.

⁵⁰ See Chiswick (1983), Tomes (1983, 1984, 1985), Meng and Sentence (1984), and Ewing (2000) for individual rate of return on human capital; Borooah (1999) for religion based discrimination in labour market; Borooah (2003, 2004) and Borooah and Iyer (2005) for human development indicators; Helble (2007), Lewer and van den Berg (2007), and Guo (2007) for international trade; La Porta *et al* (1997), Paldam (2001), Alesina *et al* (2003), Guiso *et al* (2003, 2006), Paldam (2007), and Borooah and Paldam (2007) for institutions; and Glaeser *et al* (2005) for interaction between religion and tax policy.

5.1 Protestant Ethic Hypothesis

5.1.1 Structure of hypothesis

Ekelund *et al* (2006) discuss the structure of PEH in the language of EoR. They argue that Weber's argument is basically preference-based and, therefore, focused on the demand side. They suggest that there were supply side factors at work as well, which contributed to economic progress in the Protestant regions. The most important ones being the release of resources withheld from productive use due to rent-seeking investment in Catholic Church and release of labour force tied down by endless religious rituals before Reformation (*cf.* Clark 1951, also 1947, who discusses a broader range of issues). In other words both tastes and constraints changed in tandem. We do not disagree with the identification of Weber with the demand side. But reading the Weberian argument as preference-based is debatable. According to Ekelund *et al* Reformation changed preferences from other-worldly concerns to this-worldly concerns. The advent of Protestantism changed *tastes* in favour of work versus leisure and saving versus consumption. We do not deny this possibility. But even a cursory reading of Weber suggests that he stressed the role of change in beliefs. We will illustrate this point with the help of a short example. Think of a person who prefers carpentry to chanting but who also *believes* that afterlife exists and also that afterlife pay-offs are substantially larger and depend on the effort put into chanting in this life. It is not difficult to see that change of preferences in favour of carpentry does not amount to much. For a general discussion on primacy of beliefs see [Section 10.2](#) (*infra*).

5.1.2 Microfoundations

Assuming uncertainty over existence or nature of other world Benabou and Tirole (2006) provide micro-foundations for economic growth generated by PEH. Basically they model the implications of the “need to believe in a “just world”” within a cognitive dissonance framework, which is then extended to religion. They assume two kinds of beliefs. According to the first “there is a hereafter in which rewards and punishments are tied to effort and industriousness (or lack thereof) during one's lifetime” and its counterpart according to which “there is no afterlife, or that if there is one, its rewards are determined according to criteria

unrelated to industriousness, or even antithetical to material success” (*ibid*: 730). Individuals with former beliefs would work harder and demand lesser redistribution, which in turn prompts others to work harder and so on so forth. Individual’s expected utility in period t is given by the following expression (*ibid*: 731):

$$U_t^i = E \left((1 - \tau)y^i + \tau\bar{y} - \frac{(e^i)^2}{2a} + \theta(\mu^i)e^i \middle| \sigma_t^i \right) \quad (2)$$

where $\theta(\mu^i) = (\mu^i\theta_H + (1 - \mu^i)\theta_L)$ reflects the strength of individual religious faith, μ^i is the posterior belief about the state of world, which can be good (θ_H) or bad (θ_L), e^i is the level of effort, τ is the tax rate, σ^i is the individual’s information set, and y^i is individual income that depends on state of world, inherited wealth, and level of effort. In this model “[i]f a person expects to work hard because of low redistribution, then believing that effort carries important rewards in the afterlife will generate high anticipatory utility” (*ibid*: 731). The model yields two equilibria: PEH equilibrium “accompanied by high effort and low redistribution” and non-PEH equilibrium “characterized by a greater predominance of *agnosticism* or religions that *do not* stress industriousness and worldly achievements, accompanied by the reverse pattern of labor supply and redistributive policy” (*ibid*: 732). The model doesnot explain transition from a religious society in which PEH was unheard of to one divided into PEH and non-PEH communities, both of them religious. Also the model does not suggest any time frame for the sorting. However, given both kinds of belief it can explain the sorting of societies into PEH and non-PEH types. For a society imbued with Protestant ethic Cozzi’s (1998) model of culture as a bubble can explain the simultaneous growth in value of culture and economy (see [Section 4.6, supra](#)).

Glaeser and Glendon (1998) model the Catholic doctrine of freewill versus the Protestant doctrine of predestination. Although both doctrines create incentives to promote good behaviour they show that the Catholic doctrine “creates incentives for individuals who actually believe in the hereafter” whereas the Protestant doctrine “creates incentives for everyone because of individuals’ desire to convince others that they are members of a spiritual elect”. Predestination is shown to be socially efficient whenever observable actions are relatively socially valuable, beliefs about afterlife are highly diverse, signaling is valuable, and homogeneity of actions is desirable. In effect they extend conditional support to PEH. There are two objections to their model. Their results are completely driven by the

following assumptions: a) Protestantism induced observable moral actions and deemphasized the unobservable ones and b) Catholic societies/communities have an inferior social control mechanism.

5.1.3 Historical evidence

One of the earliest empirical studies in this field was De Long (1988), which covered 23 countries. De Long observed that “a nation’s dominant religious establishment” in 19th Century had a significant, exogenous impact on growth of a country while noting that the correlation could as well be due to a coincidence between introduction of Protestantism and a number of standard growth enhancing factors. He also observed that the effect is likely to diminish as more non-Protestant states join the developed nations’ club, which is not a serious endorsement of PEH’s causal explanation (*ibid*: 1146-47). Others have also looked at historical evidence from Europe.⁵¹ The evidence is far from conclusive, which is not surprising for two reasons, namely, paucity of historical data and lack of agreement over how PEH operates - does it induce virtues like honesty, discipline, thrift, and hard work or does it reduce non-cooperative behaviour and enhance interpersonal trust; does it operate at the individual or aggregate level; does it operate in the short or long run. In any case contrary to PEH Delacroix and Nielsen (2001) find little evidence in favour of a positive relation between incidence of Protestantism and a number of economic variables of interest. However, Blum and Dudley (2001) conclude from their study of differential development between North and South European cities that enhanced cooperation (rather than hard work and higher saving), or networking as they put it, due to Protestantism can indeed explain the divergence. There are two objections to Blum and Dudley (2001). First, it is not clear from Weber (1995 [1920]: 106, 108) if he had networking in mind when he proposed PEH. Second, they treat London as the hub of international commercial activity. But during the period under consideration (1500-1750) one can treat Amsterdam as a competing hub. In fact, their Figure 1, which plots population growth against real wage growth rate for 1500-1750, says as much. For additional concerns about their analysis see Ekelund *et al* (2006: 220). Becker and Woessmann (2007), who explore the impact of introduction of Protestantism in

⁵¹ For contributions on other religious traditions see Kuran (1997, 2003, 2004) and Lal (2004) on historical role of religion in development in West and South Asia, respectively, and Friedman (1972), and Botticini and Eckstein (2005, 2007) on role of religion in economic history of Jews, Geertz (1980) for Bali, Greif (1994) for the Mediterranean region, Collins (1997) for Japan, and Kelly and Liu (2000) for Taiwan.

Germany, fail to confirm PEH. They instead show that a human capital explanation, namely, Protestant stress on literacy (actually Bible reading), can explain the economic gap between Catholic and Protestant counties of late 19th Century Prussia. Cavalcanti *et al* (2007) examine PEH using an overlapping-generations model of economy calibrated with historical data and explicitly account for differences in beliefs about afterlife. They show that PEH can at best explain a 70 year gap between onset of industrialization in Catholic and Protestant regions of Europe.

Ekelund *et al* (2006) show that the regions that embraced Protestantism shared a vital pro-growth feature, pre-dating Reformation, namely, adherence to partible inheritance laws rather than primogeniture and that *ceteris paribus* richer regions and classes were more prone to Protestant entry.⁵² The empirical basis of the assertion regarding inheritance has been questioned (Arruñada 2004). Earlier Clark (1947, 1951) has argued that it was the lower class that was most attracted to Protestantism, at least in North America. Ekelund *et al* also argue that higher growth rates in Catholic regions bordering Protestant regions cannot in itself disprove PEH because such an outcome is not unlikely if we agree with the idea of voting-with-feet proposed by Charles Tiebout.

5.2 Growth theories

Religion has been invoked in three different ways to explain international growth differences⁵³: religious beliefs about afterlife, etc matter for growth (Barro and McCleary 2003), the effect of religion on entrepreneurial spirit, saving behaviour, and demand for redistribution affects economic outcomes (Guiso *et al* 2003, 2006), and the effect of religion on institutions mediated through the aggregate structure of society, i.e., fractionalization/polarization, influences growth (Alesina *et al* 2003). The first two have a distinct Weberian flavour. It is not unusual to find completely contradictory results in this literature, e.g., Noland (2005) and Hillman (2006), respectively, find that Islam is inconsequential and consequential for growth. Barro and McCleary (2003) conclude that

⁵² Paldam (2001: 411-412) likewise turns the PEH on its head and suggests that possibly only the honest part of Europe converted rather than Protestantism reducing corruption among neo-converts and enhancing growth. A 20th Century case study by Goldin and Metz (1991) also turns PEH on its head by suggesting that Protestantism was adopted in parts of Guatemala precisely *because* the people concerned were (already) upwardly mobile.

⁵³ For studies dealing with inter-personal income differences see Footnote 50 (*supra*).

religious production efficiency positively affects growth while Mangeloja (2005) fails to find significant support for the same. There are a few studies on determinants of growth within a country, which account for religious factors (Heath *et al* 1995, Crain and Lee 1999, Lipford and Tollison 2003). But even here religion has not been found to be a robust determinant of growth.

Using [religious capital models](#) we can recast the production function used in neoclassical endogenous growth literature as follows to include the effect of religious sector on economy (Mangeloja 2005: 2352-2353)⁵⁴, where R is the influence of religious sector on productivity:

$$Y = K^\alpha (AL)^{1-\alpha} (R)^{1-\alpha} \text{ and } R = f(\omega, \tau, S) \quad (3)$$

S is the stock of religious capital, ω is the level of religious beliefs, and τ is the time spent in religious activities. Individuals maximize utility $U(c, l, R)$ derived from consumption (c), leisure (l), and R subject to the standard time and budget constraints. Assuming zero stock of religious capital religious production efficiency can be represented as ω/τ . For a given level of belief as time spent increases religious production efficiency falls and vice versa (also see [Section 8.2.2, *infra*](#)). Durlauf *et al* (2008b, also 2008a) in their meta-study find that religion (in the Barro and McCleary sense) contributes hardly if anything to explain inter-country growth differences. They also find that fractionalization has little explanatory power but unlike Alesina *et al* (2003) they do not check for religious fractionalization. Mangeloja (2005) provides a good discussion on a wide range of issues like choice of estimation techniques, lack of quality of data, lack of understanding of data generating process, etc.

5.3 Religion and conflict

In this section we will deal with communal violence and not crime for which we refer the reader to Footnote 14 (*supra*). There are two sets of contributions. One set deals with violent religious organizations whereas the other engages with conflict in general. None of the papers discussed invokes doctrinal differences to explain conflict. Religion is an identity marker that differentiates parties to a conflict. Any other marker would do as well! We will also discuss the much neglected possibility of conflict affecting religion.

⁵⁴ For another specification see Durlauf *et al* (2008a).

5.3.1 *Religious organizations and violence*

Berman (2000, 2003), Iannaccone and Berman (2006), and Berman and Laitin (2008) extend the church-sect model (see [Section 4.2.2](#), *supra*) to religious extremism, at times associated with violence, of sects. Stigma-based sects are more cohesive and can extract better efforts from members than secular organizations, which gives them an edge over the latter in case they choose to perpetrate violence. Ferrero (2006b) points out that the church-sect based models can explain the relative success of religious sects turned to violence compared to their secular counterparts without being able to identify which sects turn towards violence and when to expect such a turn. Ferrero (2005) models religious organizations as producer cooperatives subject to free entry constraint and shows that in the event of material setback such organizations use radicalization to restrict membership and enhance per capita returns. This is contrary to the behaviour of comparable secular organizations that radicalize in the event of success. Ferrero (2006b) argues that in the event of failure religions based on behavioural strictness, like Islam and Protestantism, direct their aggressiveness towards outsiders. In Catholicism, which is based on doctrinal strictness, aggressiveness is directed at insiders. There are two objections to this explanation. One, the strictness-based categorization of religions proposed in the paper is not clear. The notion of strictness was originally developed for sub-groups of a religion. Before applying it to religions one needs to build an adequate conceptual framework. Two, Berman (2000) has shown that religious sects radicalize when faced with material “success”, e.g., increased subsidy for ultra-orthodox groups in Israel.⁵⁵

A few models directly address the most violent manifestation of religious violence, namely, martyrdom/suicide. Ferrero (2006a) proposes a model in which organizations offer a two-period incentive contract that “(a) provides members with certain benefits in the first period and probabilistic benefits in the second period, (b) includes a probability of death in the second period, and (c) provides for a sanction or stigma to apply to renegades”. Ferrero (2008a) extends the same to incomplete information settings. Berman and Laitin (2008)

⁵⁵ Ferrero (2008b) suggests that Ancient Catholic Church while undergoing sect-to-church transformation turned towards radicalization (doctrinal strictness), i.e., just when it became successful in receiving imperial endorsement from Rome. On the other hand Ferrero (2006b) suggests that religious organizations turn towards radicalization when faced with failure. Arguably these two outcomes are not contradictory. The former transformation was a one time shift, a stand alone choice, where the nascent church was responding to a particular religious environment. In a different environment it would have adopted behavioural strictness. The latter transformation applies to an existing church constrained by the free access constraint.

extend the club goods model with emphasis on the capacity of religious organizations to provide “local public goods” and solve the principal-agent problem by imposing stigmas. They provide evidence that suicide bombings are more likely to be used against religious adversaries. The strength of this finding seems to depend on coding of Tamil-Sinhalese conflict (Sri Lanka) as religious, which is far from correct.

The common feature of these models is that they assume the organizations and their members are rational. These models cover organizations devoted to extremism in general and highlight why religious sects are more likely to be successful in such ventures. In any case starting from different points both Berman and Ferrero come to the conclusion that to counter extremism a state should try to mitigate the sanctions a sect deploys against potential apostates. Chen (2004) explores insurance function of religious groups in Indonesia. He suggests that economic shocks enhance religiosity when religious groups enable consumption smoothing. So it is imperative that secular sources of insurance are accessible to those in need otherwise religious groups will fill the vacuum.

5.3.2 *General Conflict*

The role of religion in more diffused conflicts like civil wars, riots, etc has not received adequate attention. An indirect contribution is the cross-country study by Alesina *et al* (2003) who find that religious heterogeneity, measured by fractionalization index, is associated with better socio-economic and institutional outcomes and by implication lesser conflicts. Reynal-Querol (2002) finds the contrary to be true but uses polarization based index. She argues that religious differences are more troublesome compared to linguistic ones. For a comparison between the two indexes see [Section 8.3.2](#) (*infra*). Field *et al* (2008) carry out an empirical study of religious rioting in an Indian city using individual level data and argue that inadequate property rights are to be blamed for the intensity of violence. Future work should focus on two issues: a) linking the work on violent religious organizations with the work on conflict in general and b) exploring the role of boundary preservation motive in religious conflicts. With regard to the second issue note two things. Since religions posit exclusive worldviews it is not unlikely that there is always some degree of conflict between religious groups independent of any material consideration, which can serve as the starting point for larger conflicts. Secondly, as noted above, conflict related to any identifiable group attribute

(religion included) is likely to trigger defence of the boundary based on that attribute because defeat, if any, could lead to lowering of social bargaining power of the group as a whole.

5.3.3 *Reverse causality*

So far we have discussed how religion influences social conflict. One shortcoming of this literature is paucity of contributions dealing with the reverse relationship, i.e., the impact of conflict on religion, which incidentally would relate to the Marxist link. We will make just two points. While state regulation can be a source of conflicts among religious groups and also between the state and an aggrieved group it is also possible that conflict leads to state regulation, e.g., the Bulgarian decision to recognize Orthodoxy as the state religion can be seen partly as evidence for the latter. Further Hardin (1997) has pointed out that the intensity of religious belief varies directly with the intensity of conflict (for more see [Section 4.3, supra](#)). In fact, since strict churches are found to be more successful in volatile environments (Beckworth 2008, also Chen 2004) it is not unrealistic to expect that post-conflict the intensity of religious practice will not return to pre-conflict levels. This can be attributed to two reasons: higher expectation of volatility in future and higher returns from religious practice in future due to higher rate of accumulation of religious capital during conflict, especially if extended.

5.4 *Experimental studies*

So far the primary concern of experimental studies has been the impact of religion on propensity to share/cooperate/donate. Unless otherwise stated the subjects were American. Orbell *et al* (1992) use *n*-person Prisoner's Dilemma setting to study the role of religion and human environment in promoting cooperative behaviour vis-à-vis strangers. Dahl and Ransom (1999) study self-serving bias among Mormons with regard to tithing. Johansson-Stenman *et al* (2006) use trust game to explore cooperative behaviour among subjects in Bangladesh. But their sample does not allow distinction between religious and non-religious individuals. Tan (2006) examines relation between religiosity (stated in response to questionnaire) and social preferences (revealed in dictator and ultimatum games). Anderson and Melor (2007) study cooperative behaviour of religious/non-religious individuals using

trust and public goods games. Ruffle and Sosis (2007) explore trust in others within Israeli Kibbutzs using a variant of Nash demand game.

The results so far are mixed. Dahl and Ransom (1999) fail to detect significant self-serving bias with regard to tithing. Dahl and Ransom (1999) and Ruffle and Sosis (2007) suggest that participation in religious activities positively affected sharing tendency whereas Anderson and Mellor (2007) do not find support for such a conclusion. Johansson-Stenman *et al* (2006) interpret their results as supportive of a positive link between belief in divine justice and propensity to share. Orbell *et al* (1992) fail to find significant differences between religious and non-religious individuals. Orbell *et al* (1992) and Johansson-Stenman *et al* (2006) do not find significant difference between subjects of different religious backgrounds. In fact, Orbell *et al* (1992) suggest that it is the human environment, in their case religious concentration, which drives behaviour in their experiment.⁵⁶ Anderson and Mellor (2007), however, conclude that religious affiliation matters for cooperative behaviour. One of the reasons for the contradictory results might be that different aspects of religion are being captured in different studies. Tan (2006) finds that religiosity does not have a straightforward impact on social preferences because different dimensions of religiosity produce counteracting effects. A smaller set of experimental studies fall under the Marxist category (see Footnote 21).

6.0 Marxist/Weberian Links

In this section we will discuss contributions that span both Marxist and Weberian categories suggested in [Section 3.1](#) (*supra*). The contributions to standardization span both categories because when religions make standards for themselves they are influenced by material setting whereas when they generate standards for secular sphere they influence the material world. Similarly political economy of religion includes both religion's impact on nature of state, tax policies, etc and impact of state regulation on religion.

⁵⁶ In a related context Ferraro and Cummings (2007) find significant impact of ethnic concentration on cooperative behaviour towards strangers.

6.1 Religion and standardization

There is very little work on religious standards⁵⁷, which is surprising because religious texts, rituals, etc were not only the earliest human standards but have also proved to be more stable than standards in other fields. Religions have been a source of both religious and secular standards (see also [Section 4.7](#), *supra*, in particular Miller 1993 a and b, 1994, 1996). Oftentimes standards developed in the religious domain served as templates for secular standards. To have its standards accepted a religion, like any standardization organization, needs to preserve its reputation. Interestingly one of the purposes of standardization is to protect reputation/brand value of the entity that adopts those standards and lower transaction costs in future interactions between that entity and others. For instance, Adam Smith argued that by adopting strict rules specified by sects poor individuals enhance their creditworthiness in the market (Anderson 1988). Note the concern for reputation at both the stage of standard formation as well as usage.

We will first note the ways in which a religion protects its own reputation by adopting internal standards. We can adapt the threefold classification of standards due to David (1990: 214) for categorizing internal standards adopted by religions: standards for minimum admissible attributes (govern, e.g., whom to admit into the church - symbols in Carr and Landa 1983 and stigmas in Iannaccone 1992a), reference standards (stabilize religious concepts and practices across sub-units - e.g., price of religious services across shrines in Raskovich 1996; Coşgel and Minkler 2004a argue that religious consumption norms serve as standardized communication devices; Ghosh and Kumar 2005 a, b discuss the role of religion in evolution of linguistic standards, which demarcate the community of believers from non-believers), and interface compatibility standards (constitutional establishment clauses are a compromise between religious groups over use of public space for religion while ecumenical policy governs the mode of coexistence among various groups outside the institutional structure of state, sub-groups within a religion rely on a common meta-standard in the form of scriptures, e.g., Bible, etc).

⁵⁷ Weber (1995 [1920]:169) briefly discusses the standardizing impact of Puritanism. However, his argument can apply to any religious group as long as it is prepared to impose some code of conduct on its member. But Weber makes a bigger claim. He argues that by restricting potential for ostentation Puritanism aided standardization in markets.

Using these three kinds of standards religions stabilize themselves and then generate norms of behaviour that guide believers in a variety of social interactions. Lipford's (1992) constitutional review, covering seven major US churches ranging from Roman Catholics to Southern Baptists, addresses the issue of organizational reputation. He suggests that churches protect their reputation by "preserving doctrinal integrity" and constraining opportunistic behaviour of laity as well as clergy. In his discussion on constitutions of different churches one finds a number of examples of the first two types of standards. Miller (2002) provides discussion on interface compatibility issues.

Having thrown some light on internal standards we will turn to external standards generated by religion. Among other things religion has been a source as well as repository of law across much of human history and, in fact, continues to serve in that capacity in certain contemporary societies (*cf.* Pylee 2000). The role of Church in the evolution of Western Legal systems is quite well-known. Ekelund *et al* (1996) suggest that the Medieval Church misused its control over "portions" of legal system for pecuniary benefits. Directly or indirectly religion has also provided standards for trade (Greif 1994, Ensminger 1997). Hull (1989), Hull and Bold (1989, 1994), and Anderson and Tollison (1992) note that the normative role of religion decreases as civil authorities become more efficient in contract enforcement (*cf.* Arruñada 2004). Anderson and Tollison argue that only a monopoly can provide optimal norms in the long run. So the tendency of religions towards monopolization depends on the welfare maximizing potential of monopoly in market for morals. But Schlicht (1995: 139) attributes this tendency to standardized nature of products in market for religion.

A small but very interesting group of papers provide ex-post economic rationalization for legal precedents developed under the aegis of religion.⁵⁸ Posner (1987) was one of the earliest to emphasize the need to study the bi-causal link between law and religion, in particular state regulation of religion. McConnell and Posner (1989) provide an extensive analysis of regulation of religion (also see Coase 1974 for a more general discussion on First Amendment).⁵⁹ Interestingly, later contributions on impact of regulation on religion do not

⁵⁸ See Liebermann (1981, 1985, 1986), Aumann and Maschler (1985), Aumann (2002, 2003), Carlton and Weiss (2000), Viswanath (2000, 2007), and Viswanath and Szenberg (2007) for Judaism; Ekelund *et al* (1996, 2002, 2006), Cassone and Marchese (1999), Arruñada (2004), and Harmgart *et al* (2006) for Medieval Christianity.

⁵⁹ The few contributions dealing with legal issues or using law and economics approach include Carr and Landa (1983) on role of ascriptive organizations in a society lacking contract enforcement mechanism, Fama and Jensen (1983) on separation of ownership and control in organizations (including religious); Cassone and

adopt what is known as the law and economics approach. The importance of which should be evident from the fact that none of the contributions to regulation of religion provides welfare analysis of changes in legal policy.⁶⁰

6.2 *Political economy of religion*

“Largely theocratic societies”, where main purpose of government is religious and some coercion is used to serve it, used to be the norm in the pre-Modern age (Salmon 2008). It has also been suggested that “state monopoly over religion has probably been the single most important form of state monopoly” in human history (Barro and McCleary 2005: 1331-1332). So it is surprising that the political economy of religion has received very little attention in EoR. Unlike Adam Smith the models of religious economy (Section 4.2.1, *supra*) look at the problem only from the point of view of consumers and suppliers of religion, with very little attention to institutional structure of the public space. At present there are two approaches to political economy of religion. There is a growing body of papers on state religion, etc, which will be reviewed first. Another set of papers attempts to model the interaction between religion and other dimensions of public policy in different contexts, e.g., electoral (Benabou and Tirole 2006, Glaeser *et al* 2005, Roemer 1998), legal (McConnell and Posner 1989, Iannaccone *et al* 1997), etc.

Thanks to the *Workshop on the Political Economy of Theocracy* (2007) organized by the University Centre St-Ignatius (Antwerp) we now have a number of contributions exploring both modern and pre-modern theocracies. Noteworthy among these are Salmon (2008), Glazer (2008), and Allen (2008). According to the consensus theocracies in general would be unviable in modern societies. Otherwise there is very little work on role of state in religious sphere. Barro and McCleary (2005) carry out a cross-country study to identify determinants of state religion (also see Footnote 22 for related studies). Their study suffers from a number of problems related to coding of explained variable, use of data from colonial period when the subject countries did not have a choice, failure to account for role of factors like

Marchese (1999) on parallels between indulgences (Medieval Church) and amnesties (modern tax and criminal law); Gruber and Hungerman (2006) on impact of changes in blue laws on religion.

