

**Love Thy Neighbor as Thyself:
The Church and Community Formation in a World
with Coordination Failures**

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Running Title: Love Thy Neighbor

November 7, 2005

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Abstract

The church has played a central role in establishing and maintaining, as well as undermining, communities throughout modern history. In this paper we explore some of the mechanisms through which the church can coordinate individual behavior to achieve improvements in individual and social welfare, and reveal the ways in which the church can fail, causing established communities to founder or dissolve. In our model inherently religious individuals may become trapped in a secular equilibrium. Secular equilibrium outcomes are strictly dominated by a religious equilibrium in which individuals' actions bestow positive external benefits on other community members. The church, via its doctrine, clergy and ministries, reveals the benefits of coordinated behavior, both in this world and in the world to come, and the costs of uncoordinated behavior, separation from God and one's fellow man, to induce community members to take actions which are both individually and socially beneficial. External forces, such as the state and secular society, and internal forces, such as doctrinal disputes, inconsistencies, and incoherence, can reduce a church's ability to coordinate, to the detriment of all.

Keywords: Economics of Religion, Spirituality, Community Formation, Coordination Failures

JEL classifications: I19

1 Introduction

In this paper we examine the role of churches in community formation and maintenance, and establish the link between the strength and quality of faith communities and social welfare. We further explore the balancing of church and state roles in these processes, and the costs of community dissolution. We examine these phenomena in a static general equilibrium model with strategic complementarities. Using game theoretic techniques we endogenize the interactions among individuals, adding churches as institutional structures that provide the incentives for group rather than individually oriented actions. In this model an individual's investment in own spirituality or in his own faith community complements others' investments, but the strategic interaction is not taken into account by each individual. We first show that there exist equilibria in which faith communities do not form or are marginal at best, and then show that there also exist better equilibria where all members of the community are better off, but there is no market mechanism to achieve these outcomes. Further, there are multiplier effects, so if one member of community decides to invest more in his spirituality, deepen his faith, others will see the benefit and invest more in theirs. But, without coordination the best possible equilibrium will not, and indeed cannot, be obtained.

The coordinating role can be played by churches through their teachings that the individual place the community over the self, as can be seen in common prayers, like the Our Father and the Nicene Creed, and in Paul's letters. Churches, concerned with the welfare of their members, become guides to individual and community betterment by providing spiritual subsidies or taxes, implicit or explicit rewards for investments in one's spirituality and in one's community, or penalties for failing to do so. Thus, churches can enable their members to internalize the external effects of their actions on other members, both in their faith community

and society at large, and thereby induce better outcomes with higher well-being for all community members. But, if churches or the leaders thereof come into conflict with their congregations over doctrine and other matters of faith, or if their role is delegated to the state or the market, they can fail in their pastoral and community formative role and society as a whole may suffer.

2 The Church and the Community

The major western religions, Judaism, Christianity, and Islam are all community religions. Members of these faith communities come together to worship and are bound to each other by ties of spiritual kinship.

2.1 Importance of Community — In Scripture

The basis for community and for communal interaction can be found in Scripture. We will examine most closely the Christian Scripture, but similar scriptural foundations for community can be found in Jewish and Islamic Scriptures.

The Greatest Commandment

The beginning of community can be found in the scriptural exhortation to love your neighbor for this imposes a mode of behavior on all believers to treat others well.

And one of the scribes came up and heard them disputing with one another, and seeing that he answered them well, asked him, “Which commandment is the first of all?” Jesus answered, “The first is, ‘Hear, O Israel: The Lord our God, the Lord is one; and you shall love the Lord your God with all

your heart, and with all your soul, and with all your mind, and with all your strength.’ The second is this, ‘You shall love your neighbor as yourself.’ There is no other commandment greater than these.” [Mark 12:28-31]

To an economist the second greatest commandment implies that each individual internalize the utility of each of his neighbor’s in his own. Thus, in taking an action one would account for its effects, for good or for ill, on all affected parties, and would value it accordingly.

The Good Samaritan

But, who is one’s neighbor? Or, what is the extent of one’s community? This is answered by one of the most famous parables of the New Testament.