⁶⁰ Kane (1966), Dixit and Grossman (1984), Bhagwati and Srinivasan (1986), Glaeser and Glendon (1998), Benabou and Tirole (2006), Poutvaara and Wagener (2008), Glazer (2008), and Allen (2008) discuss the welfare implications of their analysis, all of them in non-legal contexts.

monarchy, regional effects, etc. Kumar (2007) draws attention to the sacral character of monarchies. Coşgel and Miceli (2008) model the legitimizing function of religion with respect to state.

Salmon (2008) examines church-state separation in pre-modern Europe. A competitive governance framework is used to explain division of power between state and church in largely theocratic societies. The Biblical exhortation to render unto Caesar what belongs to him is taken as given and players, Church and King, are allowed to fight over the actual interpretation. He proposes five ideal interpretations based a survey of European history. Church aims to maximize its share in god serving activities of society. Both Church and King look at their resource base, which includes popular support, and choose a favourable interpretation. Glazer (2008) tries to explain the productivity gap between secular and theocratic states. His explanation rests critically on the assumption that while secular states are willing to learn from theocracies the reverse is not true. Allen (2008) provides a transaction cost rationale for theocracy in pre-modern societies. He views theocracies as screening devices. By making religion the driving force of social organization a theocracy not only taps a larger pool of talent compared to aristocracy but is also able to screen the applicants.

Given the significance of establishment for market for religion it is surprising that there is hardly any work on the determinants of secularism, the *norm* that upholds the desirability of exclusion of religious considerations from non-religious relationships. Leiter (2008) is a good starting point for those interested in studying the issue of religious tolerance and role of state in this regard. He differentiates among the following: a) indifference (not at all concerned about others), b) instrumental tolerance (concerned about perceived negative externalities generated by others but forced to practice tolerance due to constraints), and c) principled tolerance (concerned about perceived negative externalities generated by others but practice tolerance even in absence of constraints). He also discusses moral and epistemic origins of principled tolerance. We can add that indifference can arise from two entirely different sources: a) belief that religion is irrelevant or inconsequential and b) belief that all religions lead to the same truth. Interestingly in each of the three cases identified by Leiter the end result is same, namely, non-interference in religious life of others, but for entirely different reasons. We can interpret secularism as non-interference. A state policy based on principled tolerance or indifference is relatively stable because unlike a policy based on instrumental

tolerance it is not susceptible to changes in the constraint set, i.e., material environment. We will now briefly discuss two ways of modelling secularism.

Starting with a collection of individuals/groups, exogenously assumed to have taste for different kinds of tolerance, and finding the consensus policy depending on balance of forces is an ad hoc solution. Kumar (2008a) models the impact of individual religious beliefs and preferences on acceptance of secularism at various levels of aggregation and shows that only an absolutely tolerant or pretty inefficient ruler adopts the norm of secularism even when faced with a secular populace. Equilibria in Kumar (2008a) correspond to indifference, instrumental tolerance, and intolerance. Starting from other models in EoR one cannot come to this outcome because none of them entertains the possibility of religions that believe that others are generating negative externalities for them. We don't yet have a model for principled tolerance. Assuming exogenous commitment is not only an ad hoc but also unsatisfactory solution. In a multi-period model one can think of fossilization of instrumental tolerance leading to principled tolerance due to cognitive dissonance.

Next we will very briefly discuss two models of interaction between religion and other political issues. Glaeser *et al* (2005) show that political parties resort to dogwhistle campaigning, restricting certain extremist (religious) messages to a smaller sub-set of voters, to mobilize their core constituency which is not swayed by the campaign targeting the median voter. In this way he is able to explain the growing salience of religion in U.S. elections. Roemer (1998) considers a polity divided between rich and poor. Electorate is assumed to have preferences over tax-religion policy space. Some poor voters have a taste for religion (pro-clerical) while some of the rich voters do not have a taste for religion (anti-clerical). He shows that electoral competition in this two policy setting tends to mitigate extreme party positions on either policy. To attract anti-clerical rich voters Left softens its tax policy. Right offers a pro-clerical policy but has to offer relatively higher tax rates to attract pro-clerical poor.

7.0 Theoretical diversity within EoR

Before we move to the next section for a detailed discussion on some of the grey areas of EoR we will take a quick look at the diversity of modelling approaches. This diversity, which

has increased particularly since late 1990s, is a measure of depth of interest of economists in religion. The list begins with Azzi and Ehrenberg (1975), Neuman (1986), and Iannaccone (1990) who use Becker's model of allocation of time, household production, and human capital to explain religious participation. Iannaccone (1988), Rodero and Branas (2000), Barros and Garoupa (2002), Montgomery (2003), Barro and McCleary (2005), Pepall *et al* (2006), and Ferrero (2008b) use spatial models to study the market for religion, while Mao and Zech (2002) use the same to model the choice of organizational structure of church. Glaeser *et al* (2005) use spatial model to explain the growing salience of religion in US elections. Hull and Bold (1989) and Allen (1995) follow transaction cost approach to explain the nature of religious organizations whereas Ensminger (1997) and Allen (2008) follow the same to explain conversions and viability of theocracies, respectively. Ekelund *et al* (1989) use franchise monopoly model and economics of innovation to explain the developments within Medieval Church. Raskovich (1996) models the emergence of monotheism as the dominant faith in a polytheistic society assuming the network of Jewish shrines to be part of a franchise monopoly. Ekelund *et al* (2006) treat the post-Reformation European market for religion as a collection of spatial monopolies whereas earlier it was dominated by a single vertically integrated monopoly.

Lipford (1992) relies on constitutional economics approach to understand the ways in which religious bodies preserve their reputation. Iannaccone (1992a) uses variable utilization rate club (with "anti-congestive" club good) to explain behavioural restrictions in a religion. Montgomery (1992) and Benabou and Tirole (2006) adopt the cognitive dissonance approach to understand changes in individual beliefs. Following Stigler's survivorship principle Stonebraker (1993) examines the trend in size of religious bodies (also see Hull 1989). Hull and Bold (1998) use product differentiation models to explain religious participation rates. Overlapping-generations model has been used to explain culture (religion) as a bubble (Cozzi 1998), patterns/trends in conversions (Bisin and Verdier 2000, Shy 2007), impact of religion on transition to industrial economy (Cavalcanti *et al* 2007), and the desirability of freeriding in religious organizations (McBride 2007a). Isaacs and Laband (1999) invoke Tiebout's voting with feet to explain the structure of supply side of market for religion (also see Montgomery 1996b). Condon (2002) models Catholic Church as monopsonists for Catholic clergy while Ferrero (2005) models religious extremist organizations as monopsonist cooperatives. Ferrero (2002) invokes theory of bureaucracy and contest theory to explain intra-church competition. Epstein and Gang (2007) use contest theory to model strictness of

sects. Lewer and van den Berg (2007) use gravity model to study impact of religion on trade. Salmon (2008) uses a competitive governance framework to explain division of power between state and church. Podovano and Wintrobe (2008) use Wintrobe's dictatorship model to study the longevity of papal reigns. Add to this list the experimental studies discussed above (Section 5.4, *supra*).

We conclude this section by noting the near absence of principal-agent models in EoR, which is perhaps not accidental. The exceptions do not provide an agency theoretic model for the enterprise of salvation/afterlife, the *raison d'être* for market for religion.⁶¹ Three factors can explain this trend. One, the nature of information in market for salvation is queer (see Section 10.3, *infra*). Two, the identity of principal and agent is not clear. Is Pope the principal, who wants to organize this world after the other world, and people the agents, who get a ticket to heaven provided they lead a Christian life? Or is it the other way round with people as principals who employ the Pope for arranging a ticket to heaven? Intermediaries in hierarchical religious organizations complicate the picture further (*cf.* Zech 1998). Three, a number of authors have suggested that people have full information contract with gods rendering the problem redundant.

III. CLOSE-UP

In the literature surveyed in Part II one rarely finds an explicit demarcation of religion or related concepts either preceding the analysis, and thereby guiding it, or after the analysis, arising as a consequence of the analysis.⁶² Very few clearly state what exactly can be analyzed within their set-up.⁶³ It is a truism that concepts like religion are difficult to demarcate due to their polyvalency (Goody 1961, Geertz 2000 [1968], Stark and Bainbridge 1985; for a different approach to this issue see Balagangadhara 2005 [1994]). Still the treatment of religion in EoR is problematic because at times the implicit definition is too

⁶¹ The exceptions include Fama and Jensen (1983) on separation of control and ownership, Schmidtchen and Mayer (1997) on optimal selling arrangement for indulgences, Dixit (2005) on state-church collaboration, Ferrero (2007) on clerical authority's choice between theocracy or a hired lay ruler, and Ferrero (2008a) on martyrdom contracts. Olds and Liu (2000) provide empirical evidence for agency problems in religious organizations in pre-/early 20th Century Taiwan. All these applications address secular organizational concerns of religious organizations.

⁶² Similarly in the debate on secularization, till recently driven by regressions, no one bothered to tell when he/she will agree that secularization has indeed taken place.

⁶³ Kumar (2008a) highlights the inability of his framework to deal with agnosticism and distinguish between sects.

vague, characterized by over-inclusiveness, so as to include all sorts of things like *New Age Religions* in Iannaccone (1995a) or it becomes yet another club, which it is not (see discussion on club-theoretic models in [Section 4.2.2](#), *supra*; cf. Ekelund *et al* 2006). It bears noting that we are not saying that religion cannot or does not share features with other human organizations. But it is important to recognize that while it is interesting to examine these commonalities it is also important that we clearly demarcate the field of inquiry so as to be able to pay attention to what makes religion a distinct element of human societies. Otherwise one comes across a narrower conception of religion, characterized by under-inclusiveness, which practically excludes non-Abrahamic religions, for instance, in Azzi and Ehrenberg (1975).⁶⁴ At times comparative discussion on religions uses entirely different yardsticks for different religions (e.g., Helble 2007) or different religions are confounded as in La Porta *et al* (1997) who treat Islam as a hierarchical religion *like* Roman Catholicism. Elsewhere religious and other ethnic labels are confounded (e.g., Borooah and Iyer 2005).

The burden of this discussion is that we cannot after Posner (1987: 1), who suggests that words like religion “can be used but not defined”, ignore the need to isolate what exactly is religious in a social phenomenon. It has been observed that a phenomena becomes religious largely due to interpretation *within* a religious context (Balagangadhara 2005 [1994], Martin 1995, Hardin 1997, Thomas Szasz (quoted in Caplan 2006)). If we are not prepared to define or demarcate religion then “[h]ow do we know that [we are] studying religion and not something else” (Balagangadhara 2005 [1994]: 11) or in other words how do we know that we are indeed *using* religion. In this section we will discuss the consequences of the inability to pin down religion for economic analyses of religion. Before that we will briefly discuss the exceptions to this general tendency to ignore definitions.

In Iannaccone (1988) the definition of *sect* of a religion, based on distance from secular norms, emerges from within the model. Sects (churches) are religious organizations that generate convex (concave) production possibilities frontiers. We have already discussed the limitations of this definition (see discussion on church-sect models in [Section 4.2.2](#) *supra*). Kumar (2008a) provides a multi-dimensional definition of religion. A religion can have a number of dimensions (existence of god, nature of divine justice, set of gods, afterlife, etc).

⁶⁴ Following Balagangadhara (2005 [1994]) this is unproblematic because in any case Abrahamic religions are the only religions known to mankind! However, since EoR has never denied the existence of non-Abrahamic religions it has to accommodate the same while building a theory of religion otherwise it would reduce itself to *Economics of Monotheism*.

Religions differ from each other depending on the beliefs and preferences related to different dimensions. But Kumar's definition cannot differentiate between sects of the same religion. The above definitions are either a consequence of micro-analysis or geared towards facilitating micro-analysis. Balagangadhara (2005 [1994]) provides an empirically grounded definition of religion whereas Leiter (2008) isolates religious beliefs in a similar way. Religion for Balagangadhara is an explanatorily intelligible account of cosmos, worldview par excellence. His discussion suggests that only Semitic faiths qualify as religion. Leiter suggests that religious beliefs are different from other beliefs because of categoricity of demands on action flowing from such beliefs (and the ability of religion to give effect to this categoricity) and their insulation from evidence. In addition religious beliefs involve metaphysical claims about ultimate reality. The last three definitions are able to screen out communism, civil religion, etc without any additional contrivance.

8.0 Empirical Analyses

We have seen above that there is hardly any religious phenomenon for which we have unambiguous theoretical or empirical support. Contradictory conclusions are due to a) focussing on different aspects of the problem (recall supply vs. demand side discussion in [Section 4.0, supra](#)), b) lack of understanding about data generating process, and c) data scarcity. The last two issues will concern us in this section.

Non-availability of reasonably large and reliable data sets has plagued the field right from the beginning (Azzi and Ehrenberg 1975: 39; also see Stark and Glock 1968: *Preface*) and continues to do so till this day (Iannaccone 1998: 1467, Barro and Hwang 2007: *passim*). In this review we will refrain from direct examination of the surveys and censuses from which data is sourced.⁶⁵ We will instead focus our attention on the lack of understanding of the data generating process, which as we will find shortly is the major problem. Instead of going into each study we will look at some broader problems associated with analysis of religious data and refer to particular studies if required. These references are suggestive rather than

⁶⁵ See Iannaccone (1998: 1467-1468) for a discussion on data sources. Here it suffices to note that Hull and Bold (1989, 1994) are perhaps the only ones using data from Human Resource Area Files that contain social anthropological data for around 300 non-Western cultures. Is it a mere coincidence that they are also the only ones to account, howsoever imperfectly, for religions devoid of afterlife in their work? Also noteworthy is Fogel's (1999) insightful discussion on need to shift from "cross-sectional to lifecycle and intergenerational datasets".

exhaustive or prejudicial. Readers are free to demand fuller discussion on specific studies cited or those left out. Our discussion is forwardlooking in the sense that it raises issues that are becoming increasingly salient. It is divided into three parts dealing with aggregate analyses, individual level analyses, and indexes, respectively. Even though the first two categories can overlap they are quite distinct. In the latter the focus is on studies that relate to individual level marginal calculus whereas in the former we restrict to problems related to studies that examine mass phenomena.

8.1 *Aggregate level analyses*

To begin with it is worth asking if the problem is limited to paucity of religious census and survey? If yes all we need is more census, which essentially boils down to more research funds. In the following discussion we will argue that perhaps the problem lies elsewhere and discuss the various facets of this problem. This does not amount to denying the paucity of data. Indeed a number of countries exclude identity from census (Fearon 2003: 221) to avoid escalation of communal politics while others discourage fine grained surveys of identity even though there is enough historical evidence suggesting that this trick does not work. Our aim instead is to learn from the analyses of existing data and throw light on a number of empirical and theoretical issues that need to be understood up front.

8.1.1 *Instability of labels*

In the 16th and much of the 17th Century African slaves in North America were known as “heathens”. The label “black” gained currency only after the Church in North America started to accept Africans (Horowitz 2000 [1985]: 43). Likewise the centuries old Burmese-Shan, Chinese-Tibetan, etc conflicts have proved resilient to taxonomic upheavals. Depending on when one carries out the study a conflict can be called religious, ethnic, or economic.⁶⁶ Without adding examples it suffices to say that an attempt to explain the link between religion and ethnic conflict or for that matter other phenomena supported by an unambiguous

⁶⁶ Very few studies use long term data for analysis. Among the exceptions are Mourao (2006), who uses time series data (1960-2002) in his study of determinants of decline in the number of Catholic priests in Portugal, and Beckworth (2008), who examines impact of business cycles (1960-2006) on religiosity of US Protestant communities. Barro and McCleary (2005) use data from three different points in the 20th Century (1900, 1970, and 2000) to study the determinants of state religion.

census is not necessarily going to take us far because individuals/groups are free to use convenient labels, religion being one of them. Cross-sectional studies (e.g., Borooah 2004, Borooah and Iyer 2005) using these labels are problematic since they contain lot of sediment from a number of disparate sources. The problematic character of ascriptive labels, in particular their transience and endless possibilities of interaction among them, has been discussed in literature (Anderson 2006 [1981], Horowitz 2000 [1985], Fearon 2003, Sen 2006, also see [Section 8.3.2, *infra*](#)).⁶⁷

The problem does not arise simply due to the long time span in the above cases so that a more reliable time series analysis, taking account of changes in identity markers, and use of an array of interacting dummies might save the day. The problem is lot deeper. In many African countries a nocturnal census would reveal a higher fraction of animism while one carried out in daylight especially on Sunday (Friday) would likewise inflate the ranks of Christianity (Islam). Elsewhere there are 9-to-5 believers who adhere to state or civil religions in public.⁶⁸ Rather than belittle the people concerned these observations draw attention to complexity of human needs and equally if not more complex arrangements in place to meet those needs. Individuals have multiple identities and are free to select a combination of identity markers to represent them depending on the context and further their interests. In other words

⁶⁷ Recent years have seen growing interest in economic analyses of social identity and related issues. For an early contribution in this regard see Carr and Landa (1983). More recently Akerlof (1997) and Akerlof and Kranton (2000) have brought the issue in limelight. For sociological approach to this issue see literature reviewed in Baron and Hannan (1994).

⁶⁸ Barro and McCleary (2005: 1367) observe that “standard data on religion adherence for Sub-Saharan Africa understate dual adherence to indigenous faiths and, therefore, overstate the adherence rate for the main religion”. Guo (2007: 110) faces the same problem with regard to East Asia, especially Japan. No one, including the Japanese, really knows how many Buddhists there are in Japan. Counting Buddhists in South Korea is an equally, if not more, unenviable job. In a thought provoking essay Balagangadhara (2005 [1994]) argues that Buddhism and the so-called pagan religions are not religions in the first place if one were to simultaneously maintain that Christianity, Islam, etc are also religions. He argues that Buddhism was manufactured in the 19th Century Europe. In other words the encounter between the West and East created hitherto locally unheard of religious communities in the East with retrospective effect. No wonder one fails to find empirical correlates for such labels. Cf. Iannaccone (1995a: 291), who suggests that usefulness of religious statistics from Asia is suspect because Asian religions generally support fee-for-service arrangement so that a portfolio diversifying individual can have multiple affiliations rendering the idea of *identity* superfluous.

But the problem is not confined to non-Abrahamic faiths. Penetration of standard form religion as represented in scriptures is not guaranteed in pre-literate, low population density societies. There is large literature that questions the belief that pre-Reformation Europe was solidly Catholic (see, for instance, Oakley 2006). Goldin and Metz (1991), Stark (1992), and Gill (1999) raise the same issue regarding Catholic Church in Latin America. We still do not know if Mormons are Christians or if Ahmediyas are Muslims (Kumar 2004). The share of Muslims in Indonesia remains a puzzle so far (Paldam 2001: 405). Even in case of USA church statistics pertaining to African-Americans have been contentious (Chaves and Gorski 2001). Barro and Hwang (2007) suggest that religious accounting is not straightforward in post-modern Christian societies. Nature of intra-Islamic heterogeneity is another grey area. Iannaccone *et al* (1997) suggests parallels between Islam and Catholicism in this regard.

prioritization of identity markers is not space-time invariant. Observers are free to attach a label of their choice but actors are not constrained to behave accordingly even in the short run. We come across cases of incorrect attribution of observations (e.g., La Porta *et al* 1997, Berman and Laitin 2008) or inappropriate accounting of interaction between identity markers (e.g., Isaacs and Laband 1999, Chen 2004, Glaeser *et al* 2005, Noland 2005, and Helble 2007). In each of these cases one finds, or can find, a “reasonable” justification for the approach adopted, but one which does not capture the dynamics of the problem during the period of interest.

8.1.2 *Who drives observable religious practices/outcomes?*

Ignoring the above doubts or assuming that there is some way to resolve the underlying problems let us check if we are any closer to deliverance. Perhaps not, because observed religious behaviour is disproportionately driven by extremists, especially in societies suffering from conflict, endowed with poor public institutions, or supporting a state religion. The influence of extremists varies across sectors of society. So when analyzing aggregate religious behaviour more important than aggregate shares of religion one needs to worry about the relative shares of fanatics. Can any census or survey provide data on extremists? Can we find proxies for share of extremists? Say fraction of school age children studying in religious seminaries. Though it is tempting to fall for this proxy one is not sure it would help because not every society, especially, the troublesome cases from the perspective of religion, has sufficient secular alternatives to religious seminaries. The link up between the literatures on conflict in general and violent sects could provide a way out (see [Section 5.3.2, supra](#)).

To the extent they ignore the fine print efforts to study aggregate behaviour by invoking religion suffer from another drawback. Solomon West Ridgeway Dias Bandaranaike, the Sri Lankan prime minister, who more than anyone else, was responsible for cementing the position of Buddhism in public space was an Anglican Christian by birth and converted to Buddhism after his foray into politics (De Silva 1999).⁶⁹ Recall our discussion on [neo-convert syndrome](#) ([Section 4.3, supra](#)). Where does one place new converts? Also in [Section 4.6 \(supra\)](#) we drew attention to mismatch between formal act of conversion and actual

⁶⁹ See Gooneratne (1986) for an insider’s view on the treacherously fluid religious-racial-linguistic identity of the Bandaranaike family.

conversion at the level of beliefs and preferences (also see [Section 10.1.2](#), *infra*). Likewise Ghosh (1994) reminds that the torchbearers of movements for Jewish Israel and Islamic Pakistan were largely secular. In short one needs to be careful while using labels, especially, in cross-country analyses. Infact, it is possible that certain issues are not amenable to cross-country statistical analysis due to local peculiarities (*cf.* Geertz 2000 [1968]).

8.1.3 *Selection bias*

It is well known that the more advanced a society is the more information it needs to process to keep going, which in turn implies that we have more data for analysis. It can be argued that the information processing capacity of a society is correlated with general institutional and theological complexity (*cf.* Hull and Bold 1989, 1994). The fact that most studies have to restrict analysis to countries where there is sufficient data implies possibility of selection bias. These studies might end up artificially selecting a subset that is economically better off and necessarily has a complex theology (belief in hell, etc). Another point to be noted in this regard is that societies which value transparency and accountability provide more data. Once again there is possibility of selection bias in cross-section studies. We also know that more exclusivist religions generate not only more but also precise data. Further producing and maintaining databases is a costly affair, which is why poor societies are less likely to provide researchers with data. A similar point can be made with regard to societies with high levels of illiteracy. In modern times the overlap between Judaeo-Christianity, technological development, prosperity, literacy, and democracy (transparency) is substantial enough to bias results. For instance, Barro and McCleary (2006: 154) observe that in their sample “coverage is better for rich countries than poor ones and for countries that are primarily Christian” (also see Hull and Bold 1989: 13, Ekelund *et al* 2006: 98). Another source of selection bias is the choice of level of aggregation (see discussion on secularization hypothesis, [Section 4.0](#), *supra*).

8.1.4 *Simultaneity bias*

A “state” (its dominant group, majority or minority) can simultaneously choose both institutions (state religion) and demography. 20th Century witnessed too many population

transfers, forced ethnic/linguistic/religious re-classifications/ conversions, and ethnic cleansings making it difficult to ignore the possible simultaneity of demographic and institutional (religious) developments. In other words population share of religious groups cannot necessarily be treated as an independent variable in a study based on time series or panel data involving widely separated points along the time dimension. A related issue of concern, as pointed out by Kane (1966), is that population share of a group might not be independent of its religious beliefs, e.g., Catholic population dynamics is partly governed by the teachings on birth control and the degree to which individuals heed those teachings in turn affects the strength of Catholic church.

8.1.5 *Spatial auto-correlation*

Individual religious choices have been shown to be correlated across space at county level in USA (Land *et al* 1991) and regional level within Western countries (Smith and Sawkins 2003). But not much attention has been paid to correlation between institutional choices at the level of state. Neighbourhood effects (at the level of states) need to be taken into account in cross-country studies because political institutions (monarchy, state religion, communism, etc) in a region change in tandem. Cross-country studies on incidence of state religion (e.g., Barro and McCleary 2005), impact of religion on democracy (e.g., Borooah and Paldam 2007), etc should account for regional/neighbourhood lock-in effects.

8.1.6 *Temporal auto-correlation*

In his discussion on *New Institutional Economics* Williamson (2000: 596 - 597) suggests a fourfold scheme for institutional analysis. He places religion in a group of extremely inertial institutions that change over centuries or even millennia (also see Weber 1995 [1920], Lewis 1972 [1955]). These institutions belong to “the social embeddedness level... where the norms, customs, mores, traditions, etc. are located”. This idea inspires a number of contributions. For instance, Guiso *et al* (2006: 23-25) identify religion and race as slow moving components of culture, which in turn are used in their study to examine the impact of culture on economy to avoid reverse causality (also see Glaeser and Glendon 1998: 431, Paldam 2001: 384, Barro and McCleary 2003: 772-774). But it is also possible that all of a

sudden there is a big change in a religious variable of interest. For instance, colonial and post-colonial data can vary markedly because at times colonial powers imposed metropolitan religious choices in teeth of opposition of local population. Decolonization can lead to both institutional transition as well as reversal of preference falsification. [Religious capital approach](#) would suggest that the latter may take place long after the regime transition, which implies dissonance between ground level practices and institutional structure. In short using colonial and post-colonial data together (e.g., Barro and McCleary 2005) is problematic. Other possibilities of sudden change in religious demography include rapid growth beyond a threshold population share due to network externalities and geographical sorting in response to conflict.

8.1.7 *Miscellaneous*

There are some problems that all cross-country studies have to face. There is only one Jewish majority country and there are only two Hindu majority countries. Paldam (2001: 392-393) points out that cross-country data for religious studies cannot meet even minimal information criteria in case of one billion strong Hinduism. Followers of Shintoism are concentrated in just one country but that country is an early (non-Western) member in the high income club. Buddhism has three distinct groups Theravada, Mahayana, and Tibetan Buddhism. However, only the label Theravada has sufficient information content for others there are too few observations, much of them suspect due to a variety of reasons ranging from long communist suppression to historical ambiguity of religious identity in East Asia (also see Footnote 68, *supra*). The monolithic category animism is very diverse and each animist majority country is almost a unique but spatio-temporally unstable data point because animist faiths are disappearing or blending with major religions, partly due to ecological changes, geographical dislocation, and disappearance of native languages. Though widely ignored the language, script, and religion nexus needs to be studied to isolate the independent contribution of religion to conflicts (see Ghosh and Kumar 2005 a, b for a limited attempt in this direction). Finally, Ekelund *et al* (2006) observe that survey based approach to understanding religion suffers from bias against certain forms of religion. For instance, they observe “mere head counts of attendance or membership must undercount religion if it is defined as a personal belief system” (*ibid*: 8).

8.1.8 *Uncensurability*

Identity, religion included, is not merely under-censused but at times uncensurable. There are two reasons for this, one psychological and the other conceptual. While lack of counting is problematic counting itself can lead to a bigger problem. Horowitz (2000 [1985]), Anderson (2006 [1983]), and Kumar and Ghosh (2006) discuss how modern censuses end up modifying the very object of analysis. In other words if one wants to evaluate the role of religion in some under-censused society the process of census might alter the religious identity being studied. The question *are you religious* triggers the following *should I be religious*. So it makes sense to check if the data generation and measurement processes are independent.

While discussing the problematic nature of labels above we left out one very serious problem. It has been argued that the very enterprise of labelling religious communities might be misleading in certain parts of the world. Balagangadhara (2005 [1994]), for instance, argues that Semitic religions and Asian “religions” (Hinduism through Shintoism) cannot both be religions and that the latter do not have empirical correlates (also see Footnote 68). In effect this line of argument contests the claim that religion is a cultural universal.⁷⁰ Performing cross-country regressions without answering this critique is awkward. Fortunately so far much of EoR deals with Semitic religions. But as it expands to cover more countries, presuming of course the universality of religion, the above criticism would apply to EoR with equal force. Note that unless otherwise required in the present essay we do not strictly follow the practice of avoiding referring to Animism, Buddhism, Hinduism, etc as religions.

8.2 *Individual level analyses*

Determinants of church attendance and donations have been one of the key concerns of EoR. The modelling enterprise needs to grapple with issues like whether religious goods are private goods or club goods or public goods. At times it is easy to classify the goods using a black and white scheme, say, public/private as in case of consumption of religious literature or supporting the construction of the only public (church) clock of the town. But religious

⁷⁰ Theorizing about religion in social sciences, it has been argued, suffers from pre-theoretical such biases like *religion is a cultural universal, there is no religion without a church*, etc, which are not empirically grounded. We find that most of the contributions in EoR unconsciously subscribe to these biases originally from related disciplines like sociology and anthropology. See Ekelund *et al* (2006) for a recent example.

goods can defy such classification as in case of participation in missionary activity, an important element of Abrahamic religions. Is it a private good (satisfaction from fulfilling the divine call to spread the message), a club good (growth of ones religious club), or a pure public good (spreading religion in the interest of *all*)? A church can simultaneously provide printed scriptures, public clock, and missionary tours. But individuals generally make lump sum payments. In this section we will discuss limits to role of marginal calculus in religious sphere.

Churches cannot be run by god's grace alone. Churches need resources like any other organization. But as Iannaccone (1995a) argues Churches rely more on voluntary contributions of time and money to overcome the agency problems, which otherwise hamper a market with inadequate information about products (see Fama and Jensen 1983 for a related but different line of argument). So freeriding should be one of the central concerns of a religion that provides for collective production of religious goods.⁷¹ This issue informs the seminal contribution of Iannaccone (1992a), where sects use sacrifices to screen out freeriders. Wallis (1991) discusses five kinds of solutions to the problem: a) coercion, b) bundling private and non-private goods, c) social pressures and incentives, d) promoting meta-preferences, and e) provision of in-process benefits ("benefit from the process of participation in group action regardless of the outcome"). He points out that a successful church, at least in free societies, is more likely to rely on the second and last two solutions. Issues like coercion and social pressures/incentives are partly addressed in the literature though indirectly at the aggregate level in the form of degree of regulation in the supply side literature (see [Section 4.2.1](#), *supra*) and church-sect models suggest bundling as a strategy employed by churches (see [Section 4.2.2](#), *supra*). Insofar as much of the literature treats preferences as given there is hardly anything on why and how churches promote meta-preferences. Though none of the contributions explicitly models in-process benefits, much of the literature, which excludes salvation motive, implicitly accounts for religious participation using in-process benefits. It is not entirely clear whether the latter set of papers or Wallis (1991) imply psychic or material benefits or both. What is ignored in the literature is the role of technological advances in mitigating freeriding.

⁷¹ Mancur Olson was reluctant to apply a strictly rational choice theory to religion. In any case he observed that a believer in religion/utopia is unlikely to freeride in face of "an incalculably large or probably infinite" gain (Olson 1971: 6, 160-162).

8.2.1 *Monetary contributions*

Studies focus mostly on monetary contributions due to lack of data about contribution of time. Since evidence, both empirical and experimental, regarding freeriding with respect to monetary contributions is not unambiguous (Stonebraker 1993, Lipford 1995, 1996b, Zech and Zaleski 1992, 1995a, 1996, Dahl and Ransom 1999) it pays to look at the issues involved more carefully. We will discuss a few issues here. First of all it is desirable to define freeriding clearly. Is it contributing less than scriptural exhortation? Is it contributing less than the average contribution in ones religious group or less than last year's average contribution (because only the latter is common knowledge)? Is it contributing less than what is needed to sustain the group's activity? Is it contributing less, in absolute or proportional terms, than followers of other religions around? Is it contributing less than some denomination-independent average? At what level of aggregation do we need to answer these questions: county, province, state? These questions are particularly important because of the extremely high degree of skewness observed in religious donations. In fact, roughly "20% of a congregation's members provide more than 80% of the giving" (Iannaccone 1997b: 142). Consider a group with 10 individuals and an annual collection of 10 dollars. It is not difficult to see that following Iannaccone's thumbrule a large majority is freeriding if giving less than group average is the criterion to identify freeriding.

Two, it has been suggested that tolerating freeriding might be necessary for the growth of a religious organization (Clain and Zech 1999: 925-926 and McBride 2007a: *passim*, also 2007b: 417; also see Hutchison 1977, Wallis 1991: *passim*, Lipford 1992, 1995, and Schlicht 1995: 136, Miller 2002: 445, Leathers and Raines 2008: 353-354) and that social structures in which an organization is embedded might inhibit freeriding (Baron and Hannan 1994: 1136). Finally, Tullock (1996) suggests that since people have a full information contract with god there should be no incentive to freeride (also see Anderson and Tollison 1992, Klick 2006, Ekelund *et al* 2006, Richardson and McBride 2007, Ferrero 2008a for related arguments). Following Coşgel and Minkler (2004 a, b) we can suggest that religious individuals who identify themselves with a group might commit themselves not to freeride. Schlicht (1995) provides an extensive discussion, stressing cognitive factors, on the role of theological constraints on churches/churchgoers. In other words there are constraints on optimization exercise that can render marginal calculus superfluous. But it has also been pointed out that

that extreme/unreasonable demands placed by religions are routinely bypassed (Marshall 1920, Lewis 1972 [1955], Schlicht 1995, Kuran 1997) and that god is not necessarily perfectly omniscient (Brams 2007 [1983], 2003 [1980]). One last point regarding monetary contributions. It is desirable to take into account permanent income into account because people who engage in religion generally take a long term view of the involvement (Reece 1979: 146).

8.2.2 *Allocation of time*

First of all there is the issue of internal and external prayers dichotomy (Azzi and Ehrenberg 1975: 39). Religions weigh the two differently. The problem could be compounded in face of continuous background prayers, i.e., praying while involving in secular activities. Possibly, external prayers proxy for overall time devoted to prayers. Secondly, one wonders if religion really claims a big share of time. Barro and McCleary (2003: 772) begin with the maintained hypothesis that controlling for level of belief higher church attendance negatively affects economic performance due to inefficient use of time (also see Grossbard-Schechtman and Neuman 1986: 74-75, Fan 2008: 307), which presumes that allocation of more time to religion comes at the expense of secular employment activities. This is intriguing because in most of the countries for which data is available people work for 8-12 hours on an average and there is no trade-off between employment and religious requirements due to inflexibility of the modern workplace. If at all there is a trade-off it is between leisure and religion (see, for instance, Scheve and Stasavage 2006: 267 who posit a trade-off between religion and leisure). Also people spend more time on religious activities on holidays, many of which indeed coincide with religious festivities/activities by design.⁷² Further it is likely that more religious people self-select to part-time or less demanding jobs or even self-employment. That is what happens in highly demanding sects, where time devoted is a club-specific signal (see Berman 2000 on ultra-orthodox Jews). So once job market sorting is over work hours are exogenously fixed, which enter the optimization framework as another constraint, and one should control for distribution of sports clubs, cinemas, reading rooms, NGOs, etc, which compete with religion for leisure time. In any case empirical evidence does not support Barro

⁷² Ulbrich and Wallace (1984) who examine working women's church attendance conclude that difference between working and non-working women "is not due to coefficient differences but due to the differences in mean values of some key explanatory variables, particularly age, religious intensity, and having a spouse of the same denomination".

and McCleary's formulation unambiguously (*cf.* discussion on growth theories in [Section 5.2](#), *supra*).

8.2.3 Allocation of time and money

Contribution of money (time) has been found to increase (decrease) with income. But contributions of time and money have not been found to be substitutes. There is empirical evidence suggesting that the two are complements (Clain and Zech 1999). One of the reasons driving this finding could be that given the serious principal agent problem in religious enterprises those who donate more are also more likely to devote more time to ensure right usage. However, Tao and Yeh (2007: 783) suggest that the two are found to be substitutes if time includes only non-mandatory contributions, i.e., excluding time spent in Sunday services, etc, which are stipulated by scriptures or church authorities. Gruber (2004) finds that increase in subsidy to charity increases giving while decreasing attendance. Three points bear noting here. One, Ekelund *et al* (2006: 5) argue that the *full price*, “the total cost to an individual in terms of money outlay and resources foregone”, including search, delivery, etc costs, should be taken into account for analysis. One is not sure if suitable data is available for this purpose. It is possible that different members have same full price but the distribution among sub-components of full price vary across members. If true this has implications for what should be counted as freeriding. Two, the issue of *real power* enjoyed by big contributors of time and/or money in religious organizations noted in passing in Iannaccone (1997b: 142) has not been analyzed so far. Recall the point about exemptions, customized services, etc obtained by wealthy members in [Section 4.2.2](#) (*supra*). Asymmetric distribution of power would imply that the small donors might not be freeriding because the big donors who are increasing the average are basically paying more to buy power. May be the small donors are ready to worship in a hut and unwilling to sponsor missionary activity. So why should they pay for construction of a Neo-Gothic fortress or missionary activity in Tuvalu? Three, for yet another way of looking at the issue see Ekelund *et al* (2006: 58) who argue that given sufficiently segmented customers a seller in market for religion can price discriminate since services are non-tradeable. This leads us to ask if freeriding merely captures price discrimination. One more point that has not received much attention so far is doctrinal or behavioural freeriding. Consider someone who contributes average time and money but does

not stick to behavioural and doctrinal demands of the group. Is this person freeriding? At least Iannaccone's (1992a) sects would regard behavioural deviation as freeriding.

8.2.4 *Belief-practice dissonance*

Having discussed a few issues related to time and money contributions we will now take up a more fundamental issue, namely, whether church-goers themselves believe that religious effort, particularly contribution of time and money, influences their afterlife destination. Does a successful explanation of church attendance *as if* it were governed by cost-benefit analysis imply that it is indeed the true determinant of behaviour (*cf.* [Section 4.7.1](#), *supra*)? The following observation about Christianity illustrates our concern further:

[T]he central message of Jesus, e.g., in the Sermon of the Mount, is that salvation will not be obtained or even guaranteed by the observation of law but by God's grace "without any merit and dignity," as Martin Luther's famous short catechism states in its explanation of the first article of faith (Nutzinger 1997: 239, also 237-8; also see Gleaser and Glendon 1998 and Ulbrich and Wallace 1983: 44-45 for Christian tradition; see Hull and Bold 1994: 456-457 for non-Western societies with uniform afterlife treatment for all).

But Ulbrich and Wallace (1983: 50) are able to reject the hypothesis that individuals with greater exposure to church (i.e., individuals more well-versed with the doctrine) are less likely to be influenced by afterlife incentives to attend. Others have found similar evidence. Ulbrich and Wallace (1983: 45) raise another point:

If additional attendance is not expected to generate additional salvation, then there is no reason for belief in an afterlife to be positively and causally related to attendance. Of course, if individual parishioners perceive a salvation payoff to attendance, regardless of official theological opinion, then belief in an afterlife and attendance could be related. *However, their view is not likely to receive positive reinforcement from the pulpit.* (Emphasis added)

If the above were true one cannot simultaneously claim that an individual is Christian as well as believes that prospect of afterlife varies continuously with individual offerings, church visits, etc. So the level of participation is to be seen as a token of gratefulness or whatever rather than as an outcome of marginal calculus. Consider, for instance, Anderson and Tollison's (1992) observation about Catholicism that good works are neither necessary nor sufficient for salvation:

The official doctrine of the Catholic Church has long held that salvation was strictly a function of faith on the part of the individual, and *good works only play a role of insofar as they represent an expression of that faith* (emphasis added; also see Margolis 1997: 246-247 for Luther's simultaneous linking and de-linking of salvation and good works; cf. Nutzinger 1997: 239. For detailed discussions on role of good works in Christianity see Weber 1995 [1920] and Samuelsson 1961).

To retain marginal calculus in models of individual religious behaviour notwithstanding the above concerns requires that we address the following questions: a) from where do the churchgoers get the alternative beliefs, b) why do they go to a church whose pulpit contradicts their beliefs⁷³, c) does the church know that its laity disagrees with it in this regard, d) if yes, why does it tolerate the dissonance, e) are we to define Christian church as one that consists of people who do not believe in its doctrines, f) should we treat the people who permanently disagree with the pulpit as Christians (unlike citizenship membership in a church is not mandatory) and g) why does no supplier move in to provide a theology closer to de facto beliefs? These questions lead to yet another question: a) is it possible that there is disconnect between our variables some of which are stated ("Do you believe in the Sermon of the Mount") while others are revealed (church attendance, donations)? and b) by how much should a given practice deviate from a given belief for us to conclude that the two cannot be related? The answers to these questions have implications for empirical exercises that control for market shares of churches and for analyses that study the felicity with which a church uses the twin instruments of doctrinal and behavioural strictnesses.

Orwell's Problem (Part II) The questions raised here complement our earlier discussion on Ekelund *et al's* assumptions (cf. [Section 4.7.2](#), *supra*) in a crucial way. There we drew attention to an [Orwellian Problem](#), namely, people not acting efficiently given information and evidence about corruption in church. Here we have encountered another such problem but one, which relates to the Church not acting on the information about mongrel believers in its flock. In any Orwell's Problem we can segregate the actors into two camps. In one camp are those who do not respond efficiently to available information and bear losses as a consequence and in the other are those who reap the benefit from the inaction in the first camp. In the religious domain there are two complementary Orwell's Problems and both parties, church and believers, play both the roles. This complementarity arises due the the fact in the religious domain both parties play the role of principal as well as agent (cf. discussion

⁷³ The widespread belief that there is a necessary link between beliefs and practices is questionable (see, for instance, Balagangadhara 2005 [1994]).

on [principal-agent problems](#) in [Section 7.0, supra](#)). This discussion should alert us against Marxist temptations, which always present the organized entities in poor light.

8.3 *Indexes*

So far EoR has relied on three major types of indexes that capture degree of separation of state and church (uni-dimensional vs. multi-dimensional indexes), demographic heterogeneity (fractionalization vs. polarization indexes), and competition in market for religion (Herfindahl vs. others), discussed below in the same order.

8.3.1 *Institutional secularization*

Separation of state and church has been the focus of a number of contributions since late 1980s. On the one hand we have Barro and McCleary (2005: 188 states) who present a dichotomous index, which is easy to use. On the other Fox (2006) provides by far the most refined index for separation of religion and state. He ranks 152 states (population > 1 million) on a 0-100 scale covering general restrictions, legislation, discrimination, and regulation. Grim and Finke (2006) provide separate indexes for government regulation, government favoritism, and social regulation of religion for 196 political territories (all countries and some other political entities except U.S.A.).⁷⁴ Of the three Fox's index is most informative. The shortcoming of a dichotomous index is easy to see. For instance, it cannot differentiate between Scandinavian and Middle Eastern countries. But multi-dimensional indexes are not free from blemishes either. Fox (2006) notes the usual aggregation problem in constructing such indexes. Here, we will discuss one striking feature of Fox's coding, which will lead us to Grim-Finke. According to Fox U.S.A. is the only state with complete separation between state and religion, score = 0 (ibid: 559). This seems to be inaccurate on at least six counts: a) religious organizations as well as their donors enjoy income tax exemptions (Reece 1979), b) states have laws governing organizational structure of churches (P. Dane quoted in Mao and Zech 2002), c) it is not clear if blue laws have been repealed across USA (Gruber and Hungerman 2006: Table 1), d) institutionalized cooperation between state and religious

⁷⁴ Others attempts at index building include Gill (1999: Latin America, 0-21), Chaves and Cann (1992a: 18 Western Christian countries, 0-6), Box-Steffensmeier (1992: 17 Western Christian countries, 1-10), North and Gwin (2004: 59 states, 0-9). See Iannaccone (1992b) for problematic nature of such indexes.

organization in areas of common interest via the “office for faith-based initiatives” (Dixit 2005, also see McCleary and Barro 2006b), e) appeal on religious grounds in election campaigns (Glaeser et al 2005), and f) lobbying by religious interest groups for appointment of judicial officials.

Even though one is not sure about the extent to which Bellah’s (1967) civil religion has invaded Washington there is no doubt that even after accounting for a) - f) U.S.A. remains one of the most secular states in the world. Still it is worth noting that even extremely elaborate schemes might fail to capture the otherwise obvious manifestations of state-religion interaction. But why does Grim-Finke index not cover U.S.A.? Simply because it is constructed from information contained in U.S. Department of State’s *International Religious Freedom Report* (Grim and Finke 2006: 9). Fox (2006: 555) also uses this report but in his case it is one among a larger set of sources relied upon. Grim-Finke index based on the report of a sub-ordinate of U.S. government is problematic for two reasons: a) U.S.A. itself does not have full separation of religion and state and b) U.S.A. is an interested party in conflicts in every region of the world. This shortcoming, however, should not overshadow a very crucial contribution of Grim and Finke, namely, distinction between state and social regulation as well as between state regulation and state favouritism.

An important issue is overlooked in all the index building enterprises. Ranking is one thing but it does not tell us whether a particular score is feasible or desirable, which is what should interest us as economists. McConnell and Posner (1989) suggest that full separation is both impracticable as well as undesirable because market for religion has “close and unbreakable connections to many other markets in which government intervention is commonplace”, which means that some intermediate level of separation probably closer to full separation is relatively better than no or full separation.

8.3.2 *Heterogeneity*

Demographic heterogeneity is widely considered to be an important determinant of religious behaviour. Two different kinds of measures have been employed in this regard. Fractionalization index, $1 - \sum_{i=1}^N s_i^2$, where s_i is the share of i th religious group in population and N is the number of religions, measures the probability that two individuals picked at

random belong to different communities and is basically one minus Herfindahl index (Alesina *et al* 2003). Polarization index, $1 - \sum_{i=1}^N s_i \cdot \left(\frac{0.5-s_i}{0.5}\right)^2$, provides measure of the extent to which large groups dominate the society (Reynal-Querol 2002). Fractionalization increases with increase in number of communities whereas polarization decreases as number of communities increase and is maximized when there are two communities of identical size. Both high levels of fractionalization and low levels of polarization characterize a relatively heterogeneous society. Fractionalization is not sensitive to small changes in shares of different groups as it is dominated by the share of largest group. Intuitively speaking both indexes should increase with normative distance between groups. But the distance is generally treated to be fixed across different pairs. Following Fearon (2003), who combines inter-community distance and fractionalization in a non-religious context, it is desirable to examine the interaction between religion and other identity markers, which might mitigate or aggravate the normative distance between two religious communities. Fearon accounts for linguistic distance based on language classification. The idea behind the new measure is that “number of common classifications in the language tree can be used as a measure of cultural proximity”. Cultural fractionalization index is given by $1 - \sum_{i=1}^N \sum_{j=1}^N s_i s_j r_{ij}$, where $r_{ij} = (l/m)^\alpha$ is a resemblance factor that is equal to one when groups i and j speak the same language, l is the number of shared classifications for the groups, m is the maximum number of classifications for any language in the data set, and $\alpha \in (0,1)$. To account for religious distance the classification of religions suggested in Kumar (2008a) can be used. Accounting for interaction between identity markers is important because it has been argued that nature of a stand alone identity marker is quite different from one embedded in a web of competing and cross-cutting identity markers (Sen 2006).

8.3.3 Competition

Herfindahl index or pluralism index, which is one minus the former, are the most commonly used measures of competition in market for religion. We have already discussed the scathing criticism of use of this index (Chaves and Gorski 2001, Voas *et al* 2002, Montgomery 2003) and also an alternative that skirts the controversy, the rank ordering of markets for religion, proposed by Montgomery (2003) (see [Section 4.2.1](#), *supra*).

9.0 Models of Afterlife

One thing that differentiates religion from rest is its supernatural dimension (Stark and Bainbridge 1980: 124). In EoR religious phenomena are treated either as purely this-worldly (Sullivan 1985, Grossbard-Neuman 1986, Neuman 1986, Iannaccone 1988, 1990, 1992a, and 1994, Montgomery 1996b, Glaeser and Sacerdote 2001) or including otherworldly aspects as well (Azzi and Ehrenberg 1975, Redman 1980, Durkin and Greeley 1991, Smith 1999, Reed and Bekar 2003, Benabou and Tirole 2006, Cavalcanti 2007). Regarding the first approach note two things. One cannot assert that afterlife matters a lot to a lot of people (Iannaccone 1998: 1469) and also exclude it from explanation of religious behaviour, an inconsistency noted by Iannaccone (1990, 1998) himself. Also empirical studies based on the first approach often control for belief in afterlife (see, for instance, Iannaccone 1994: Table 3). For a partial compromise between the two approaches see Ferrero (2008a), who first builds an incomplete information model assuming this-worldliness and then argues that the empirical evidence cannot reject the primacy of this worldly concerns in the problem under consideration. With some exceptions (Hull and Bold 1994 and 1989 and Kumar 2008a) religions without a conception of afterlife are widely ignored, which is interesting since modelling a religion with afterlife *as if* only worldly part mattered and a religion *without* afterlife are entirely different things even if the end result is same. If studies based on the former approach find empirical support can we infer that religion is indeed devoid of afterlife dimension (*cf.* [Section 4.7.1, supra](#))? In this section we will discuss modelling religion with and without afterlife component.

9.1 Religious capital model (*Modelling religion sans afterlife*)

The dominant model here is Iannaccone's (1990) *religious capital model*, based on Becker's theory of human capital. Religious capital consists of "familiarity with a religion's doctrines, rituals, traditions, and members" (*ibid*: 299), without any intrinsically religious content, which could differentiate it from other forms of human capital.⁷⁵ For a recent religious capital

⁷⁵ The idea of religious capital is not really novel. Traditional religious discourse also had a notion of such a capital. In that discourse religious capital did not consist of address books and scriptures frozen in memory. No one got salvation for memorizing scriptures or being in contact with believers. What counted was deeds. *Do to others what you would have them do to you*. Within religious discourse the tension between knowing and acting was always resolved in favour of right deeds. Traditional approach therefore informs that religious capital

based empirical study see Smith and Sawkins (2003), who also account for other factors like demographic heterogeneity (also see Footnote 34, *supra*). In human capital models individual's instantaneous utility function is denoted by the following expression (*ibid*: 1579):

$$U(t) = U(q(t), R(t), C(t)) \quad (4)$$

$$U_q > 0, U_{qq} < 0, U_R > 0, U_{RR} < 0, U_C > 0, U_{CC} < 0, U_{qR} > 0, dq/dR > 0 \quad (5)$$

where $U(t)$ is utility at time t , $q(t)$ is consumption of organized religion, $C(t)$ denotes consumption of all other commodities, and $R(t)$ is the stock of religious capital, which depends on past consumption of organized religion and is “accumulated initially as a result of parental investment decisions”. $U_{qR} > 0$ and $dq/dR > 0$ capture the complementarity between consumption of organized religion and religious capital. “[R]eligious human capital and participation are complements since the accumulation of religious capital provides an incentive for further religious participation” (*ibid*: 1579). Accumulation of religious capital also enhances religious productivity. In this model participation in religious activities is treated as yet another way to build human capital and attempt is made to “explain religious patterns and trends solely through variations in individual opportunity, that is without appeal to preference variation” (Kuran 1994: 772) or changes in beliefs (Caplan 2001: 13, Montgomery 1996a: 444). Montgomery points out that it is not clear what exactly is captured by religious capital. Is it a “proxy for utilities, probabilities, or both”? Do people stick to parental religion because they derive more utility or because they believe in it? In fact, it is plausible that participation influences both beliefs as well as utilities, a fact widely ignored in religious capital literature.

The key predictions of religious capital model include inertia of religious affiliations, religious endogamy, decreasing chances of conversions with ageing after a certain age, U-shaped participation-age profile, etc, which can also be obtained using other modelling approaches. For instance, inertial religious affiliations can also be explained by using insights drawn from a number of other approaches, not all of which are methodologically exclusive or independent: procrastination (Akerlof 1991: 10-11), uncertainty (Montgomery 1992: 120, Kumar 2008b), status quo bias (Chaves and Montgomery 1996: 129), cognitive dissonance

should be treated as a stock of points collected through good deeds, ethical behaviour. People did not approach saints to intercede on their behalf because they had lot of knowledge rather they were supposed to be rich in purportedly *transferable* religious capital acquired through good deeds. This holds true for individual, e.g., saints, as well as organizations, e.g., the Roman Catholic Church.

(Montgomery 1996b: 445-446), adaptive preferences (Sherkat and Wilson 2001: 1403), rational irrationality (Caplan 2001: 13), and home team bias (Wittman 2008). We can add another explanation to this list, christened *brownie-point capital*, which treats religious capital as stock of points collected by a believer over time that depends on how closely one conforms to the scriptural exhortations (see Footnote 75, *supra*). Assuming involuntary acquisition of brownie-points *aka* religious capital in pre-adult phase and then invoking loss aversion one can see that with some additional structure (inverted-U earning-age profile) this model would provide almost *all* predictions one gets from a religious capital model.

9.2 *Modelling religion with afterlife*

9.2.1 *Heaven with limited seats*

Given Calvinism's centrality in Weber's hypothesis it is indeed surprising that this type of heaven has hardly received any attention. Calvin preached that for inscrutable reasons God randomly chose a sub-set of mankind, Calvin included (!), for salvation and that the select can sense their privileged status from success in their calling. There is nothing one can do to change this initial choice. So afterlife can be modelled assuming fixed number of places in heaven, which are strictly less than the population, allotted randomly. This mechanically creates a scope for scarcity rents. See Dixit and Grossman (1984) for the only instance of use of this approach. Bhagwati and Srinivasan (1986) point out that their assumption is incompatible with existing religions, which promise heaven to all true believers. Ferrero (2002: 344) observes that while the places in heaven are infinite, terrestrial agents can control access and create a scarcity. But even this does not create a scarcity rent though it leaves room for informational rent. An interesting feature of Dixit and Grossman's model is that religion can be beneficial under certain circumstances, e.g., a monastic religion can help if there is surplus labour, a cathedral building religion can help by diverting resources in a war prone society, etc.

So far there is no full-fledged model of heaven with limited seats. Glaeser and Glendon (1998) model the impact of belief in predestination on secular outcomes (for more see [Section 5.1.2](#), *supra*). A successful model has to take into account the uncertainty inherent in

Calvinist doctrine. Firstly, if honesty, etc are required to reassure one then one is actually gambling. What if one is not among the select? Then all the investment in gentlemanly behaviour net of earthly returns goes down the drain. Secondly, as population increases uncertainty increases because people are not sure whether the quota of elects is proportional to population or is a fixed number irrespective of population. In fact, one is not even sure if the quota is evenly spread across generations. What if each generation's share in quota is inversely proportional to its distance from the first generation? What about those who are born before receiving the prophet's message?

9.2.2 *Heaven sans capacity constraint*

Azzi and Ehrenberg (1975) model for household allocation of time between religious and secular sectors is the trendsetter in this category. We will take the liberty of quoting at length from their pioneering paper to illustrate the nature of, what is known as, the religious household production model:

[M]ost religions promise their members some form of an afterlife. Furthermore, the expected afterlife benefits are often viewed by individuals as being at least partially related to their lifetime allocation of time to religious activities. This suggests that household participation in church-related activities should be analyzed in the context of a multiperiod household-allocation-of-time model which allows for "afterlife consumption," with this variable being at least partially a function of the household's investment of members' time in religious activities during their lifetimes...Our household's view of the afterlife is not one of an all-or-nothing proposition (heaven or hell), it is rather that there exists a continuum of possible outcomes. The stream of expected afterlife benefits will last indefinitely into the future. However, if the household has any positive subjective rate of time preference, we can convert this infinite durational flow into a finite expected discounted present value of afterlife benefits (as of period $n + 1$)... Thus, we can represent an infinite horizon model by an $n + 1$ period model. (Azzi and Ehrenberg 1975: 28, 33-34, 52; also see Redman 1980: 331, Hull and Bold 1994: 450, Ekelund *et al* 1996: 61, Smith 1999: 452-453, Hrungr 2004: 374, Chang 2005: 5, Cavalcanti *et al* 2007: 109-110, Benabou and Tirole 2006: 732, and Tao and Yeh 2007: 773)⁷⁶

Households have preference ordering denoted by the following quasi-concave utility function (Azzi and Ehrenberg 1975: 32-34):

$$U = U(C_1, C_2 \dots C_t, q) \tag{6}$$

⁷⁶ Cavalcanti *et al*'s (2007: 109-110, 115-116) model requires in addition that difference between pay-offs from heaven and hell is finite, which is not necessarily in line with religious teachings.

where C_t is the final consumption in period t that depends on input of market goods and time of both spouses and q is the present discounted value of return from afterlife that depends on the time allocated by both the spouses for religious activities in all periods during their lifetimes. Households maximize utility subject to lifetime income and time constraint. Time is divided among labour, household production, and church. The distinctive features of this approach (not all of which appear in the above quote) include the following: a) belief in god and afterlife are coterminus (Azzi and Ehrenberg 1975: 34, Durkin and Greeley 1991: 187, Tao and Yeh 2007: 773), b) afterlife is a normal good (Azzi and Ehrenberg 1975: 36), c) religious participation can be explained by invoking salvation motive, d) returns from salvation are obtainable only after this life, and e) returns from afterlife are finite. Each one of these features is problematic in one or the other way. Ulbrich and Wallace (1983: 45-47, 49) draw attention to the multiple interpretations of empirical support for Azzi and Ehrenberg. For instance, a significantly positive relationship between attendance and both spouses belonging to the same religion can validate either the current consumption hypothesis (“enhancing the consumption benefits (joint consumption) or reducing the costs (marital discord)”) or the afterlife hypothesis (“the lower wage spouse specializing in the production of afterlife capital”).

By confounding belief in god and afterlife the model is rendered useless whenever the two are not interlinked, as in case of religions without afterlife. Treating afterlife to be a normal good is problematic since Azzi and Ehrenberg (1975) find church-membership (*ibid*: 40) and church-attendance (*ibid*: 48) to be income inferior (also see Long and Settle 1977: 412, Ulbrich and Wallace 1983: 49-50, and Ekelund *et al* 2006: 57). Further “[i]f salvation depends on subjective belief but belief is not an act of volition, rational choice analysis cannot explain religious participation through a “salvation motive”” (Montgomery 1992: 118). But these models do not specify how beliefs change. The assumption that returns from investment in afterlife is obtainable only after this life (Azzi and Ehrenberg 1975: 35, Redman 1980: 331, and Hrungr 2004: 734) is questionable because in some religions salvation begins in this life itself (Sullivan 1985: 310). Also investment in salvation yields direct secular pay-offs, e.g., in case of traders on Hajj pilgrimage (Ensminger 1997). A related assumption is separability of utility function in terrestrial and afterlife pay-offs (Azzi and Ehrenberg 1975: 52, Durkin and Greeley 1991, Benabou and Tirole 2006, Cavalcanti *et al* 2007).

Last but not the least the treatment of returns from afterlife is also questionable. The rationale behind Azzi and Ehrenberg's (1975: 28) formulation of returns from afterlife is bi-partite. We will comment on the Hull and Bold (1994) version, by far the most lucid exposition of this position. Firstly, scriptures suggest that religious promises about afterlife differ from experienced reality only by a few orders of magnitude, so that returns in every period of afterlife are finite. Secondly, given discounting the overall returns from afterlife are finite. The latter does not sound convincing for two reasons. One, heaven is supposed to be where people are *assured* the best possible quality of life sans scarcity. Two, religions associate impatience with human existence, something uncharacteristic of afterlife, which should be conquered in this life to gain access to comfortable afterlife. It is, therefore, arguable if impatience could be associated with afterlife, which in turn suggests that discounting might not apply to afterlife.⁷⁷ So even with finite returns every period of afterlife the stream of returns is not finite. How does one compare an infinite stream of returns with a finite stream of returns from involving in religious activities in this life? Durkin and Greeley (1991) do not assume discounting or multiple periods in afterlife. Instead they assume that individual utility depends on among other things "quality of afterlife", which provides finite returns. But they do not specify how they scale down the returns from afterlife. Further since one either enters heaven or does not to sustain their assumption one has to make two additional assumptions, which they have not made. One, other world has different colonies allotted as per religious merit. Two, people can form expectations about afterlife destination.

Eve's Problem In the above models people are made to compare returns from afterlife and secular activities. How to compare infinite and finite? Others have also noticed this problem. For instance, John Wesley argued that through contrived interpretation of scriptures believers first downsize the magnitude of expected punishment in hereafter and then justify otherwise sanctioned secular activities (Samuelsson 1961: 33). But he does not explain how exactly the people manage to accomplish the downsizing. Kane (1966: 430) invokes "dynamic myopia" to account for deviant behaviour despite infinite pay-offs from conformance but does not provide a formal model. Akerlof's (1991) model for procrastination could serve as a starting

⁷⁷ Since we have no information and religious scriptures are the only known sources about afterlife, which also influence behaviour of believers, we cannot but rely on scriptures as a starting point, a point also made in Brams (2007 [1983], 2002 [1980]). Even though it is expressed in tangible terms a closer look suggests that the idea of afterlife in major religions transcends the space-time framework. There is a hierarchy of afterlives, not all of which are stable states.

point. But it is not clear how to downsize infinity in steps, which is how Akerlof's agents have to begin the transition.

Brams (2003 [1980]: 17-25) notes that Eve, and later on Adam, faced a choice between infinite and finite returns. He posits a God, a serpent, Adam, and Eve, who play a series of two person non-cooperative games of complete information against each other. The infinite-to-finite transition takes place in two stages. First in the game between the serpent and Eve, the serpent first dismissed god's threat and then promised Eve "the surpassing reward of divinity if she tasted the fruit", which helped Eve to make the transition.⁷⁸ Then in the game between Eve and Adam the latter's "desire to remain unrestrained and his love for Eve" helped him make the transition. It is not difficult to see that this is no solution at all. Further it would be fruitful to see Adam's problem simply as whether to imitate or not. So we are left with only one problem, namely, *Eve's Problem* that involves an infinite-to-finite transition. Brams (2007 [1983]: 33-35) also observes that if one or more pay-offs is infinite in magnitude the problem of choice is not well-defined. He argues that one could "evaluate a player's expected utility in the limit as the reward/penalty approached infinity" (*ibid*: 38) but does not illustrate this with a concrete example. Durkin and Greeley (1991: 154), Montgomery (1992: 119), and Smith (1999: 452) acknowledge that afterlife pay-offs could indeed be infinite rendering the entire issue of choice meaningless (also see Olson 1971: 160-162) and proceed with marginal calculus without explaining how they skip the infinite chasm.

There are two different issues at hand. Given that we observe people behaving *as if* they face a finite dimensional problem can we model their choices? Modelling a finite dimensional problem and an infinite dimensional problem as if it were finite are two different things. How do people manage to behave the way they do despite claiming to believe that they face an infinite dimensional problem? To use marginal calculus to understand religious behaviour requires that we answer the following: How does inflexible (infinite rewards/punishment) rhetoric translate into marginal calculus framework (also see Footnote 39, *supra*)? What is the cause and consequence of dissonance between belief and practice? Why do religions live with this dissonance? One can, however, look at the whole issue in a different manner with the decoupling of salvation and afterlife motives suggested in [Section 3.2](#) (*supra*) serving as

⁷⁸ We still come across similar situations in non-"modern" forest-based communities in the Third World, which are subjected to competing pressures of modernity (forest is a resource) and tradition (forest, or at least parts of it, is an untouchable god). So a meaningful resolution of Eve's problem is going to help us in understanding a widespread contemporary problem.

the starting point. Davies (1978: 90-91) conceptualizes salvation as follows, where plausibility can refer both to beliefs and preferences:

state of sufficiency of durable plausibility existing for an individual or group, under given ideological and social structural conditions, such that no alternative is sought (also see Geertz 2000 [1968]: 89-90, Hardin 1997: 260, Albert 1997: 228, 229, 231).

The idea is that human beings seek to live in an understandable universe. Absent such a possibility they need to believe they live in such a world. What can economists do about this? Actually this is not as remote from economics as it appears at first. A case in point is Benabou and Tirole's (2006) model of the "need to believe in a "just world"" discussed above (see [Section 5.1.2](#), *supra*). Benabou and Tirole's model involves individuals who maximize their utility given information about the rest of the society. By adopting their model we can bypass both [Eve's Problem](#) as well as the need to find some market for salvation. This, however, does not solve our problem because individualistic religions are few and far between. All religions have intermediaries in one or the other garb. So there is no escape from the exchange situation, i.e., market, which is what we are going to discuss next. Finally note one problem with regard to decoupling of salvation as access to afterlife and salvation as plausibility generation mechanism. If a religion supports afterlife it becomes part of the overall cosmos posited by that religion. Religion renders the whole cosmos, including itself, plausible. So decoupling the two is not feasible. However, our the attempt to decouple them has helped us in appreciating the possibility of religion without afterlife.

10.0 The Market for Religion

In this section we will discuss the nature of the market for religion. We have noted above that without salvation and/or afterlife this market is indistinguishable from otherwise comparable secular markets. To understand this market we need to understand the beliefs and preferences of constituent agents. The objective of this section is to build a coherent picture of the market for religion with the help of fragmentary discussions in the existing literature. We will proceed in three steps. First we will discuss the treatment of beliefs and preferences in EoR and then draw attention towards the much ignored primacy of beliefs. Finally we will explore the nature of the market for religion. Our discussion it should be noted differs radically from Iannaccone (1991, 1998) and Ekelund *et al* (2006), whose discussion on the market for

religion is primarily concerned with the supply and demand side discussions of the kind we have seen above (Section 4.0 and 5.0). We will focus on the core of the market for religion, which provides the foundation for the visibly manifest markets that have concerned EoR so far.

10.1 *Religious beliefs and preferences*

10.1.1 *Preferences*

The dominant approach treats preferences as exogenous (Iannaccone 1997c, Ekelund *et al* 2006). Exceptions include Kuran (1997). But he does not provide a formal treatment of choices in market for religion subject to preference falsification. In any case all sides assume “well-behaved” preferences except Kane (1964, 1966), Brams (2007 [1983] and 2003 [1980]), Reed and Bekar (2003), and Bernholz (2006) who deal with lexicographical preferences. Assuming lexicographical preferences for core concerns of religion is not unreasonable given the status of divine within a religion. Hull and Bold (1994: 450) confound beliefs with preferences, when they suggest that the latter could “be interpreted as a measure of plausibility of church claim about the afterlife”. As mentioned above there is no contribution dealing with meta-preferences. However, in Coşgel and Minkler (2004b) religious individuals have “identity-conferring commitments” that govern “choices of preferences and actions”. Identities can be complementary (believer and parent) or substitutes (believer and scientist). So changes in different secular dimensions of life differently impact “religious commitments and behaviour”. Two things remain unclear in their discussion: a) why do people form commitments in the first place and b) where from these commitments arise. Contrary to their assertion one can argue that commitments can follow from meta-preferences (*cf.* Sen 1977).

10.1.2 *Beliefs*

The treatment of beliefs is equally unsatisfactory. We will examine three issues: characterization of beliefs, uncertainty management, and change in beliefs. Beliefs are mostly

treated as exogenous to analysis. For example, Ekelund *et al* (2006: 5) argue, “[i]t is clearly not irrational to assume, as we do, that human beliefs (however they are formed) are given”. In principle there is nothing wrong in holding part of the variables fixed but one still would like to figure out the function of “given” beliefs in contributions to EoR, an unenviable task not taken up here. We will instead concentrate on studies that try to deal with beliefs in a non-trivial fashion. Here one finds many different approaches. At times belief in god and afterlife are used interchangeably, which as pointed out above effectively excludes religions without afterlife (see [Section 9.2.2](#), *supra*). For instance, Azzi and Ehrenberg (1975: 52) and Cavalcanti *et al* (2007: 107) treat religious belief as individual probability of reaching heaven. Durkin and Greeley (1991: 181) confound practice and belief, which are clearly distinct dimensions of religiosity (see Stark and Glock 1968: 14-15).

Then there is the issue of uncertainty that looms large over any non-verifiable belief system. Assuming religious dealings to be risky Iannaccone (1995a, also 1998: 1491) suggests that people mitigate the risk by diversification or collective production. The latter involves seeking safety in numbers whereas in the former individuals might simultaneously subscribe to radically opposed beliefs to avoid a major loss from association with a belief that might later on turn out to be wrong or harmful. Bruce (1993: 202) has argued that “religious promiscuity” is not necessarily “a form of rational diversification” because of the “absence of certainty about the ultimate return” from engaging with multiple religions and also because “religions generally demand (and get) the complete faith of their adherents”. Even though the latter argument is suspect the former makes sense for an additional reason, namely, limits to cognitive dissonance that human beings can handle.

The point about diversification brings us to Raskovich (1996) who defines polytheists, a rare attempt in EoR, as people who believe that different gods exist with different probabilities (*ibid*: 460) or who believe that offerings to different gods would be fruitful with different probabilities (*ibid*: 453). This is implausible on three counts. One, people do not go to worship believing that there is, say, only half a chance that the god enshrined is actually a god. Two, people do not think that they can fool god who is omniscient. If one god says no then other gods have no reason to oblige. (But see Harmgart *et al* 2006 on role of miracles in Medieval Christianity.) Three, polytheists do not worship different gods simply because of risk aversion. Rather different gods in a polytheistic pantheon are approached for different purposes or a few gods co-preside over certain aspects of life jointly. If diversification

hypothesis is correct then one should find that polytheists worship more than one god for the same purpose even though it is known that worshipping at least one is necessary and worshipping at most one of them is sufficient for success. The problem is compounded if we take cognizance of monism, the belief that all gods are equal and true manifestations of the same god. Now the probabilistic definition of Raskovich becomes completely redundant. In Kumar (2008a) belief in god is a dichotomous variable. In a society that knows N gods followers of an n -theistic religion believe that the n gods who form their religion's pantheon exist with probability one and rest of the gods do not exist. Following Raskovich's formulation has other implications as well. According to his formulation religions with large pantheons have enormous redundancy. One wonders how such belief systems with enormous redundancies could survive over long periods spanning centuries if not more. This also applies to religions that provide multiple saints who can be approached for intercession.⁷⁹

Quite distinct from the above contributions is Caplan (2001) who models beliefs per se. He argues that religious beliefs belong to the class of low information, high certitude beliefs, which can be modelled as rational irrationality. People are endowed with taste for irrationality. He assumes an objective irrationality-material wealth exchange rate observed by individuals without bias. This is a very strong assumption since costs of holding on to irrational beliefs cannot be known with reasonable certainty in many of the situations of interest in EoR and also the difference between rational/irrational is not always clear. Caplan implicitly assumes existence of three kinds of beliefs: useful, innocuous, and harmful. In fact, all beliefs are innocuous unless tested, i.e., unless one incurs a cost for continued adherence. Most religious beliefs, howsoever, irrational can be held with high certitude because they do not affect one's material well-being, e.g., strongly believing in the reality of Mosaic miracles or flying prophets does not affect one's salary unless one is into aircraft designing. But the limitation of Caplan becomes clear when we consider the case of those who sacrifice their lives for otherwise innocuous religious myths, e.g., the place of Ali in (Islamic) prophetic hierarchy, etc. Note that our last example suffers from identification problems. Those who fought initially for Ali's honour were also fighting for their share in the nascent Arab empire. But what about those who fight for Ali's honour in 20th Century urban South Asia? Horowitz (2000 [1985]) would argue that even these latter conflicts are instrumental.

⁷⁹ See Ferrero (2002) who argues that the institution of sainthood in Catholicism helps checking agency problems.

Having discussed a number of different models of religious beliefs we will now try to find out if some of them can help explain changes in religious beliefs. Interestingly we know a lot why people do not change beliefs most of the times⁸⁰ but little if anything about why they change beliefs sometimes. Human players in Brams (2007 [1983]) change beliefs but the mechanism of belief transformation is not made explicit and, it seems, assumed to be unproblematic. In Durkin and Greeley (1991, also 1992) individual chooses the level of faith (read belief). But as pointed out above they confound belief with practice. It is easy to see that Caplan (2001) can explain changes in belief subject to changes in price of holding on to extant beliefs. In other words it can explain some forced conversion (changes in beliefs)⁸¹ but it cannot explain the large number of cases in which people have indeed died but did not change otherwise innocuous or even harmful beliefs. For instance, it cannot explain why people moved from pantheism to monotheism (or even atheism)⁸² or why people began to subscribe to a desacralized notion of state because in all these cases there was no pressure to abandon the existing “irrational” beliefs. If anything the pressure was in favour of status quo. In Raskovich (1996) individuals change beliefs under threat of sanctions, which is strange because sanctions can only change actions, which need not correspond to beliefs. It is, however, not impossible for these actions to influence beliefs *a la* cognitive dissonance. But he does not invoke this stratagem. Readers might want to refer to [Section 4.6](#) (*supra*) where we discussed the issue of religious conversion. We will end this sub-section with an extended discussion on Pascal’s wager.

⁸⁰ Following existing literature various possible explanations could be suggested: status quo bias/endowment effect (Chaves and Montgomery 1996 and Frey 1997), sunk cost effect (Frey 1997), religious capital accumulation (Iannaccone 1990), uncertainty about other alternatives (Montgomery 1992, Kumar 2008b), home team bias (Wittman 2008), and beneficial side effects (Hardin 1997). Hardin (1997: 264) argues that even if rain dance systematically fails to produce intended results bringing the belief about its efficacy into question it might nevertheless persist because it builds social capital of the community giving it a higher chance of survival. Still one wonders how an otherwise non-productive practice can escape scrutiny in so many societies widely dispersed across space and time. In fact, given the great investment it called for (see, for instance, Loewe 1994 and also Oakley 2006) one can as well ask why a series of failures would not eat up more social, and more than that physical capital, and possibly contribute to the demise of the community.

⁸¹ The Jain scholars of South Asia used to add *may be it is right (syaat yeh theek ho)* at the end of their arguments (Dinkar 1954 [2002]). When faced with such a person one might not feel the need to change his belief that god is a blue colored Himalayan sheep dog clad in Armani who loves Cuban cigars. But if the person asking for change is a sword wielding crusader or jihadi suicide bomber then one does not have the luxury to entertain fancy beliefs.

⁸² See Raskovich (1996) who tries to explain the emergence of monotheism as the dominant religion in a polytheistic society. There are two different kinds of problems with his attempt. In addition to the problems already discussed in this section his analysis also suffers from the neglect non-monotheistic alternatives to polytheism. Rationalizing the polytheism-to-monotheism transition *after the fact* and explaining why among the many possible alternatives monotheism emerged are entirely different things.

Pascal's Wager: A number of contributions on changes in belief are inspired by Pascal's Wager. Pascal "asks if selfish rational arguments are available which suggest that one should order one's life as if God existed" (Landsberg 1971).⁸³ While this is decidedly theologically (can genuine belief in god rest merely on fear or self-interest) and epistemologically (can one simply believe whatever one likes)⁸⁴ suspect the rational choice part of it is of direct interest to us. Using a simple model Landsberg (1971) shows that the wager cannot serve as an impersonal normative guide for a rational agent even for a binary choice problem, namely, choice between theism and atheism. One can draw support for either belief or disbelief depending on "his *other* beliefs and the strength with which these beliefs are held" (emphasis added) and in any case Pascal's wager cannot resolve the tie between multiple gods. We will present here Landsberg's model for an educated gambler for the case involving just two options and highlight the link between Pascal's Wager and [Eve's Problem](#).

Example 3: (Pascal's Wager and Eve's Problem) An individual believes that god exists with probability p . In case god does not exist and he does (not) participate in religious activities he receives a pay-off equal to 0 (1). However, if god exists and he participates in religious activities he receives a pay-off of $R > 1$. If god exists non-participation attracts punishment P so that pay-off is $R - P$. A rational individual participates if $p > 1/(1 + P)$. Pascal assumed that $P \rightarrow \infty$ so that any positive subjective belief will favour the decision to be religious (*ibid*: 101-102).⁸⁵ In effect he presumed that the individual faced [Eve's Problem](#).

It cannot however be denied that our actions (governed in part by past choices) affect our beliefs. So going through the motions could indeed induce belief. Montgomery (1992: 118-119) examines the wager within a cognitive dissonance framework.

Example 4: (Pascal's Wager in cognitive dissonance framework) Suppose an individual believes that god exists with probability p . If he participates in religious activities and god exists he receives a reward (R) otherwise return is zero in case of non-participation or non-existence of god. Assume participation cost to be C . A rational individual chooses to

⁸³ One can find similar instrumental justifications for believing in other traditions. See Tulsidas's (1576) *Shri Ramacharitmanasa (Sundarakanda: 57)* for medieval Northern India.

⁸⁴ Jon Elster, cited in Montgomery (1996a: 446), observes that an individual cannot both (1) believe a proposition and (2) recognize that this belief stems from a decision to believe.

⁸⁵ As long as reward from belief is infinite and probability is strictly positive the exact level of belief is immaterial. However, if as generally assumed the returns are finite then "the rational choice problem is well defined only if p is known" (Montgomery 1992: 119).

participate iff $pR - C > 0$. At p^* he is just indifferent between participating and not participating. In this case if he continues to participate then he suffers from cognitive dissonance due to conflicting cognitions: (a) there is very little chance that god exists and (b) I am participating in religious activities. Dissonance reduction requires that either he continues to participate (and belief accentuates to $p_H > p^*$) or discontinues participation (and belief de-accentuates $p_L < p^*$). The rational choice problem is not well-defined due to endogeneity of beliefs. If $p_H R - C > 0 > p_L R - C$ “either choice [belief or disbelief in god] would appear to be correct after it has been made (but before God’s existence has been revealed)” (*ibid*: 119; emphasis in original).⁸⁶ Montgomery (1992: 119-120) also provides a simple model of Pascal’s Wager taking into account the Knightian distinction between risk and uncertainty. The conclusion remains unchanged: Pascal’s Wager cannot serve as a guide to the perplexed.

While in our discussion above we noted that Pascal’s Wager cannot help one in a multi-god setting Brams (2007 [1983]) points out yet another weakness of the Wager. He observes that given that Pascal presumed “a bet whose outcome will never be known” (or “we will know in our lifetimes only indeterminacy”) it is indeed surprising that he did not consider a third state of nature, namely, existence of god is indeterminate. Brams models the Wager as a one-person game (Figure 3) against three states of nature – god’s existence is verifiable, god’s non-existence is verifiable, god’s existence is indeterminate, in which humans have two strategies – search and do not search. He shows that human agents do not have a dominant strategy unless one is prepared to make assumptions, not all of which are plausible (*ibid*: 33-35).

Figure 3 about here

While Pascal’s framework is decision theoretic Brams (2007 [1983]) examines a related question within a two person non-cooperative game theoretic setting. Assuming that god is “an active entity who is capable of making choices” he asks if it is rational for god to reveal himself and for individuals to believe in god. He also examines the implications of omniscience, omnipotence, and immortality of god for the outcomes of games between god and individuals. He deduces player’s pay-offs, strategies, and preferences from the Old

⁸⁶ While cognitive dissonance drives changes in beliefs through changes in action (Montgomery 1992) commitment can also be influential in this regard (Goldin and Metz 1991, Coşgel and Minkler a and b). Actually commitments are not an alternative to action driven changes in beliefs and/or preferences. Commitments impose certain restrictions on choice of actions, which in turn feedback to reduce cognitive dissonance.

Testament. While the analysis does not generate unambiguous answers it abounds in paradoxes of all kinds. One can raise a number of objections to his analysis starting from characterization of players. For instance, it is not clear whether the human player is a believer or agnostic (*ibid*: 19-22); if believer then parts of analysis are superfluous and if agnostic one is not told how he comes to know god's preferences. Since it is not difficult to bypass these problems by adding some additional structure to assumptions we can move on to a few important insights one can pick up from Brams. First of all faith and rationality are shown to be indistinguishable in a number of religious settings. He argues that oftentimes there is no difference between the rational calculus behind "logical decision" and "emotional commitment" and therefore the same action can be justified either way.⁸⁷ He suggests that in such situations it is better to stick to faith and reduce ones cognitive load. Brams (2003 [1980]) shows this in case of the biblical stories of Abraham and Jephthah (also see Brams (2007 [1983]: 36-37). Secondly, Brams (2007 [1983]) shows that a large number of theological games between god and humans are marked by undecidability, i.e., "an ordinary being cannot decide whether the other player is superior from the outcome that is induced", and in a large number of search problems, assuming humans search for god, there is no dominant strategy. In effect Brams offers mundane foundations for inscrutability of the divine realm.

One last point about the treatment of beliefs before we stress their primacy in the following section. A majority of the contributions fail to account for the fact that religious belief is associated with uncertainty, not just risk. Hardly anyone observes the Knightian distinction between uncertainty and risk (see Bewley 1986 for a discussion). Exceptions include Montgomery (1992) and Khalil (1997). While most (e.g., Iannaccone 1995a, Ekelund *et al* 2006: 58) talk in terms of risk aversion following Khalil (1997: 153-155, also see Montgomery 1992, Ekelund *et al* 2006: 50) uncertainty aversion seems to be more relevant consideration with respect to the key products of religion. Khalil has, in fact, argued that the stratagem of reducing Knightian uncertainty to risk does not work in the case of religion. A further possibility that the core of religion is not only unknown but probably unknowable is equally widely ignored (exceptions include Brams 2007 [1983], Montgomery 1996b). Unknowability, if true, does not rule out the application of rational choice approach to the

⁸⁷ Others have noted similar ambiguities with regard to human behaviour. Brennan and Hamlin (1995), for instance, argue that if honesty is the best policy under certain institutional settings then people will choose to be honest. In such a case "direct calculative egoism" and "dispositional honesty" are indistinguishable.

market for religion. It only suggests that possibly we are dealing with trade in symbols without empirical correlates (see Section 4.7.1 and 10.3.3).

10.2 *Primacy of beliefs*

We have seen above that the dominant approach in EoR literature involves invocation of unchanging “well-behaved” preferences and beliefs within a framework of rational choice under risk as the starting point. The inappropriateness of this approach has already been discussed. We now proceed in two steps to emphasize the primacy of beliefs. First we will disentangle beliefs and preferences and then argue in favour of giving primacy to beliefs and also discuss the structure this primacy imposes.

10.2.1 *Disentangling beliefs and preferences*

We have seen above that at times contributions confound beliefs and preferences. We will begin with disentangling beliefs and preferences in a non-religious setting followed by an example from the religious domain.

Example 5: Consider Aesop’s *The Fox and the Grapes* in which a fox is desperately after grapes. Preferences and beliefs of the Aesopian fox can be represented as follows: $\text{sweet} \succ \text{neutral} \succ \text{sour}$ and $\text{prob}(\text{grapes} \in \text{sweet food}) = 1$. After repeated failure to secure grapes the fox concluded “I am sure they are sour”. Even though it is possible to come to the same point through preference falsification or preference adaption in this Aesopian fable beliefs (“I am sure”), rather than preferences (“I do not like”, i.e., $\text{non-sweet} \succ \text{sweet}$), are adjusted. So ultimately $\text{prob}(\text{grapes} \in \text{sweet food}) = 0$.

Example 6: Now consider an example related to religion. If an atheist is asked to indicate his preference ordering for heaven (abundance of goods), hell (abundance of bads), and earth (scarcity of goods and presence of bads) the answer would be $\text{heaven} \succ \text{earth} \succ \text{hell}$. But then ask him to state his subjective belief about existence of afterlife the answer would be $\text{prob}(\text{afterlife}) = 0$. His preference ordering would be endorsed by believers with the difference that the latter believe in afterlife. A true Catholic would order religions R1 (same,

pleasant afterlife for all, without any effort), R2 (same, pleasant afterlife for all, with minimal effort), and R3 (complex afterlife sans free lunches) as follows $R1 \succ R2 \succ R3$. But his belief is $\text{prob}(R \neq R3) = 0$, i.e., the true state of afterlife cannot but correspond to religion R3's description.

10.2.2 Primacy of beliefs

We have shown above the distinction between beliefs and preferences. It remains to be argued that beliefs should be accorded primacy. We will illustrate the point with the help of a hypothetical situation but before that recall that we have already discussed this issue, albeit very briefly, in [Section 5.1.1](#) (*supra*).

Example 7: Consider a monotheistic missionary who believes that salvation requires following a prophet of a formless god (Qm) and pagans who believe that salvation requires offering unripe lemons to a guava tree (Qp). Initially $Qm \prec_{\text{pagan}} Qp$, $\text{prob}(Qp = \text{true} | \text{pagan}) = a' \gg 0$, and $\text{prob}(Qm = \text{true} | \text{pagan}) = a \ll a'$. The missionary has to convert the pagan so that ultimately $Qm \succ_{\text{convert}} Qp$, $a' \ll_{\text{convert}} 1$, and $a \gg_{\text{convert}} a'$. We will argue that the missionary should first induce change in beliefs, $a(\rightarrow 1) \gg_{\text{convert}} a'(\rightarrow 0)$. One can as well argue that he should begin with converting preferences ($Qm \succ_{\text{convert}} Qp$). Once beliefs are altered as suggested above then $\text{prob}(Qp = \text{true} | \text{convert}) * U(\text{pagan heaven}) \rightarrow 0$ while $\text{prob}(Qm = \text{true} | \text{convert}) * U(\text{monotheistic heaven}) > 0$. Thus, in this case changing preferences once beliefs have changed is innocuous from the perspective of erstwhile pagan. But if preferences alone are altered with beliefs left unscathed then $\text{prob}(Qm = \text{true} | \text{convert}) * U(\text{monotheistic heaven}) \rightarrow 0$ and $\text{prob}(Qp = \text{true} | \text{convert}) * U(\text{pagan heaven}) > 0$, at least as long as $U(\text{pagan heaven}) > 0$ under the reformed preferences. So there is no incentive in the latter case to change beliefs after preferences have been changed.⁸⁸

⁸⁸ *Example 8:* Consider a comparable case from politics. Informed preferences over communism and democracy would be as follows: communist promise \succ democratic promise \succ democracy as practiced \succ communism as practiced. For perpetuation of communist rule it is sufficient that a majority believes that successful overthrow is impossible, which may/may not be buttressed by the belief that communism is the only true system of governance. This might require belief falsification. Of course through propaganda the regime can also alter the preference or at least enforce preference falsification. But preference falsification *a la* Kuran (1991) was neither necessary nor sufficient for stability of communist regimes. This should be evident from the fact that even those who preferred communism switched sides when they realized that the regime was about to collapse. Before that time even those who preferred non-communist regime did not express their preference because they *believed* that the regime is unlikely to bow to public pressure and would, in fact, respond with repression.

Since change in preferences does not necessarily lead to change in beliefs the missionary is better advised to focus on changing beliefs. Empirical evidence to the contrary is due to the fact that beliefs are difficult to verify whereas preferences revealed through behaviour make it easy to gauge the success in efforts put in to change preferences. For instance, in Henri IV's case the moderate Catholics had to accept change in preferences because efforts to ensure belief transformation were proving to be too expensive. Muslims in South Asia show preference for Muslim places of worship but their pre-Islamic belief in god-like saints remains intact and continues to be driving force of South Asian Islam.

10.2.3 *Hierarchy of beliefs and preferences*

Having argued in favour of primacy of beliefs we can say that preferences cannot be arbitrary. Rather the latter have to be compatible with the former. For instance, Hausman and McPherson (1994) argue that in general preferences depend on beliefs rather than other way round.⁸⁹ For example, a believer in Mohammed's prophethood cannot prefer pork to other permissible foods or idol worship to worship of formless god. Now we can provide a clearer picture of religious beliefs and preferences. Individuals have belief about existence of god (0th order beliefs) and afterlife (1st order beliefs) and preferences over quality of life *and* afterlife (1st Order preferences). Further they have beliefs about which religion is more likely to lead to the preferred outcome here and hereafter (2nd Order beliefs). One could argue that instead of 2nd Order beliefs individuals could have 2nd Order preferences over available alternatives, say, Islam, Protestantism, etc. It is not difficult to see that this is not meaningful. Consider, for instance, a bicycle and spacecraft. One might prefer to travel to moon on a bicycle without ever believing that bicycle can be used to reach moon. A similar argument applies wherever one likes to replace beliefs with preferences. So we can say that there is a hierarchy with higher order beliefs and preferences being constrained by lower order ones. But the hierarchical structure of preferences proposed here is not coterminous with meta-preferences posited elsewhere in literature (see Sen 1977; also Wallis 1991: 189-191 for a review of relevant literature).

⁸⁹ Montgomery (1996a) stresses the need to differentiate between beliefs and preferences but does not suggest further structure. The primacy of beliefs in religion comes out very clearly in Wolfe's (1993) examination of Henri IV's (re-re-)conversion to Catholicism.

10.3 *The market for religion*

We concluded [Section 9.2.2](#) (*supra*) with the observation that market for religion cannot be dispensed away with. We will proceed in three steps in this sub-section. First we will examine the purported sources of demand for religion. Then we will argue that salvation/afterlife the key product in the market for religion is difficult to value followed by the argument that it defies usual characterization of goods in market. Finally we describe the market for religion as a peculiarly inscrutable market.

10.3.1 *Demand for religion*

It has been argued that religion continues to thrive in the world because it helps one to navigate in an uncertain world. The uncertainty intrinsic to religion is widely ignored though (see [Section 4.1](#), *supra*). Religion's claim that it can reduce this uncertainty is itself subject to uncertainty because it generates both its claims and proofs. By providing a global uncertainty reduction mechanism religious doctrine forecloses the possibility to step out and ask if the mechanism works. There are instances when authors have suggested that religions can indeed reduce uncertainty without explaining how that happens in absence of influx of additional credible information into the system (Bhagwati and Srinivasan 1986: 52).⁹⁰ One fails to understand how Durkin and Greeley's (1992: 122) paranormal signals and Iannaccone's (1995a) testimonies are going to reduce the uncertainty intrinsic to religion unless the targeted individual is prepared to believe in their efficacy a priori, which is nothing but believing in the religion itself. But in the first place these signals and testimonies were provided to help the target decide whether believing is worth it!

The confusion regarding religion's efficacy in mitigating uncertainty is compounded by the fact that it is not clear if the claims of religion are normative or descriptive. Generally normative and descriptive claims of religion are mutually reinforcing (Geertz 1968 [2000]: 89-90; also see Hardin 1997: 260, Albert 1997: 228-231). Religious claims have no chance of passing as normative statements. Applicability for normative purposes requires that the states

⁹⁰ Revealed/prophetic religions solve this problem once for all by invoking an omniscient being, external and prior to creation, who conveys the truth to a chosen one and his people. The latter in turn transmit the message, "uncorrupted", across space and time.

of nature identified by religion should be a) mutually exclusive and b) exhaustive and c) should represent “*nature’s* exogenous uncertainty” that cannot be affected by individual’s choice of action. Whether the states actually exist or are conjured up is irrelevant for the purpose of normative use (Machina 2002). The first requirement is not easy to fulfill particularly for monotheistic religions⁹¹ and fulfilling the second is a tall order for all religions. Still inline with the ingenious solution (tri-partite dogma) devised by religions, described in [Section 4.7.1](#) (*supra*), assume that the believer takes the scripture at face value so that the list supplied by the scripture is *believed* to be exhaustive. Even then the last requirement cannot be fulfilled because simply by converting to atheism or some other religion the states of nature can change drastically. Further one can also argue that religious claims cannot serve as stand alone descriptive statements without the scaffold of beliefs. We have already suggested that religious claims cannot be subjected to rational scrutiny in a straightforward manner.

So religion cannot objectively serve as a guide to the perplexed in an uncertain world. In other words the demand for religion cannot be explained by suggesting that it helps individuals to deal with uncertainty.⁹²

10.3.2 *Salvation as a good*

It has been argued that salvation is beyond the pale of rational choice because “it is not an alternative to any other end” (Diesing quoted in Bruce 1993: 204) and therefore it cannot be valued as yet another market good. But why not value salvation the way we value *Mona Lisa*? The analogy though tempting is not appropriate. Salvation cannot be auctioned to determine its value for two reasons. One, there are theological constraints, which rule out such an attempt even if it made sense. Two, the attainment of salvation by one person does not rule out the same for others. In fact, “consumption” of salvation by one person does not even reduce the quality of salvation enjoyed by others. So salvation is a non-depleteable

⁹¹ Monotheism presumes a god that is unique and external to the universe, including its space and time dimensions. So an alternative to Christianity whether another religion or no-religion cannot merely be a state of the world. Instead it will be yet another set of states of the world.

⁹² Balagangadhara (2005 [1994]: Chp. 5) has discussed the contribution of other sources of demand for religion, e.g., “fear of unknown”, “chaos”, “hostile nature”, nature’s “mystery”, etc, towards the *origin* of religion. He rejects the claim that one or more of these could explain the origin of religion. But such claims continue to figure in EoR (see Ekelund *et al* 2006 for a recent example).

good. In fact, one can also say that given uncertainty joint “consumption” might as well lead to improvement in quality experienced *a la* Iannaccone (1992, 1995a). Consider, for instance, salvation as a plausibility generation mechanism. The more people subscribe to it the more credible is its promise to render the world plausible. But we also know that individuals can be denied salvation. So, salvation is neither a public good nor a private good. Possibly it is a kind of club good. But it is not clear if this analogy is helpful because unlike a club good, which exists independent of the club that tries to obtain it, the very possibility of salvation begins to emerge after the formation of club-salvation.

Another common tendency in EoR equates religious goods with credence goods (see Iannaccone 1995a: 286, Iannaccone and Berman 2006: 115), which in our opinion is inappropriate. We are not saying that religious products are necessarily non-credence. In fact, most the religious products can be classified as search and experience (Nelson 1970) and credence (Darby and Karni 1973) goods. Only salvation, which has defied satisfactory treatment, does not fall under either of these categories. That salvation goods are neither search nor experience goods is plain. So it suffices to make clear why we think that they are also not credence goods. Darby and Karni (1973: 68-69) define a credence good as one whose qualities “cannot be evaluated in normal use” and are “expensive to judge even after purchase”. Exchange of these goods involves “a consumer who is unfamiliar with the exact qualities of a particular purchase” and “a seller of a product with qualities measurable only at considerable expense”. Credence goods require quality certification otherwise the market cannot function (Akerlof 1970, Darby and Karni 1973, Ekelund *et al* 2006: 52). It is straightforward to see that our seller himself is clueless about his wares and the quality *cannot* be verified at any cost by either party or third party experts. In fact, third party experts and quality certifications do not even exist in the religious domain. A Pope does not send doubting Toms to a Caliph or a Marx to cross-check the veracity of the Church’s claims. So short of death there is no way to ascertain the truth about afterlife.

But does salvation in the sense of plausibility generation fall into one of the three abovementioned categories? No, because supplier has no idea if his setup works to the end proclaimed and consumers cannot objectively ascertain the quality even after purchase. Here cost is not a consideration because to verify the quality of the product (uncertainty reduction mechanism) a consumer has to first believe that it works, i.e., the consumer has to *accept* that the product works before attempting to verify if at all it works. Ekelund *et al* (2006: 27-28)

suggest that salvation/afterlife is a *meta-credence* good but stick to credence goods in their discussion. We propose the tag *inscrutable* good, which clearly indicates that we are dealing with a good that we have not been able to describe so far the way we describe other goods. An important property of marketable goods is our ability to judge their quality after detaching ourselves not only from such goods but also the act of using them; if this is not feasible then one cannot also think of a third party. That afterlife cannot be handled in this way is easy to see. Further it is not clear how one can detach oneself from salvation as a plausibility generation mechanism as well as the plausibility flowing from it. Recall that we have already discussed the difficulty in decoupling sub-components of salvation in the [concluding remarks to Section 9.2.2](#) (*supra*). So in our discussion below we will treat salvation as a monolithic good.

10.3.3 *Selling an inscrutable good in an inscrutable market*

If as argued above demand for salvation, the key product of religion, is difficult to relate to empirically verifiable sources and salvation as a good is ill-defined and even otherwise is difficult to value then one should expect the market for religion to collapse sooner than later. Still this market of equally clueless sellers and buyers thrives. Such markets are known as inscrutable markets, where “there is no clear ground on which the notion of “honesty” itself can be constructed” (Gambetta 1994). In passing note that inscrutability and intangibility are not co-extensive. Even with one supplier such a market is queer. With multiple suppliers consumers suffer from a particular variant of Buridan’s Ass problem, namely, choosing between products that are different “in some crucial aspect which is not apparent”. In such situations consumers can at best work with thumb rules, which are not necessarily rational. Frey (1997) also draws attention to the too little search carried out in the market for religion and the biased evaluation of whatever little information that is available.

Gambetta suggests that in such a market it is the supplier who needs to give signals to induce transactions.⁹³ It has been suggested after Weber that rationality might better reflect the decision-making process of organization (here church) than individuals (Demerath 1995:

⁹³ We can arrive at this claim from a different starting point as well. If one is prepared to entertain the Knightian distinction between risk and uncertainty and accept that the core of religion is marked by uncertainty then one can say that it is unlikely that individuals will shop in the market for religion. To draw them out of the blissful state of Knightian status quo (see Bewley 1986, also Montgomery 1992) the suppliers have to exert themselves.

107). This fits in well with the idea of inscrutable market where the supplier has to choose a rational strategy. Both suppliers and consumers (this presumes a demand for religion) have incentive to generate and accept symbols of mythic proportion to facilitate exchange and in time these symbols substitute for the products they were supposed to certify in the first place.⁹⁴ But there is one crucial difference between the market for religion and Gambetta's inscrutable market. In Gambetta's market for (mafia) protection the sellers have some clue about their capacity to deliver, claims are ex-post verifiable by at least some players in the market, including the successful mafia and others who survive killings. Once in a while someone careless or sufficiently risk-taking generates information, which is in fact a public good and no wonder underprovided. But in markets for religion even this latter possibility is ruled out. Finally note a very crucial point. From the above it should be evident that Gambetta's inscrutable markets deal with credence goods whereas the core of market for religion is a market dealing with an inscrutable good. In short, market for religion is a *peculiarly inscrutable market*.

IV. RECAPITULATION

We will now quickly recapitulate what we discussed in course of this review. A longer summary is available at the beginning of this essay (see [Section 2.0](#), *supra*). We first suggested multiple taxonomies for EoR and then organized the literature survey according to the causal mechanism, namely Marxist or Weberian, underlying the explanations contained in papers. Inability to pin down religion for analytical purpose and difficulty in dealing with afterlife/salvation were identified as the major shortcomings of the literature. In light of this we then discussed the problems with aggregate and individual level analyses and the limitations of indexes used in EoR. In the last but one section we discussed at length the problems associated with modelling afterlife/salvation, the distinctive element of religion. The last section began with a discussion on unsatisfactory treatment of beliefs and preferences in EoR. We then argued in favour of primacy of beliefs. Finally like the Upanishadic sages we identified the outlines of the market for religion by drawing attention to *what it is not*. What remains at the end of this exercise in negation suggests that the market for religion is a peculiarly inscrutable market. We end with the hope that this peculiarity will

⁹⁴ One needs perhaps to look at explanations of how reality, or indeed an illusion of it is created. Richman (2000, ed) and Geertz (1981), and to a lesser extent Oakley (2006), examine this issue in the context of religious mythology. Horowitz (2000 [1985]) provides a related discussion with regard to ethnic identity. Within EoR Smith (1999) suggests that religious scriptures work on the imagination capital of individuals.

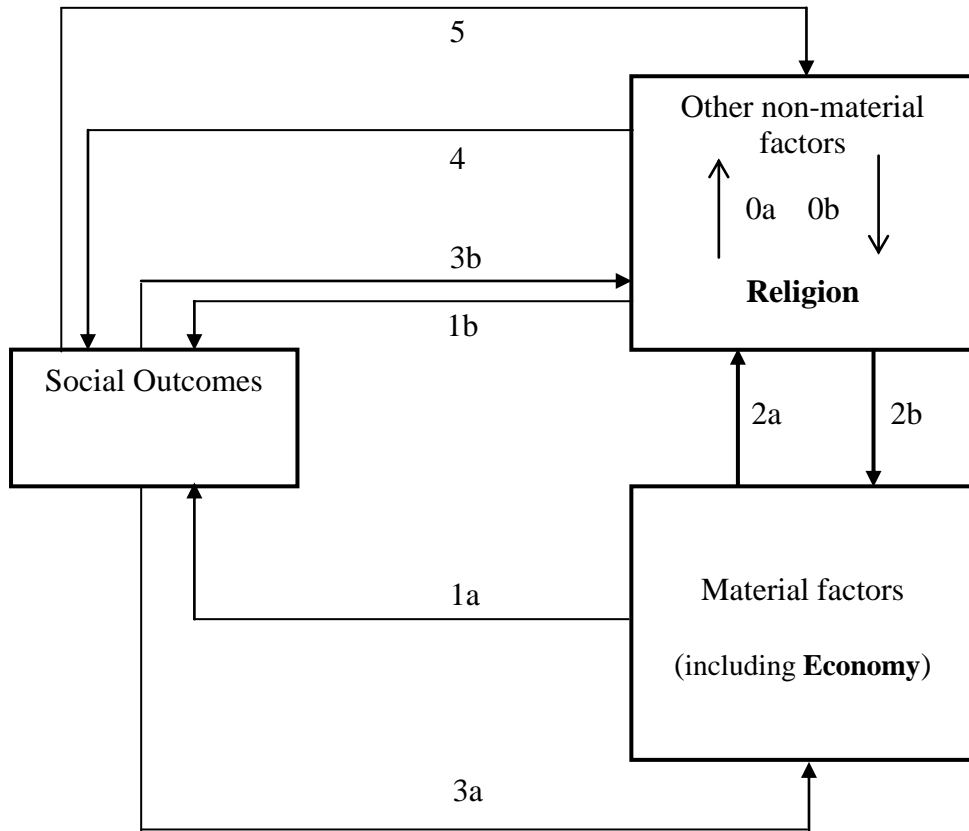
attract more attention in future and enrich economic theory per se. To make sense of this hope compare the modus operandi of a religious organization (invent/discover afterlife, inform individuals about the same, and sell insurance packages or tickets for afterlife) with the following observation by Gomez and Moore (2006: 209):

[R]ather than considering religious organizations as firm-like, it could be more opportune to consider firms as becoming religious-like organizations...Firms currently seem to create beliefs associated with their products, rather than objectivable products. They seek to influence their consumers' identities and palettes of preferences rather than the products themselves.⁹⁵

⁹⁵ This is not an isolated observation. Fogel (1999: 1), for instance, uses the term *spiritual* "not in its religious sense but as a reference to commodities that lack material form".

V. FIGURES AND TABLES

Figure 1: Religion and Society



Traditional Economics: 1a, 3a

Marxist Links: 1a, 3b; 1a, 5, 0b; 2a

Weberian Links: 0a, 0b, 2b; 0a, 4, 3a; 1b, 3a; 2b

} **Economics of Religion**

Figure 2: Economics of Religion

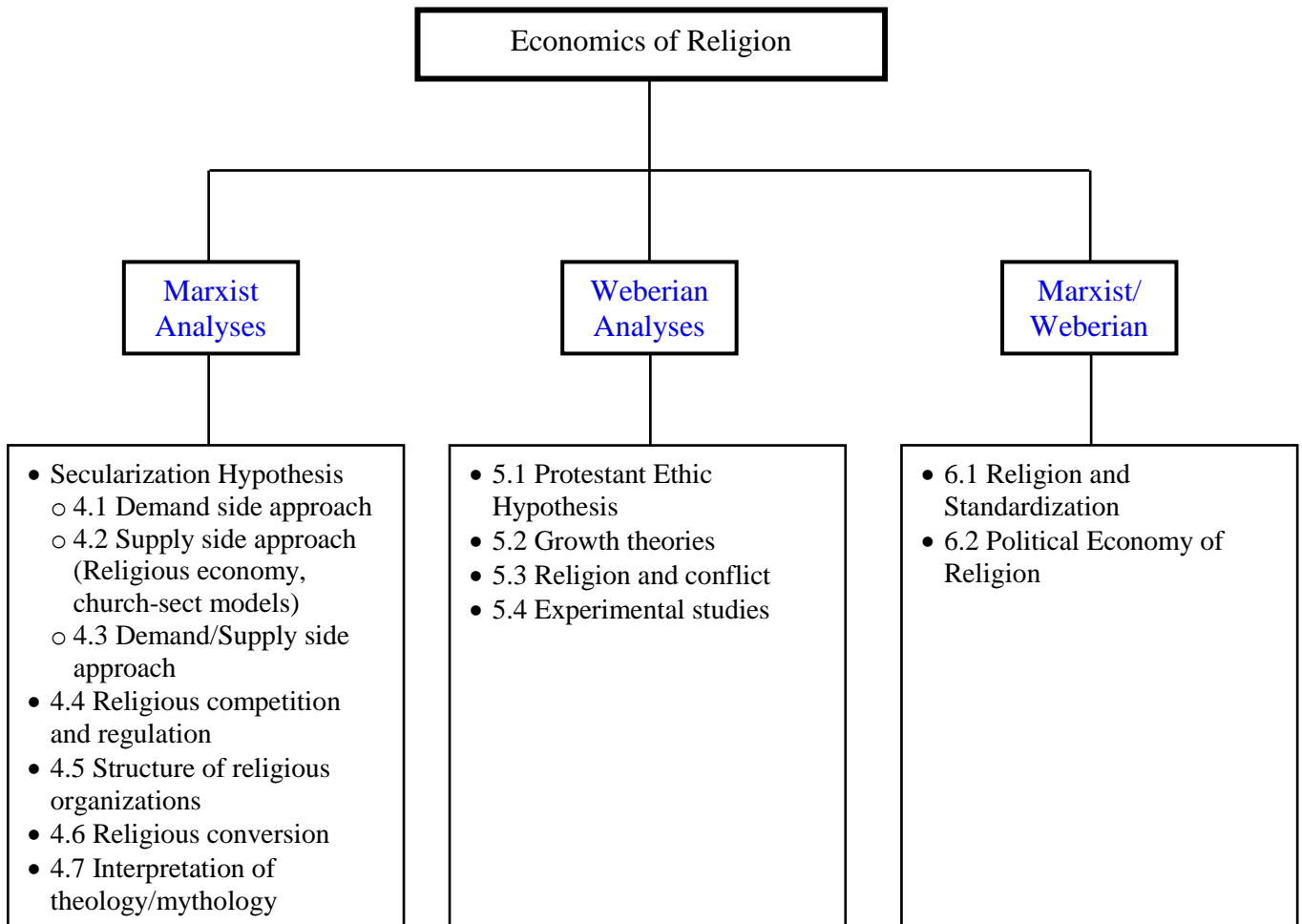


Figure 3: Pascal's Wager as a Search Decision/Game⁹⁶

		States of nature		
		God's existence is verifiable	God's non-existence is verifiable	Existence of god is indeterminate
Pascal	Search	Search successful (6)	Search productive (5)	Search unavailing (1)
	Do not search	Not searching unwise (2)	Not searching wise (3)	Not searching appropriate (4)

$$6 \succ 5 \succ 4 \succ 3 \succ 2 \succ 1$$

⁹⁶ Adapted from Brams (2007 [1983]: 34).

Table 1: Evolution of Economics of Religion

Period	Contributors-Contributions	Geographical region(s) of concern
1775-1849	Adam Smith - Self-interested income maximizing players in market for religion, human capital based explanations, church-sect dichotomy, political economy of religion (Anderson 1988 , Leathers and Raines 2008)	Western Europe
1850-1944	Karl Marx - strictly materialist interpretation of religion (Lobkowitz 1964), Weber (1995 [1920]) - Protestant ethic hypothesis, secularization, church-sect dichotomy	Western Europe, North America
1945-1974	Lewis (1972 [1955]) - macroeconomic impact of religion, Boulding (1957) - general, Kane (1963, 1964, 1966) - church as oligopolistic firm with endogenous doctrine and lexicographical preferences	Western Europe, North America
1975-1986	Azzi and Ehrenberg (1975) - household production model, Carr and Landa (1983) - club goods model, Dixit and Grossman (1984) and Bhagwati and Srinivasan (1986) - organized religion and rent/revenue-seeking, Aumann and Maschler (1985) - interpretation of Jewish law	North America, Israel
1987-1998	Ekelund et al - public Choice models, Iannaccone et al - religious capital model, church-sect model, religious economy model, Posner (1987) - law and economics of First Amendment, Akerlof (1991) - indoctrination, Montgomery (1992, 1996a) - cognitive dissonance	Christendom, Israel
1999-	Widely distributed (see Section 7.0)	Christendom, Middle East, International panels, others (Taiwan, India, Indonesia)

VI. REFERENCES

(Star-marked entries are not part of EoR)

1. Acemoglu, Daron, James A. Robinson, and Simon Johnson (2001), 'The Colonial Origins of Comparative Development: An Empirical Investigation', *American Economic Review*, 91 (5), 1369-1401*
2. Akerlof, George A. (1997), 'Social Distance and Social Decisions', *Econometrica*, LXV, 1005-1027*
3. Akerlof, George A. (1991), 'Procrastination and Obedience', *American Economic Review*, 81 (2), 1-19
4. Akerlof, George A. (1970), 'The Market for "Lemons": Quality Uncertainty and the Market Mechanism', *Quarterly Journal of Economics*, 84 (3), 488-500*
5. Akerlof, George A. and Rachel E. Kranton (2000), 'Economics and Identity', *Quarterly Journal of Economics*, CXV (3), 715-753*
6. Albert, Hans (1997), 'The Conflict of Science and Religion: Religious Metaphysics and Scientific Worldview as Alternatives', *Journal of Institutional and Theoretical Economics*, 153 (1), 216-234
7. Alesina, Alberto, Arnaud Devleeschauwer, William Easterly, Sergio Kurlat, and Romain Wacziarg (2003), 'Fractionalization', *Journal of Economic Growth*, 8 (2), 155-194
8. Allen, Douglas W. (2008), 'Theocracy as a Screening Device', *UCSIA Discussion Paper* 0803
9. Allen, Douglas W. (1995), 'Order in the Church: A Property Rights Approach', *Journal of Economic Behaviour and Organization*, 27 (1), 97-117
10. Anderson, Benedict (2006 [1981]), *Imagined communities: Reflections on the Origin and Spread of Nationalism*, Verso*
11. Anderson, Gary M. (1988), 'Mr. Smith and the Preachers: The Economics of Religion in the Wealth of Nations', *Journal of Political Economy*, 96 (5), 1066-88
12. Anderson, Gary M., Robert B. Ekelund Jr., Robert F. Hebert, and Robert D. Tollison (1992), 'An Economic Interpretation of the Medieval Crusades', *Journal of European Economic History*, 21 (2), 39-363
13. Anderson, Gary M. and Robert D. Tollison (1998), 'Celestial marriage and earthly rents: Interests and the prohibition of polygamy', *Journal of Economic Behavior and Organization*, 37 (2), 169-181

14. Anderdson, Gary M. and Robert D. Tollison (1992), 'Morality and Monopoly: The Constitutional Political Economy of Religious Rules', *CATO Journal*, 12 (2), 373-392
15. Anderson, Lisa R. and Jennifer M. Mellor (2007), 'Did the Devil Make Them Do It? The Effect of Religion in Public Goods and Trust Games', *College of William and Mary, Department of Economics, Working Paper 20*
16. Arbaugh, J. B. (2006), 'Dialogue on Miller's (2002) "Competitive Strategy of Religious Organizations": An Introduction', *Journal of Management, Spirituality, & Religion*, 3 (3), 194-198
17. Arreguin-Toft, Ivan (2005), *How the Weak Win Wars: A Theory of Asymmetric Conflict*, Cambridge University Press*
18. Arruñada, Benito (2004) 'Catholic Confession of Sins as Third-Party Moral Enforcement', *Universitat Pompeu Fabra Economics Working Papers*
19. Ault, Richard W., Robert B. Ekelund, and Robert D. Tollison (1987), 'The Pope and Price of Meat: A Public Choice Perspective', *Kyklos*, 40 (3), 399-413
20. Aumann, Robert J. (2003), 'Risk aversion in the Talmud', *Economic Theory*, 21, 233-239
21. Aumann, Robert J. (2002), 'Game Theory in the Talmud', *Research bulletin Series on Jewish Law and Economics*
22. Aumann, Robert J. and M. Maschler (1985), 'Game Theoretic Analysis of a Bankruptcy Problem from the Talmud', *Journal of Economic Theory*, 36 (2), 195-213
23. Azzi, Corry and Ronald G. Ehrenberg (1975), 'Household Allocation of Time and Church Attendance', *Journal of Political Economy*, 83 (1), 27-56
24. Bag, Parimal Kanti (1996), 'Efficient Allocation of a "Pie": Divisible Case of King Solomon's Dilemma', *Games and Economic Behavior*, 12 (1), 21-41
25. Bag, Parimal Kanti and Hamid Sabourian (2005), 'Distributing awards efficiently: More on King Solomon's problem', *Games and Economic Behavior*, 53 (1), 43-58
26. Baier, Colin, and Bradley Wright (2001), 'If You Love Me, Keep My Commandments': A Meta-analysis of the Effect of Religion on Crime', *Journal of Research in Crime and Delinquency*, 38 (1), 3-21
27. Balagangadhara, S. N. (2005 [1994]), *"The Heathen in his Blindness...": Asia, The West and the Dynamic of Religion*, Manohar Publishers and Distributors (New Delhi)*
28. Baron, James N. and Michael T. Hannan (1994), 'The Impact of Economics on Contemporary Sociology', *Journal of Economic Literature*, 32 (3), 1111-1146*

29. Barro, Robert J. and Jason Hwang (2007), 'Religious Conversion in 40 Countries', *NBER Working Paper Series* 13689
30. Barro, Robert J. and Rachel M. McCleary (2006), 'Religion and Political Economy in an International Panel', *Journal of Scientific Study of Religion*, 45 (2), 149-175
31. Barro, Robert J. and Rachel M. McCleary (2005), 'Which Countries have State Religion', *Quarterly Journal of Economics*, CXX, 1091-1126
32. Barro, Robert J. and Rachel M. McCleary (2003), 'Religion and Economic Growth across Countries', *American Sociological Review*, 68 (5), 760-781
33. Barros, Pedro Pita and Nuno Garoupa (2002), 'An Economic Theory of Church Strictness', *Economic Journal*, 112, 559-576
34. Bateman, Bradley W. and Ethan B. Kapstein (1999), 'Between God and the Market: The Religious Roots of the American Economic Association', *Journal of Economic Perspectives*, 13 (4), 249-258
35. Becker, G. S. (1976), *The Economic Approach to Human Behavior*, Chicago University Press*
36. Becker, G. S. (1965), 'A Theory of Allocation of Time', *Economic Journal*, 75, 493-517*
37. Becker, G. S. and C. B. Mulligan (1997), 'The Endogenous Determination of Time Preference', *Quarterly Journal of Economics*, CXII (3), 729-758*
38. Becker, Sasha O. and Ludgar Woessmann (2007), 'Was Weber Wrong - A Human Capital Theory of Protestant Economic History', *CESifo Working Paper* 1987
39. Bell, F. W. (1968), 'The Pope and the Price of Fish', *American Economic Review*, 58(5), 1346-1350
40. Bellah, Robert N. (1967), 'Civil Religion in America', *Journal of the American Academy of Arts and Sciences*, 96 (1), 1-21*
41. Benabou, Roland and Jean Tirole (2006), 'Belief in a Just World and Redistributive Politics', *Quarterly Journal of Economics*, 121 (2), 699-746
42. Ben-Ner, Avner (1997), 'Religious Institutions and Economics of Religion - Comment', *Journal of Institutional and Theoretical Economics*, 152 (3), 150-158
43. Berman, Eli (2003), 'Hamas, Taliban and the Jewish Underground: An Economist's View of Radical Religious Militias', *NBER Working Paper Series* 10004
44. Berman, Eli (2000), 'Sect, Subsidy, and Sacrifice: An Economist's View of Ultra-orthodox Jews', *Quarterly Journal of Economics*, 115 (3), 905-53

45. Berman, Eli and David D. Laitin (2008), 'Religion, Terrorism and Public Goods: Testing the Club Model', *NBER Working Paper Series* 13725
46. Bernheim, B. Douglas (1994), 'A Theory of Conformity', *Journal of Political Economy*, 102 (5), 841-877*
47. Bernholz, Peter (2006), 'International Political System, Supreme Values and Terrorism', *Public Choice*, 128 (1-2), 221-31
48. Bewley, Truman F. (1986), "Knightian Decision Theory: Part I", *Cowles Foundation Discussion Paper* 807*
49. Bhagwati, Jagdish N. and T. N. Srinivasan (1986), 'Religion as DUP Activity', *Public Choice*, 48 (1), 49-54
50. Bisin, Alberto, Giorgio Topa, and Thierry Verdier (2004), 'Religious Inter-marriage and Socialization in the United States', *Journal of Political Economy*, 112 (3), 615-64
51. Bisin, Alberto and Thierry Verdier (2000), "'Beyond the Melting Pot': Cultural Transmission, Marriage, and the Evolution of Ethnic and Religious Traits", *Quarterly Journal of Economics*, 115 (3), 955-88
52. Blum, Ulrich and Leonard Dudley (2001), 'Religion and Economic Growth: Was Weber Right?', *Journal of Evolutionary Economics*, 11 (2), 207-30
53. Borooh, Vani K. (2004), 'The Politics of Demography: A Study of Inter-community Fertility Differences in India', *European Journal of Political Economy*, 20 (3), 551-78
54. Borooh, Vani K. (2003), 'Births, Infants and Children: An Econometric Portrait of Women and Children in India', *Development and Change*, 34 (1), 67-103
55. Borooh, Vani K. (1999), 'Is There a Penalty to Being a Catholic in Northern Ireland: An Econometric Analysis of the Relationship between Religious Belief and Occupational Success', *European Journal of Political Economy*, 15 (2), 163-92
56. Borooh, Vani K. and Sriya Iyer (2005), 'Vidya, Veda, and Varna: The Influence of Religion and Caste on Education in Rural India', *Journal of Development Studies*, 41 (8), 1369-1404
57. Borooh, Vani K and Martin Paldam (2007), 'Why is the world short of democracy? A cross-country analysis of barriers to representative government', *European Journal of Political Economy*, 23, 582-604
58. Botticini, Maristella and Zvi Eckstein (2007), 'From Farmers to Merchants, Voluntary Conversions and Diaspora: A Human Capital Interpretation of Jewish History', *Journal of the European Economic Association*, 5 (5), 885-926

59. Botticini, Maristella and Zvi Eckstein (2005), 'Jewish Occupational Selection: Education, Restrictions, or Minorities?', *Journal of Economic History* 65 (4), 922-948
60. Boudon, Raymond (1992), 'The Understanding of Religious Vitality Needs Additional Factors', *Rationality and Society*, 4 (4), 470-474
61. Boulding, Kenneth E. (1970), *Beyond Economics: Essays on Society, Religion and Ethics*, University of Michigan Press
62. Boulding, Kenneth E. (1957), 'Some Contributions of Economics to Theology and Religion', *Religious Education*, 52 (6), 446-450
63. Boulding, Kenneth E. (1952), 'Religious Perspectives in Economics', In *Religious Perspectives in College Teaching*, Hoxie N. Fairchild *et al* (Ed.), The Ronald Press Company (New York), 360-383*
64. Brams, Steven J. (2007 [1983]), *Superior Beings: If They Exist How Would We Know?*, Springer Verlag (New York)
65. Brams, Steven J. (2003 [1980]), *Biblical games: Game theory and the Hebrew Bible*, MIT Press (Cambridge and London)
66. Breault, K. D. (1989a), 'New evidence on religious pluralism, urbanism, and religious participation', *American Sociological Review*, 54 (6), 1048-53
67. Breault, K. D. (1989b), 'A re-examination of the relationship between religious diversity and religious adherence: Reply to Finke and Stark', *American Sociological Review*, 54 (6), 1056-59
68. Brennan, G. and A.P. Hamlin (1995), 'Economizing on Virtue', *Constitutional Political Economy*, 6 (1), 35-56*
69. Bruce, Steve (1993), 'Religion and rational choice: a critique of economic explanations of religious behavior', *Sociology of Religion*, 54 (2), 193-205
70. Buchanan, James M. (1990), 'The Domain of Constitutional Economics', *Constitutional Political Economy*, 1 (1), 1-18*
71. Buchanan, James M. (1964), 'What Should Economists Do?', *Southern Economic Journal*, 30 (3), 213-222*
72. Burnett, John J. and Bruce A. Palmer (1984), 'Examining Life Insurance Ownership through Demographic and Psychographic Characteristics', *Journal of Risk and Insurance*, 51 (3), 453-467
73. Caplan, Bryan (2006), 'The Economics of Szasz: Preferences, Constraints and Mental Illness', *Rationality and Society*, 18 (3), 333-366*

74. Caplan, Bryan (2001), 'Rational Ignorance versus Rational Irrationality', *Kyklos*, 54 (1), 3-26
75. Carlton, Dennis W. and Avi Weiss (2001), 'The Economics of Religion, Jewish Survival, and Jewish Attitudes toward Competition in Torah Education', *Journal of Legal Studies*, 30 (1), 253-75
76. Carr, Jack L. and Janet T. Landa (1983), 'The Economics of Symbols, Clan Names, and Religion', *Journal of Legal Studies*, 12 (1), 135-56
77. Cassone, Alberto and Carla Marchese (1995), 'The Economics of Religious Indulgences', *Journal of Institutional and Theoretical Economics*, 155 (3), 429-442
78. Cavalcanti, Tiago V., Parente, Stephen L., Zhao, Rui (2007), 'Religion in Macroeconomics: A Quantitative Analysis of Weber's Thesis', *Economic Theory*, 32 (1), 105-23
79. Chakravarty, Shanti P. (1989) 'On Discrimination', *European Journal of Political Economy*, 5, 77-88*
80. Chang, Wen Chun (2005), 'Religious Giving, Non-religious Giving, and After-life Consumption', *B.E. Journal of Economic Analysis and Policy*, 5 (1), Article 13
81. Chaves, Mark (1995), 'On the Rational Choice Approach to Religion', *Journal for the Scientific Study of Religion*, 34 (1), 98-104
82. Chaves, Mark and David E. Cann (1992a), 'Regulation, Pluralism, and Religious Market Structure', *Rationality and Society*, 4 (3), 272-290
83. Chaves, Mark and David E. Cann (1992b), 'Reply to Buodon and Tang', *Rationality and Society*, 4 (4), 476-480
84. Chaves, Mark and Philip Gorski (2001), 'Religious Pluralism and Religious Participation', *Annual Review of Sociology*, 27, 261-281
85. Chaves, Mark and James D. Montgomery (1996), 'Rationality and the Framing of Religious Choices', *Journal for the Scientific Study of Religion*, 35, 128-44
86. Chen, Daniel L. (2004), 'Club Goods and Group Identity: Evidence from Islamic Resurgence During the Indonesian Financial Crisis', *University of Chicago Working Paper*
87. Chermol, Brian H. (1985), 'Wounds without Scars: Treatment of Battle Fatigue in the U.S. Armed Forces in the Second World War', *Military Affairs*, 49 (1), 9-12*
88. Chiang, Alpha C. (1961), 'Religion, Proverbs, and Economic Mentality', *American Journal of Economics and Sociology*, 20 (3), 253-264

89. Chiswick, Barry R. (1983), 'The Earnings and Human Capital of American Jews', *Journal of Human Resources*, 18, 313-335
90. Clain, Suzanne Heller and Charles E Zech (1999), 'A Household Production Analysis of Religious and Charitable Activity', *American Journal of Economics and Sociology*, 58 (4), 923-46
91. Clark, S. D. (1951), 'Religion and Economic Backward Areas', *American Economic Review*, 41 (2), 258-265
92. Clark, S. D. (1947), 'The Religious Factor in Canadian Economic Development', *Journal of Economic History*, 7, 89-103
93. Coase, R. H. (1978), 'Economics and Contiguous Disciplines', *Journal of Legal Studies*, 7(2), 201-211*
94. Coase, R. H. (1974), 'The Market for Goods and the Market for Ideas', *American Economic Review*, 64(2), 384-391*
95. Coats, A. W. (1985), 'The American Economic Association and the Economics Profession', *Journal of Economic Literature*, 23 (4), 1697-1727*
96. Collins, Randall (1997), 'An Asian Route to Capitalism: Religious Economy and the Origins of Self-Transforming Growth in Japan', *American Sociological Review*, 62 (6), 843-865
97. Condon, David (2002), 'Monopsony power and the market for clergy: Some evidence from the census', *Quarterly Review of Economics and Finance*, 42, 889-900
98. Coşgel, Metin M. and Lanse Minkler (2004a), 'Religious Identity and Consumption', *Review of Social Economy*, 62 (3), 339-350
99. Coşgel, Metin M. and Lanse Minkler (2004b), 'Rationality, integrity, and religious behaviour', *Journal of Socio-Economics*, 33, 329-341
100. Coşgel, Metin M. and Thomas Miceli (2008), 'State and Church', *University of Connecticut Department of Economics Working Paper Series 4*
101. Cozzi, G. (1998), 'Culture as a bubble', *Journal of Political Economy*, 106, 376-394*
102. Crain, W. M., and K. J. Lee (1999), 'Economic Growth Regressions for the American States: A Sensitivity Analysis', *Economic Inquiry*, 37 (2), 242-57
103. Dahl, Gordon B. and Michael R Ransom (1999), 'Does Where You Stand Depend on Where You Sit? Tithing Donations and Self-Serving Beliefs', *American Economic Review*, 89 (4), 703-27
104. Darby, Michael R. and Edi Karni (1973), 'Free Competition and the Optimal Amount of Fraud', *Journal of Law and Economics*, 16 (1), 67-88*

105. Das, Tuhin K. and Ishita Datta Ray (2008), 'Monopolistic competitive market in religion: A case study of Hindu temples' *Applied Economics Letters*, 15 (1), 69-72
106. David, Paul A. (1987), 'Some New Standards for the Economics of Standardization in the Information Age', In P. Dasgupta and P. L. Stoneman (eds.) *The Economic Theory of technology Policy*, Cambridge University Press (London)*
107. Davidson, Audrey B. (1995), 'The medieval monastery as franchise monopolist', *Journal of Economic Behaviour and Organization*, 27 (1), 119-128
108. Davidson, Audrey B. and Robert B. Ekelund (1997), 'The medieval church and rents from marriage market regulations', *Journal of Economic Behaviour and Organization*, 32 (2), 215-245
109. Davies, Douglas (1978), 'The notion of salvation in the comparative study of religion', *Religion*, 8, 85-100*
110. Dehejia, Rajeev, Thomas DeLeire, Erzo F.P. Luttmer, and Joshua Mitchell (2007), 'The Role of Religious and Social Organizations in the Lives of Disadvantaged Youth', *NBER Working Paper Series* 13369
111. Dehejia, Rajeev, Thomas DeLeire, and Erzo F.P. Luttmer (2005), 'Insuring Consumption and Happiness Through Religious Organizations', *NBER Working Paper Series* 11576
112. Delacroix, Jacques and Francois Nielsen (2001), 'The Beloved Myth: Protestantism and the Rise of Industrial Capitalism in Nineteenth-Century Europe', *Social Forces*, 80 (2), 509-553
113. De Long, J. Bradford (1988), 'Productivity Growth, Convergence, and Welfare: Comment', *American Economic Review*, 78(5), 1138-1154
114. De Silva, K. M. (1999), 'Sri Lanka: The Bandaranaiques in the Island's Politics and Public Life', *The Round Table*, 88 (350), 241-280*
115. Demerath, N. J. (1995), 'Rational Paradigms, A-Rational Religion, and the Debate over Secularization', *Journal for the Scientific Study of Religion*, 34 (1), 105-112
116. Dinkar, Ramdhari Singh (2002 [1956]), *Sanskriti ke Chaar Adhyaaya* [Four Chapters of Indian Culture; Hindi], Lok Bharati Prakashan (Allahabad)*
117. Dixit, Avinash (2005), 'Incentive Contracts for Faith-Based Organizations to Deliver Social Services', In Sajal Lahiri and Pradip Maiti (Eds.), *Economic Theory in a Changing World: Policy Modelling for Growth*, Oxford University Press (New Delhi)
118. Dixit, Avinash and Gene Grossman (1984), 'Directly Unproductive Prophet-Seeking Activities', *American Economic Review*, 74 (5), 1087-88

119. Durkin, Jr. John T. and Andrew M. Greeley (1992), 'Response to Montgomery', *Rationality and Society*, 4 (1), 121-122
120. Durkin, Jr. John T. and Andrew M. Greeley (1991), 'A Model of Religious Choice under Uncertainty: On Responding Rationally to the Nonrational', *Rationality and Society*, 3 (2), 178-196
121. Durlauf, Steven N., Andros Kourtellos, and Chih Ming Tan (2008a), 'Is God in the details? A re-examination of the role of religion in economic growth', *University of Wisconsin (Unpublished)*
122. Durlauf, Steven N., Andros Kourtellos, and Chih Ming Tan (2008b), 'Are Any Growth Theories Robust?', *Economic Journal*, 118, 329-346
123. Eckel, Catherine C. and Philip J. Grossman (2004) 'Giving to Secular Causes by the Religious and Nonreligious: An Experimental Test of the Responsiveness of Giving to Subsidies', *Nonprofit and Voluntary Sector Quarterly*, 33 (2), 271-289
124. Edgeworth, F. Y. (2003), *Mathematical Psychics and Further Papers on Political Economy*, Oxford University Press (Oxford)*
125. Ehrenberg, Ronald G. (1977), 'Household Allocation of Time and Religiosity: Replication and Extension', *Journal of Political Economy*, 85 (2), 415-423
126. Ekelund, Jr., Robert B., Robert F. Hébert, and Robert D. Tollison (2006), *The Marketplace of Christianity*, MIT Press (Cambridge and London)
127. Ekelund, Jr., Robert B., Robert F. Hébert, and Robert D. Tollison (2005), 'Adam Smith on Religion and Market Structure', *History of Political Economy*, 37 (4), 647-60
128. Ekelund, Jr., Robert B., Robert F. Hebert, and Robert D. Tollison. (2004), 'The Economics of the Counter-reformation: Incumbent-Firm Reaction to Market Entry', *Economic Inquiry*, 42 (4), 690-705
129. Ekelund, Jr., Robert B., Robert F. Hebert, and Robert D. Tollison (2002), 'An Economic Analysis of the Protestant Reformation', *Journal of Political Economy*, 110 (3), 646-71
130. Ekelund, Jr., Robert B., Robert F. Hebert, and Robert D. Tollison (1992), 'The Economics of Sin and Redemption: Purgatory as a market-pull innovation?', *Journal of Economic Behavior and Organization*, 19, 1-15
131. Ekelund, Jr., Robert B., Robert F. Hebert, and Robert D. Tollison (1989), 'An Economic Model of the Medieval Church: Usury as a Form of Rent Seeking', *Journal of Law, Economics, and Organization*, 5 (2), 307-331

132. Ekelund, Jr., Robert B., Robert F. Hebert, Robert D. Tollison, Gary M. Anderson, and Audrey B. Davidson (1996), *Sacred Trust: The Medieval Church as an Economic Firm*, Oxford University Press (New York)
133. Ellison, Christopher G. (1995), 'Rational Choice Explanations of Individual Religious Behavior: Notes on the Problem of Social Embeddedness', *Journal for the Scientific Study of Religion*, 34 (1), 89-97
134. Ensminger, Jean (1997), 'Transaction Costs and Islam: Explaining Conversion in Africa, ', *Journal of Institutional and Theoretical Economics*, 153 (1), 4-29
135. Ensminger, Jean (1994), 'The Political Economy of Religion: An Economic Anthropologist's Perspective', *Journal of Institutional and Theoretical Economics*, 150 (4), 745-54
136. Epstein, Gil S. and Ira N. Gang (2007), 'Understanding the Development of Fundamentalism', *Public Choice*, 132 (3-4), 257-71
137. Erlei, Mathias (1997), 'Established Clergy, Friars, and the Pope: Some Institutional Economics of Medieval Church - Comment', *Journal of Institutional and Theoretical Economics*, 152 (3), 159-165
138. Esteban, Joan, and Debraj Ray (2008), 'Polarization, Fractionalization and Conflict', *Journal of Peace Research*, 45 (2), 163-182*
139. Ewing, Bradley T. (2000), 'The Wage Effects of Being Raised in the Catholic Religion: Does Religion Matter?', *American Journal of Economics and Sociology*, 59 (3), 419-432
140. Fama, E.F. and M. C. Jensen (1983), 'Separation of Ownership and Control', *Journal of Law and Economics*, 26, 301-325
141. Fan, C. Simon (2008), 'Religious participation and children's education: A social capital approach', *Journal of Economic Behavior and Organization*, 65 (2), 303-317
142. Fearon, James D. (2003), 'Ethnic and Cultural Diversity by Country', *Journal of Economic Growth*, 8 (2), 195-222*
143. Ferraro, Paul J. and Ronald G. Cummings (2007), 'Cultural Diversity, Discrimination, and Economic Outcomes: An Experimental Analysis', *Economic Inquiry*, 45 (2), 217-32*
144. Ferrero, M. (2008a), 'Cult and unobservable extreme sacrifice', *Paper presented at the Annual Meeting of European Public Choice Society, Jena*
145. Ferrero, M. (2008b), 'The triumph of Christianity in the Roman empire: An economic interpretation', *European Journal of Political Economy*, 24 (1), 73-87

146. Ferrero, M. (2007), 'The Economics Of Theocracy', *UCSIA Discussion Paper* 0712
147. Ferrero, M. (2006a), 'Martyrdom contracts', *Journal of Conflict Resolution*, 50, 855-877
148. Ferrero, M. (2006b), 'An Economic Approach to Religious Extremism', *Paper presented at the Annual Meeting of European Public Choice Society, Turku*
149. Ferrero, M. (2005), 'Radicalization as a reaction to failure: An economic model of Islamic extremism', *Public Choice*, 122, 199-220
150. Ferrero, M. (2002), 'Competition for sainthood and the millennial church', *Kyklos*, 55 (3), 335-360
151. Field, Erica, Matthew Levinson, Rohini Pande, and Sujata Visaria (2008), 'Segregation, Rent Control, and Riots: The Economics of Religious Conflict in an Indian City', *American Economic Review*, 98 (2), 505-510
152. Finke, Roger and R. Stark (1989), 'Evaluating the Evidence: Religious economies and sacred canopies', *American Sociological Review*, 54 (6), 1054-1056
153. Finke, Roger and R. Stark (1988), 'Religious economies and sacred canopies: religious mobilization in American cities, 1906', *American Sociological Review*, 53 (1), 41-49
154. Fogel, Robert W. (1999), 'Catching up with the Economy', *American Economic Review*, 89 (1), 1-21*
155. Forbes, Kevin F. and Ernest M. Zampelli (1999), 'Religious Giving by Individuals: A Cross Denominational Study', *American Journal of Economics and Sociology*, 56 (1), 17-30
156. Fox, Jonathan (2006), 'World Separation of Religion and State Into the 21st Century', *Comparative Political Studies*, 39, 537-569
157. Frey, Bruno S. (1997), 'Rational Choice in Religion and Beyond', *Journal of Institutional and Theoretical Economics*, 153 (1), 279-84
158. Freyer, James and Bruce I. Sacerdote (2006), 'Colonialism and Modern Income - Islands as Natural Experiments', *NBER Working Paper Series* 12546*
159. Friedman, Milton (1972), 'Capitalism and the Jews', *Mont Pelerin Society* (Lecture)
160. Gale, David and L. S. Shapely (1962), 'College Admissions and the Stability of Marriage Market', *American Mathematical Monthly*, 69, 9-15*
161. Gambetta, Diego (1994), 'Inscrutable Markets', *Rationality and Society*, 6 (3), 353-368*
162. Geertz, Clifford (2000 [1968]), *The Interpretation of Cultures*, Basic Books*
163. Geertz, Clifford (1981), *Negara: The Theatre State in 19th Century Bali*, Princeton University Press*

164. Ghosh, Kunal (1994), 'Sectarian Nationalism Syndrome - A Threat to India's Unity', *Mainstream*, XXXII (37), 11-18*
165. Ghosh, Kunal and Vikas Kumar (2005a), 'Urdu, Yiddish and Sectarian Nationalism: Role of Script & Linguistic Exclusion Principle - Part I', *Mainstream*, XLIII (50), 17-22*
166. Ghosh, Kunal and Vikas Kumar (2005b), 'Urdu, Yiddish and Sectarian Nationalism: Role of Script & Linguistic Exclusion Principle - Part II', *Mainstream*, XLIII (51), 23-27*
167. Giddens, Anthony (1976), 'Introduction', in Weber, Max (1995 [1920]), *The Protestant Ethic and the Spirit of Capitalism*, Routledge (London), vii-xvi*
168. Gill, Anthony (1999), 'Government Regulation, Social Anomie And Protestant Growth In Latin America: A Cross-National Analysis', *Rationality and Society*, 11, 287
169. Glaeser, E. L. and S. Glendon (1998), 'Incentives, Predestination and Free Will', *Economic Inquiry*, 36, 429-443
170. Glaeser, Edward L., Giacomo A. M. Ponzetto, and Jesse M. Shapiro (2005), 'Strategic Extremism: Why Republicans and Democrats Divide on Religious Values', *Quarterly Journal of Economics*, 120 (4), 1283-1330
171. Glaeser, Edward L. and Bruce I. Sacerdote. (2002), 'Education and Religion', *NBER Working Paper Series* 8080
172. Glaeser, Edward L. and Jose Scheinkman (1998), 'Neither a Borrower nor a Lender Be: An Economic Analysis of Interest Restrictions and Usury Laws', *Journal of Law and Economics*, 41 (1), 1-36
173. Glazer, Amihai (2008), 'Learning and Imitation By Theocracies', *UCSIA Discussion Paper* No. 0801
174. Glazer, Jacob and Ching-To Albert Ma (1989), 'Efficient allocation of a "prize"-King Solomon's dilemma', *Games and Economic Behavior*, 1 (3), 222-233
175. Goff, Brian and Michelle W. Trawick (2008), 'The Importance of Brand and Competition in Defining U.S. Religious Markets', *Southern Economic Journal*, 74 (4), 1035-1048
176. Goldin, Liliana R. and Brent Metz (1991), 'An Expression of Cultural Change: Invisible Converts to Protestantism among Highland Guatemala Mayas', *Ethnology*, 30 (4), 325-338*

177. Gomez, Pierre-Yves and Rickie Moore (2006), 'From Strategy of Religions to Religion of Strategy: Comments on Miller's (2002) "Competitive Strategy of Religious Organizations"', 3 (3), 199-213
178. Goody, J. (1961), 'Religion and Ritual: The Definitional Problem', *British Journal of Sociology*, 12 (2), 142-164*
179. Gooneratne, Yasmine (1986), *Relative Merits: A Personal Memoir of the Bandaranaike Family of Sri Lanka*, C. Hurst & Co. (London)*
180. Greif, Avner (1994), 'Cultural Beliefs and the Organization of Society: A Historical and Theoretical Reflection on Collectivist and Individualist Societies', *Journal of Political Economy*, 102 (5), 912-950
181. Grier, Robin (1997), 'The Effect of Religion on Economic Development: A Cross National Study of Sixty-three Former Colonies', *Kyklos*, 50 (1), 47-62
182. Grim, Brian J. and Roger Finke (2006), 'International Religion Indexes: Government Regulation, Government Favoritism, and Social Regulation of Religion', *Interdisciplinary Journal of Research on Religion*, 2, Article 1
183. Grossbard-Shechtman, Amyra and Shoshana Neuman (1986), 'Economic Behavior, Marriage, and Religiosity', *Journal of Behavioral Economics*, 15 (1/2), 71-85
184. Gruber, Jonathan (2005), 'Religious Market Structure, Religious Participation, and Outcomes: Is Religion Good for You?', *B.E. Journals in Economic Analysis and Policy*, 5 (1), 1-30
185. Gruber, Jonathan (2004), 'Pay or Pray? The Impact of Charitable Subsidies on Religious Attendance', *NBER Working Paper Series* 10374
186. Gruber, Jonathan and Daniel M. Hungerman (2006), 'The Church vs. the Mall: What Happens When Religion Faces Increased Secular Competition?', *Quarterly Journal of Economics*, 123 (2), 831-862
187. Gruber, Jonathan and Daniel M. Hungerman (2005), 'Faith-Based Charity and Crowd Out during the Great Depression', *NBER Working Paper Series* 11332
188. Guiso, Luigi, Paola Sapienza, and Luigi Zingales (2006), 'Does Culture Affect Economic Outcomes?', *Journal of Economic Perspectives*, 20 (2), 23-48
189. Guiso, Luigi, Paola Sapienza, and Luigi Zingales (2003), 'People's Opium? Religion and Economic Attitudes', *Journal of Monetary Economics*, 50 (1), 225-282
190. Guo, Rongxing (2007), 'Linguistic and Religious Influences on Foreign Trade: Evidence from East Asia', *Asian Economic Journal*, 21 (1), 101-21

191. Hardin, Russell (1997), 'Economics of Religious Belief', *Journal of Institutional and Theoretical Economics*, 153 (1), 259-278
192. Harmgart, Heike, Steffen Huck, and Wieland Müller (2006), 'The Miracle as a Randomization Device: A Lesson from Richard Wagner's Romantic Opera Tannhäuser und der Sängerkrieg auf Wartburg', *TILEC Discussion Paper* 2006-006
193. Heath, W.C., M.S. Waters, and J.K. Watson (1995), 'Religion and Economic Welfare: A Empirical Analysis of State Per-Capita Income', *Journal of Economic Behaviour and Organization*, 27 (1), 129-142
194. Heaton, Paul (2006), 'Does Religion Really Reduce Crime?', *Journal of Law and Economics*, 49 (1), 147-72
195. Hechter, Michael (1997), 'Religion and Rational Choice Theory', In Young, Lawrence A. (ed), *Rational Choice Theory and Religion*, Routledge (New York), 147-159
196. Helble, Matthias (2007), 'Is God Good for Trade', *Kyklos*, 60 (3), 385-413
197. Hillman, Arye L. (2007), 'Economic and Security Consequences of Supreme Values', *Public Choice*, 131 (3-4), 259-80
198. Hirshleifer, Jack (1985), 'The Expanding Domain of Economics', *American Economic Review*, 75 (6), 53-68
199. Horowitz, Donald L. (2000 [1985]), *Ethnic Groups in Conflict*, University of California Press*
200. Hrung, Warren (2004), 'After-Life Consumption and Charitable Giving', *American Journal of Economics and Sociology*, 63 (3), 731-745
201. Hull, Brooks B. (2000), 'Religion Still Matters', *Journal of Economics*, 26, 35-48
202. Hull, Brooks B. (1989), 'Religion, Afterlife, and Property Rights in the High Middle Ages', *Studies in Economic Analysis*, 12 (1), 3-21
203. Hull, Brooks B. and Frederick Bold (1998), 'Product variety in religious markets', *Review of Social Economy*, 56 (1), 1-19
204. Hull, Brooks B. and Frederick Bold (1995), 'Preaching matters: Replication and extension', *Journal of Economic Behavior and Organization*, 27, 143-149
205. Hull, Brooks B. and Frederick Bold (1994), 'Hell, Religion, and Cultural Change', *Journal of Institutional and Theoretical Economics*, 150 (3), 447-464
206. Hull, Brooks B. and Frederick Bold (1989), 'Towards an Economic Theory of the Church', *International Journal of Social Economics*, 16 (7), 5-15
207. Hungerman, Daniel M. (2007a), 'Diversity and Crowd-out: A Theory of Cold-Glow Giving', *NBER Working Paper Series* 13348

208. Hungerman, Daniel M. (2007b), 'Race and Charitable Church Activity', *NBER Working Paper Series* 13323
209. Hungerman, Daniel M. (2005), 'Are Church and State Substitutes? Evidence from the 1996 Welfare Reform', *Journal of Public Economics*, 89, 2245-2267
210. Huntington, Samuel P. (1997), *The Clash of Civilization and the Remaking of World Order*, Penguin Books (New Delhi)*
211. Hutchison, Roger W. (1977), 'A Note on Religion and relative Prices', *Atlantic Economic Journal*, 5 (2), 96
212. Iannaccone, L. R. (1998), 'Introduction to the Economics of Religion', *Journal of Economic Literature*, XXXVI, 1465-96
213. Iannaccone, L. R. (1997a), 'Towards an Economic Theory of "Fundamentalism"', *Journal of Institutional and Theoretical Economics*, 153 (1), 100-116
214. Iannaccone, L. R. (1997b), 'Skewness Explained: A Rational Choice Model of Religious Giving', *Journal for the Scientific Study of Religion*, 36 (2), 141-157
215. Iannaccone, L. R. (1997c), 'Rational Choice: Framework for the Social Scientific Study of Religion', In Young, Lawrence A. (Ed.), *Rational Choice Theory and Religion*, Routledge (New York), 25-45
216. Iannaccone, L. R. (1995a), 'Risk, Rationality, and Religious Portfolio', *Economic Inquiry*, XXXIII, 285-295
217. Iannaccone, L. R. (1995b), 'Voodoo Economics? Reviewing the Rational Choice Approach to Religion', *Journal for the Scientific Study of Religion*, 34 (1), 76-88
218. Iannaccone, L. R. (1995c), 'Second Thoughts: A Response to Chaves, Demerath, and Ellison', *Journal for the Scientific Study of Religion*, 34 (1), 113-120
219. Iannaccone, L. R. (1994), 'Why Strict Churches Are Strong', *American Journal of Sociology*, 99 (5), 1180-1211
220. Iannaccone, L. R. (1992a), 'Sacrifice and Stigma: Reducing Free-Riding in Cults, Communes, and Other Collectives', *Journal of Political Economy*, 100 (2), 271-291
221. Iannaccone, L. R. (1992b), 'Response to Box-Steffensmeier', *Rationality and Society*, 4, 247-251
222. Iannaccone, L. R. (1991), 'The Consequences of Religious Market Regulation: Adam Smith and the Economics of Religion', *Rationality and Society*, 3 (2), 156-177
223. Iannaccone, L. R. (1990), 'Religious Participation: A Human Capital Approach', *Journal for the Scientific Study of Religion*, 29 (3), 297-314

224. Iannaccone, L. R. (1988), 'A formal model of church and sect', *American Journal of Sociology*, 9 (Supplement), s241-s268
225. Iannaccone, L. R. and Eli Berman (2006), 'Religious Extremism: The Good, the Bad, and the Deadly', *Public Choice*, 128 (1-2), 109-29
226. Iannaccone, L. R., Roger Finke, and Rodney Stark (1997), 'Deregulating Religion: The Economics of Church and State', *Economic Inquiry*, 35 (2), 350-364
227. Isaacs, J. P. and D. N. Laband (1999), 'Within-group homogeneity and exit in religious clubs', *Applied Economics Letters*, 6, 805-8
228. Johansson-Stenman, Olof, Minhaj Mahmud, and Peter Martinsson (2006), 'Trust and Religion: Experimental Evidence from Bangladesh', *Keele Economics Research Papers* 11
229. Johnson, Hildegard Binder (1967), 'The Location of Christian Missions in Africa', *Geographical Review*, 57 (2), 168-202*
230. Jomo, K. S. (1997), 'Conversion to Islam and Rational Choice Institutional Analysis', *Journal of Institutional and Theoretical Economics*, 153 (1), 36-40
231. Kane, Edward J. (1966), 'Pareto Optimality and the Church as an Economic Enterprise', *Kyklos*, XLX (3), 425-442
232. Kane, Edward J. (1964) 'Welfare Economics and Equity: Panel Discussion', *Review of Social Economy*, 22 (1), 21-24
233. Kane, Edward J. (1963), 'Justice and Welfare Economics: A Slightly Mathematical Approach', *Review of Social Economy*, 21(2), 103-115
234. Kaufmann, Franz-Xavier (1997), 'Religion and Modernization in Europe', *Journal of Institutional and Theoretical Economics*, 153 (1), 80-96
235. Khalil, Elias L. (1997), 'Buridan's Ass, Risk, Uncertainty, and Self-competition: A Theory of Entrepreneurship', *Kyklos*, 50 (2), 147-163*
236. Klick, Jonathan (2006), 'Salvation as a selective incentive', *International Review of Law and Economics*, 26, 15-32
237. Knight, Frank H. (1939), 'Ethics and Economic Reform. III. Christianity', *Economica*, New Series, 6 (24), 398-422
238. Kumar, Vikas (2008a), 'Two Models of Secularism', *Paper presented at the Brown Bag Seminar Series, IGIDR, Mumbai*
239. Kumar, Vikas (2008b), 'Rational Religious Conversions', *work in progress*
240. Kumar, Vikas (2007), 'Monarchy and State Religion', *manuscript*

241. Kumar, Vikas and Kunal Ghosh (2006), 'Anomaly in 'Greater Nagaland' Demand Along Assam Border: Role of Lingua Franca, Ethnic Cleansing and Historical Deception - Part I & II', *Manuscript**
242. Kumar, Vikas (2004), 'Religious Sectarianism: Lessons to be learnt from Pakistan', *Mainstream*, XLII (51), 28-31*
243. Kuran, Timur (2004), 'Islamic Statecraft and the Middle East's delayed modernization', In *Political Competition, Innovation, and Growth in the History of Asian Civilizations*, Peter Bernholz and Roland Vaubel (Ed.), Edward Elgar, 150-183
244. Kuran, Timur (1997), 'Islam and Underdevelopment: An Old Puzzle Revisited', *Journal of Institutional and Theoretical Economics*, 153 (1), 41-71
245. Kuran, Timur (1995), 'Further reflections on the behavioral norms of Islamic economics', *Journal of Economic Behavior and Organization*, 27, 159-163
246. Kuran, Timur (1994), 'Religious Economics and the Economics of Religion', *Journal of Institutional and Theoretical Economics*, 150 (4), 769-775
247. Kuran, Timur (1991), 'The East European Revolution of 1989: Is it Surprising that We Were Surprised?', *American Economic Review*, 81 (2), 121-125*
248. Land, Kenneth C., Glenn Deane, and Judith R. Blau (1991), 'Religious Pluralism and Church Membership: A Spatial Diffusion Model', *American Sociological Review*, 56 (2), 237-249
249. La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert W. Vishny (1997), 'Trust in Large Organizations', *American Economic Review*, 87 (2), 333-338
250. Lal, Deepak (2004), 'India', In *Political Competition, Innovation, and Growth in the History of Asian Civilizations*, Peter Bernholz and Roland Vaubel (Ed.), Edward Elgar, 128-141
251. Landsberg, P. T. (1971), 'Gambling on God', *Mind*, New Series, 80 (317), 100-104
252. Lazear, Edward P. (1999), 'Culture and Language', *Journal of Political Economy*, 107 (6), S95-S126*
253. Leathers, Charles G. and J. Patrick Raines (2008), 'Adam Smith on Religion and Market Structure: The Search for Consistency', *History of Political Economy*, 40 (2), 345-363
254. Leiter, Brian (2008), 'Why Tolerate Religion?', *Constitutional Commentary*, 25 (3) (Available at SSRN: <http://ssrn.com/abstract=1012910>)*
255. Levy, Gilat and Ronny Razin (2008), 'A Theory of Religious Organizations', *London School of Economics (Unpublished)*

256. Lewer, Joshua J. and Hendrik Van den Berg (2007), 'Estimating the Institutional and Network Effects of Religious Cultures on International Trade', *Kyklos*, 60 (2), 255-77
257. Lewis, William Arthur (1972 [1955]), *The Theory of Economic Growth*, George Allen and Unwin Ltd. (London)
258. Liebermann, Yehoshua (1986), 'Economic Efficiency and Making of the Law: The Case of Transaction Costs in Jewish Law', *Journal of Legal Studies*, 15 (2), 387-404
259. Liebermann, Yehoshua (1985), 'Competition in Consumption as Viewed by Jewish Law', *Journal of Business Ethics*, 4, 385-393
260. Liebermann, Yehoshua (1981), 'The Coase Theorem in Jewish Law', *Journal of Legal Studies*, 10 (2), 293-303
261. Lipford, Jody W. (1996a), 'On "Group size and the free-rider hypothesis: Another hypothesis: A Reply to Tullock', *Public Choice*, 87, 87-88
262. Lipford, Jody W. (1996b), 'Group size and the free-rider hypothesis: A re-examination of old evidence from churches: Reply to Zaleski and Zech', *Public Choice*, 88, 413-416
263. Lipford, Jody W. (1995), 'Group Size and the Free-rider Hypothesis: An Examination of New Evidence from Churches', *Public Choice*, 83, 291-303
264. Lipford, Jody W. (1992), 'Organizational Reputation and Constitutional Constraints: An Application to Religious Denominations', *Constitutional Political Economy*, 3 (3), 343-357
265. Lipford, Jody W., Robert E. McCormick, and Robert D. Tollison (1993), 'Preaching matters', *Journal of Economic Behavior and Organization*, 21, 235-250
266. Lipford, J. W. and Robert D. Tollison (2003), 'Religious participation and income', *Journal of Economic Behavior and Organization*, 51 (2), 249-260
267. Lobbkowitz, N. (1964), 'Karl Marx's Attitude toward Religion', *Review of Politics*, 26 (3), 319-352
268. López, J. A. Pena and J. M. Sánchez Santos (2008), 'Effects of competition on religious markets: some empirical evidence', *Applied Economics Letters*, 15 (5), 371-374
269. Loewe, Michael (1994), *Divination, Mythology and Monarchy in Han China*, Cambridge University Press*
270. Long, Stephen H. and Russell F. Settle (1977), 'Household Allocation of Time and Church Attendance: Some Additional Evidence', *Journal of Political Economy*, 85 (2), 409-13
271. Machina, Mark J. (2002), 'States of the World and the State of Decision Theory', In Donald J. Meyer (ed.) *The Economics of Risk*, W. E. Upjohn Institute*

272. Mangeloja, E. (2005), 'Economic growth and religious production efficiency', *Applied Economics*, 37 (20), 2349-2359
273. Mao, Wen and Charles Zech (2002), 'Choices of Organizational Structures in Religious Organizations: A Game Theoretic Approach', *Journal of Economic Behavior and Organization*, 47 (1), 55-70
274. Margolis, Howard (1997), 'Religion as Paradigm', *Journal of Institutional and Theoretical Economics*, 153 (1), 243-252
275. Marschak, J. (1965), 'Economics of Language', *Behavioral Science*, 10 (2), 135-140*
276. Marshall, Alfred (1920), *Principles of Economics*, MacMillan Press (London)*
277. Martin, David (2005), *On Secularization: Towards a Revised General Theory*, Ashgate (Aldershot)*
278. Martin, David (1995), *Does Christianity Cause War?* Clarendon Press (Oxford)*
279. Martin, David (1991), 'The Secularization Issue: Prospect and Retrospect', *British Journal of Sociology*, 42 (3), 465-474*
280. Martin, David (1969), 'Notes for a General Theory of Secularization', *European Journal of Sociology*, X, 192-201*
281. McBride, Micheal (*forthcoming*), 'Religious Market Competition in a Richer World', *Economica*
282. McBride, Micheal (2008), 'Religious Pluralism and Religious Participation: A Game Theoretic Analysis', *American Journal of Sociology*, 114 (1), 77-108
283. McBride, Micheal (2007a), 'Why Churches Need Free-riders: Religious Capital Formation and Religious Group Survival', *Unpublished*
284. McBride, Micheal (2007b), 'Club Mormon: Free-riders, Monitoring, and Exclusion in the LDS Church', *Rationality and Society* 19 (4), 395-424
285. McCleary, Rachel M. and Robert J. Barro (2006a), 'Religion and Economy', *Journal of Economic Perspectives*, 20 (2), 49-72
286. McCleary, Rachel M. and Robert J. Barro (2006b), 'U.S.-Based Private Voluntary Organizations: Religious and Secular PVOs Engaged in International Relief & Development', *NBER Working Paper Series* 12238
287. McConnell, Michael W. and Richard A. Posner (1989), 'An Economic Approach to Issues of Religious Freedom', *University of Chicago Law Review*, 56(1), 1-60
288. Melitz, Jacques (1971), 'Some Further Reassessment of the Scholastic Doctrine of Usury', *Kyklos*, 24 (3), 473-92

289. Meng, Ronald and Jim Sentance (1984), Religion and the Determination of Earnings: Further Results, *Canadian Journal of Economics*, 17 (3), 481-88
290. Miller, Geoffrey P. (1996), 'The Song of Deborah: A Legal-Economic Analysis', *University of Pennsylvania Law Review*, 144 (5), 2293-2320
291. Miller, Geoffrey P. (1994), 'The Legal-Economic Approach to Biblical Interpretation', *Journal of Institutional and Theoretical Economics*, 150 (4), 755-762
292. Miller, Geoffrey P. (1993a), 'Contracts of Genesis', *Journal of Legal Studies*, 22 (1), 15-45
293. Miller, Geoffrey P. (1993b), 'Ritual and Regulation: A Legal-Economic Interpretation of Selected Biblical Texts', *Journal of Legal Studies*, 22 (2), 477-501
294. Miller, Kent D. (2006a), 'A Case for Including Religious Organizations in Management Research', *Journal of Management, Spirituality and Religion*, 3 (3), 214-230
295. Miller, Kent D. (2002), 'Competitive Strategies of Religious Organizations', *Strategic Management Journal*, 23 (5), 435-456
296. Miller, William I. (2006b), *Eye for an Eye*, Cambridge University Press*
297. Montgomery, James D. (2003), 'A Formalization and Test of the Religious Economies Model', *American Sociological Review*, 68, 782-809
298. Montgomery, James D. (1996a), 'Contemplations on Economic Approach to Religious Behaviour', *American Economic Review*, 86 (2), 443-447
299. Montgomery, James D. (1996b), 'Dynamics of the Religious Economy: Exit, Voice and Denominational Secularization', *Rationality and Society*, 8 (1), 81-110
300. Montgomery, James D. (1992), 'On Durkin and Greeley Pascal's Wager and the Limits of Rational Choice: A Comment', *Rationality and Society*, 4 (1), 117-121
301. Moore, J. (1992), 'Implementation, Contracts, and Renegotiation in Environments with Complete Information', in Laffont, J. J. (Ed.), *Advances in Economics Theory: Sixth World Congress* (Vol. I), Cambridge University Press
302. Mourao, Paulo R. (2006), 'Why is the Number of Catholic Priests Diminishing in Portugal? Analysis of the Period 1960-2002', *Regional and Sectoral Economic Studies*, 6 (2), 43-56
303. Nelson, Phillip (1970), 'Information and Consumer Behavior', *Journal of Political Economy*, 78 (2), 311-329*
304. Neuman, Shoshana (1986), 'Religious Observance within a Human Capital Framework: Theory and Application', *Applied Economics*, 18 (11), 1193-1202

305. Noland, Marcus (2005), 'Religion and economic performance', *World Development*, 33 (8), 1215-1232
306. North, C. M. and C. Gwin (2004), 'Religious freedom and the unintended consequences of state religion', *Southern Economic Journal*, 71, 103-17
307. Nutzinger, Hans (1997), 'The Conflict of Science and Religion: Religious Metaphysics and Scientific Worldview as Alternatives - Comment', *Journal of Institutional and Theoretical Economics*, 153 (1), 235-241
308. Oakley, Francis (2006), *Kingship: The Politics of Enchantment*, Blackwell, Oxford*
309. Olds, Kelly (1994), 'Privatizing the Church: Disestablishment in Connecticut and Massachusetts', *Journal of Political Economy*, 102 (2), 277-297
310. Olds, Kelly B. and Ruey-Hua Liu (2000), 'Economic Cooperation in 19th Century Taiwan: Religion and Informal Enforcement', *Journal of Institutional and Theoretical Economics*, 156 (2), 404-430
311. Oliver, Pamela E. (1980), 'Rewards and Punishments as Selective Incentives for Collective Action', *American Journal of Sociology*, 85 (6), 1356-1375*
312. Olson, Mancur (1971), *Logic of Collective Action: Public Goods and the Theory of Groups*, Harvard University Press (Cambridge, MA)*
313. Olszewski, W. (2003), 'A simple and general solution to King Solomon's problem', *Games and Economic Behavior*, 42 (2), 315-318
314. Orbell, John, Matthew Mulford, and Robyn Dawes (1992), 'Religion, Context, and Constraint toward Strangers', *Rationality and Society*, 4 (3), 291-307
315. Ortona, Guido (2007), 'Why Most (but Not All) Churches Hate Sex', *Evolutionary and Institutional Economics Review*, 3 (2), 261-73
316. Oslington, Paul (2003, Ed.), *Economics and Religion*, Edward Elgar (Cheltenham)
317. Padovano, Fabio and Ronald Wintrobe (2007), 'The Dictatorship Of The Popes', *UCSIA Discussion Paper 0717*
318. Paldam, Martin (2007), 'An Essay on the Muslim Gap: Religiosity And The Political System', *UCSIA Discussion Paper 0714*
319. Paldam, Martin (2001), 'Corruption and Religion: Adding to the Economic Model', *Kyklos*, 54 (2-3), 383-413
320. Park, Chris C. (1994), *Sacred Worlds: An Introduction to Geography and Religion*, Routledge (London)*
321. Parsons, Talcott (1979), 'Religious and Economic Symbolism in the Western World', *Sociological Inquiry*, 49, 1-48*

322. Patnaik, B. N. (2007), 'Orwell's Problem and Sarala Mahabharata', *Critical Endeavour*, XIII, 12-21*
323. Patten, S. N. (1912), 'Theories of Progress', *American Economic Review*, 2 (1), 61-68
324. Pautler, Paul. (1977), 'Religion and Relative Prices', *Atlantic Economic Journal*, 5 (1), 69-73
325. Pepall, Lynne, Dan Richards, John Straub, and Michael DeBartolo (2006), 'Competition and Civic Engagement in the Religious Marketplace', *Department of Economics Working Paper*
326. Perry, Motty and Philip J. Reny (1999), 'A General Solution to King Solomon's Dilemma', *Games and Economic Behavior*, 26 (2), 279-285
327. Posner, Eric A. (1995), 'Contract law in the welfare state: A defense of the unconscionability doctrine, usury laws, and related limitations on the freedom to contract', *Journal of Legal Studies*, 24, 283-319
328. Posner, Richard A. (1987), 'The Law and Economics Movement', *American Economic Review*, 77 (2), 1-13
329. Poutvaara, Panu and Andreas Wagener (2008), 'The Invisible Hand Plays Dice: Eventualities in Religious Markets', *Unpublished*
330. Pylee, M. V. (2000), *Constitutions of the World*, Universal Law Publishing Company Private Limited (Delhi)*
331. Rabin, Matthew (1998), 'Psychology and Economics', *Journal of Economic Literature*, 36 (1), 11-46*
332. Raskovich, Alexander (1996), 'You Shall Have No Other Gods Besides Me: A Legal-Economic Analysis of the Rise of Yahweh', *Journal of Institutional and Theoretical Economics*, 152 (3), 449-471
333. Redman, Barbara J. (1980), 'An economic analysis of religious choice.' *Review of Religious Research* 21, 330-42
334. Reece, William S. (1979), 'Charitable Contributions: New Evidence on Household Behavior', *American Economic Review*, 69 (1), 142-151
335. Reed, Clyde G. and Cliff T. Bekar (2003), 'Religious prohibitions against usury', *Explorations in Economic History*, 40, 347-368
336. Reynal-Querol, Marta (2002), 'Ethnicity, Political Systems, and Civil Wars', *Journal of Conflict Resolution*, 46 (1), 29-54
337. Richardson, Gary and Micheal McBride (2008), 'Religion, Longevity, and Cooperation: The Case of the Craft Guild', *NBER Working Paper Series* 14004

338. Richman, Paula (2000, ed.), *Questioning Ramayanas: A South Asian Tradition*, Oxford University Press (New Delhi)*
339. Rodero, Javier and Pablo Branas (2000), 'Hotelling and the Olympus: Modelling Differences in Religious Prices', *Central European Journal of Operations Research*, 8 (4), 265-283
340. Roemer, John E. (1998), 'Why the Poor Do Not Expropriate the Rich: An Old Argument in New Garb', *Journal of Public Economics*, 70 (3), 399-424
341. Rose-Ackerman, Susan (1996), 'Altruism, Nonprofits, and Economic Theory', *Journal of Economic Literature*, 34 (2), 701-728*
342. Rosen, Sherwin (1983), 'The Economics of Superstars: Reply', *American Economic Review*, 73(3), 460-462*
343. Rosen, Sherwin (1981), 'The Economics of Superstars', *American Economic Review*, 71 (5), 845-858*
344. Rosenberg, Nathan (1960), 'Some Institutional Aspects of the Wealth of Nations', *Journal of Political Economy*, 68 (6), 557-570
345. Rubinstein, Ariel (2000), *Economics and Language: Five Essays*, Cambridge University Press*
346. Ruffle, Bradley J. and Richard Sosis (2007), 'Does it Pay to Pray? Costly Ritual and Cooperation', *B.E. Journal of Economic Analysis and Policy*, 7 (1), Article 18
347. Salmon, Pierre (2008), 'Competition and cooperation for the implementation of divine prescriptions', Presented at the *Annual Meeting of EPCS, Jena*
348. Salmon, Pierre (1987), 'Decentralisation as an Incentive Scheme', *Oxford Review of Economic Policy*, 3 (2), 24-43*
349. Samuelsson, Kurt (1961), *Religion and Economic Action: A Critique of Max Weber*, Harper & Row Publishers (New York)
350. Sander, W. (2002), 'Religion and human capital', *Economics Letters*, 75 (3), 303-307
351. Schlicht, E. (1997), 'The New Institutional Economics: Religion and Economics - Editorial Preface', *Journal of Institutional and Theoretical Economics*, 153 (1), 1-3
352. Schlicht, E. (1995), 'Economic Analysis and Organized Religion', In E.L. Jones and V. Reynolds (Ed.), *Survival and Religion: Biological Evolution and Cultural Change*, Wiley (Chichester)
353. Schmidtchen, Dieter and Achim Mayer (1997), 'Established Clergy, Friars, and The Pope: Some Institutional Economics of Medieval Church', *Journal of Institutional and Theoretical Economics*, 152 (3), 122-149

354. Schelling, Thomas C. (2006 [1978]), *Micromotives and Macrobehavior*, W. W. Norton and Company*
355. Scheve, Kenneth, and David Stasavage (2006), 'Religion and Preferences for Social Insurance', *Quarterly Journal of Political Science*, 1, 255-286
356. Sen, Amartya K. (2006), *Identity and Violence: The Illusion of Destiny*, Penguin Books (London)*
357. Sen, Amartya K. (1977), 'Rational Fools: A Critique of the Behavioral Foundations of Economic Theory', *Philosophy and Public Affairs*, 6 (4), 317-344*
358. Sen, Amartya K. (1973), 'Behaviour and the Concept of Preference', *Economica*, New Series, 40, 241-259*
359. Sherkat, D. (2001), 'Leaving the faith: Testing theories of religious switching', *Social Science Research* 20, 171-187
360. Sherkat, D. (1997), 'Embedding Religious Choices: Preferences and Social Constraints into Rational Choice Theories of Religious Behavior', In Young, Lawrence A. (Ed), *Rational Choice Theory and Religion*, Routledge (New York), 66-85
361. Sherkat, D. and J. Wilson (1995), 'Preferences, constraints, and choices in religious markets: An examination of religious switching and apostasy', *Social Forces* 73, 993-1026
362. Shy, Oz (2007), 'Dynamic Models of Religious Conformity and Conversion: Theory and Calibrations', *European Economic Review*, 51 (5), 1127-53
363. Smith, Ian (1999), The Economics of the Apocalypse: Modelling the Biblical Book of Revelation, *Journal of Institutional and Theoretical Economics*, 155 (3), 443-57
364. Smith, I. and J. W. Sawkins (2003), 'The economics of regional variation in religious attendance', *Applied Economics*, 35, 1577-88
365. Soetevent, Adriaan R. (2005), 'Anonymity in Giving in a Natural Context - A Field Experiment in 30 Churches', *Journal of Public Economics*, 89 (11-12), 2301-23
366. Stark, Rodney (1997), 'Bringing Theory Back In', In Young, Lawrence A. (Ed.), *Rational Choice Theory and Religion*, Routledge (New York) 1-24
367. Stark, Rodney (1992), 'Do Catholic Societies Really Exist?', *Rationality and Society*, 4, 261-271
368. Stark, Rodney and William S. Bainbridge (1985), *The Future of Religion: Secularization, Revival and Cult Formation*, University of California Press (Berkeley and Los Angeles)*

369. Stark, Rodney and William S. Bainbridge (1980), 'Towards a Theory of Religion: Religious Commitment', *Journal for the Scientific Study of Religion*, 19 (2), 114-128*
370. Stark, Rodney and Charles Y. Glock (1968), *American Piety: The Nature of Religious Commitment*, University of California Press (Berkeley and Los Angeles)*
371. Stigler, George (1984), 'Economics - The Imperial Science?', *Scandinavian Journal of Economics*, 86 (3), 301-313*
372. Stigler, George and George Becker (1977), 'De Gustibus Non Est Disputandum', *American Economic Review*, 67 (2), 76-90*
373. Stonebraker, Robert J. (1993), Optimal Church Size: The Bigger the Better?, *Journal for the Scientific Study of Religion*, 32(3), 231-241
374. Sullivan, Dennis H. (1985), 'Simultaneous Determination of Church Contributions and Church Attendance', *Economic Inquiry*, 23 (2), 309-320
375. Swatos, Jr. William H. and Kevin J. Christiano (1999), 'Secularization Theory: The Course of a Concept', *Sociology of Religion*, 60 (3), 209-228
376. Tan, Jonathan H. W. (2006), 'Religion and Social Preferences: An Experimental Study', *Economics Letters*, 90 (1), 60-67
377. Tao, H. L. and P. Yeh (2007), 'Religion as an investment: Comparing the contributions and volunteer frequency among Christians, Buddhists, and folk religionists', *Southern Economic Journal*, 73 (3), 770-790
378. Thornton, Mark (1992), 'Pope and the Price of Leather', *Journal of Institutional and Theoretical Economics*, 148 (3), 452-459
379. Tomes, Nigel (1985), 'Religion and the Earnings Function', *American Economic Review*, 75 (2), 245-250
380. Tomes, Nigel (1984), 'The Effects of Religion and Denomination on Earnings and Returns to Human Capital', *Journal of Human Resources*, 19 (4), 472-486
381. Tomes, Nigel (1983), 'Religion and the Rate of Return on Human Capital: Evidence from Canada', *Canadian Journal of Economics*, 16 (1), 122-38
382. Tong, Xiaoxi (1992), 'On Chaves and Cann Market and Political Explanations of Religious Vitality: Comments', *Rationality and Society*, 4 (4), 474-476
383. Trawick, Michelle W. and Roy M. Howsen (2006), 'Crime and community heterogeneity: race, ethnicity, and religion', *Applied Economics Letters*, 13, 341-345
384. Tullock, Gordon (1996), 'On "Group size and the free-rider hypothesis: Another hypothesis." by: Jody W. Lipford: Comment', *Public Choice*, 87, 185

385. Tulsidas, Goswami (1576), *ShriRamacharitmanasa* [The Deeds of Rama, Avadhi, a dialect of Hindi], Gita Press (Gorakhpur, India)*
386. Ulbrich, Holley and Myles Wallace (1984), 'Women's Work Force Status and Church Attendance', *Journal for the Scientific Study of Religion*, 23 (4), 341-50
387. Ulbrich, Holley and Myles Wallace (1983), 'Church Attendance, Age and Belief in the Afterlife: Some Additional Evidence', *Atlantic Economic Journal*, 11 (2), 44-51
388. Vanberg, Victor (1997), 'Economic Explanations and the Functionalist Trap', *Journal of Institutional and Theoretical Economics*, 153 (1), 30-35
389. Veblen, Thorstein (1910), 'Christian Morals and the Competitive System', *International Journal of Ethics*, 20 (2), 168-185
390. Viswanath, P.V. (2007), 'The Use of Real Estate for the Settlement of Claims in Roman Palestine', *IGIDR Working Paper Series 2007-002*
391. Viswanath, P.V. (2000), 'Risk Sharing, Diversification and Moral Hazard in Roman Palestine: Evidence from Agricultural Contract Law', *International Review of Law and Economics*, 20, 353-369
392. Viswanath, P.V. and M. Szenberg (2007), 'Examining the Biblical Perspective on the Environment in a Costly Contracting Framework', In Carmel Chiswick and Tikva Lehrer (Ed.), *Economics of Judaism*, Bar Ilan University Press
393. Voas, David, Daniel Olson, and Alasdair Crockett (2002), 'Religious Pluralism and Participation: Why Previous Research is Wrong', *American Sociological Review*, 67, 212-230
394. Wallis, Joe L. (1991), 'Church Ministry and the Free Rider Problem: Religious Liberty and Disestablishment', *American Journal of Economics and Sociology*, 50 (2), 183-196
395. Warner, R. Stephen (1993), 'Work in Progress Toward a New Paradigm for the Sociological Study of Religion in the United States', *American Journal of Sociology*, 98 (5), 1044-1093
396. Weber, Max (1995 [1920]), *The Protestant Ethic and the Spirit of Capitalism*, Routledge (London), translated by Talcott Parsons (1930)*
397. Welch, Patrick J. and J. J. Mueller (2001), 'The Relationship of Religion to Economics', *Review of Social Economy*, 59 (2), 185-202
398. Williamson, Oliver E. (2000), 'The New Institutional Economics: Taking Stock, Looking Ahead', *Journal of Economic Literature*, 38 (3), 595-613*
399. Wilson, Rodney (1997), *Economics, Ethics and Religion: Jewish, Christian, and Muslim Economic Thought*, MacMillan Press (London)*

400. Wingrove, C. Ray and John P. Alston (1974), 'Cohort analysis of church attendance, 1939-1969', *Social Forces*, 53, 324-31*
401. Wittman, Donald (2008), 'Utility When There Is A Preference For Beliefs: A Behavioural Model Of Political Conflict', *Unpublished**
402. Wolfe, Michael (1993), *The Conversion of Henri IV: Politics, Power, and Religious Belief in Early Modern France*, Harvard University Press*
403. Young, Lawrence A. (1997, Ed.), *Rational Choice Theory and Religion*, Routledge (New York)
404. Zaleski, Peter A. and Charles E. Zech (1996), 'Group size and the free-rider hypothesis: A re-examination of old evidence from churches: Comment', *Public Choice*, 88, 407-411
405. Zaleski, Peter A. and Charles E. Zech (1995a), 'The optimal size of a religious congregation: An economic theory of club analysis', *American Journal of Economics and Sociology*, 54 (4), 439-453
406. Zaleski, Peter A. and Charles E. Zech (1995b), 'The Effect of Religious Market Competition on Church Giving', *Review of Social Economy*, 53 (3), 350-367
407. Zaleski, Peter A. and Charles E. Zech (1992), 'Determinants of contributions to religious organizations: Free riding and other factors', *American Journal of Economics and Sociology*, 51 (4), 459-472
408. Zech, Charles E. (1998), 'Four economic models of congregation applied to religious congregations', in Demerath, N. J., P. D. Hall, T. Schmitt, and R. H. Williams (Eds.), *Sacred Companies: Organizational Aspects of Religion and Religious Aspects of Organizations*, Oxford University Press, New York, 256-268