“And who is my neighbor?” Jesus replied, “A man was going down from Jerusalem to Jericho, and he fell among robbers, who stripped him and beat him, and departed, leaving him half dead. Now by chance a priest was going down that road; and when he saw him he passed by on the other side. So likewise a Levite, when he came to the place and saw him, passed by on the other side. But a Samaritan, as he journeyed, came to where he was; and when he saw him, he had compassion, and went to him and bound up his wounds, pouring on oil and wine; then he set him on his own beast and brought him to an inn, and took care of him. And the next day he took out two denarii and gave them to the innkeeper, saying, ‘Take care of him; and whatever more you spend, I will repay you when I come back.’ Which of these three, do you think, proved neighbor to the man who fell among the robbers?” He said,

“The one who showed mercy on him.” And Jesus said to him,
“Go and do likewise.” [Luke 10: 29b-37]

Who one’s neighbors are, and thus what the limits of one’s community are, is not defined narrowly by faith or ethnicity. Further, the individual cannot choose not to respond to another’s need because, by definition, that need is now his as well. This does not make community a meaningless construct by including everyone, but it does suggest that one cannot turn one’s back on those in need just because they are not of one’s community narrowly defined.

Danger of Offending against Community

But with community comes obligations.

And he told them a parable, saying, “The land of a rich man brought forth plentifully; and he thought to himself, ‘What shall I do, for I have nowhere to store my crops?’ And he said, ‘I will do this: I will pull down my barns, and build larger ones; and there I will store all my grain and my goods. And I will say to my soul, Soul, you have ample goods laid up for many years; take your ease, eat, drink, be merry.’ But God said to him, ‘Fool! This night your soul is required of you; and the things you have prepared, whose will they be?’ [Luke 12:16-20]

Ignoring others’ needs given one’s relative wealth is both an offence against one’s community and an offense against God, since wealth is a gift of God it should be used to benefit the community as a whole (Scott, 1990, p. 137). This leads to the following ideal.

Ideal of Community

The community of believers was of one heart and mind, and no one claimed that any of his possessions was his own, but they had everything in common. [Acts 4:32]

Bartchy (2002) suggests that Luke presents God to the Gentiles, his intended audience, as a “community-forming and community sustaining power” (p.91). This community of believers brought together by God, which is defined in the early chapters of Acts, is one’s surrogate family, and it is this family’s welfare, rather than one’s own or one’s own family’s welfare, that is of the utmost importance. And all contribute; each caring for the others, all being essential to the whole. The extent of community is extended in 1 Tim 6:18-19 to the care of the needy, reflecting the parables of the Good Samaritan and the wealthy farmer. Thus, as Marshall (2002) notes, while the extent of community is not well defined, certain behaviors by all to all, members of community or not, are expected.

Shared Gifts

While the Scriptures are clear on how we should act, and why we should act that way in terms of spiritual rewards — the promise of the Kingdom, it also suggests that there are temporal rewards for communal behaviors.

Now there are varieties of gifts, but the same Spirit; and there are varieties of service, but the same Lord; and there are varieties of working, but it is the same God who inspires them all in every one. To each is given the manifestation of the Spirit for the common good. [1 Cor 12:4-7]

But God has so composed the body, giving the greater honor to the inferior part, that there may be no discord in the body, but that the members may have the same care for one another.

If one member suffers, all suffer together; if one member is honored, all rejoice together. [1 Cor 12:24b-26]

As each has received a gift, employ it for one another, as good stewards of God's varied grace. [1 Peter 4:10]

Thus, more can be achieved and all can be made better off, both in the here and now and eschatologically, by working together and caring for each other. In fact, to achieve what is possible requires that all work together, that gifts be shared.

Importance of Service

But, Christ asks more than that by placing demands on those most able and most gifted to give more, to serve their communities.

but whoever would be great among you must be your servant... [Mark 10:43b]

Knowing human nature and the strength of the desire to succeed, success is redefined. Spiritual wealth, through service to God and community, given its value both in this life and the next, trump material wealth with value only in the here and now.

2.2 Community formation during the Patristic period

During the first few centuries of the Common Era the church established itself as an institution rather than a set of largely independent Pauline congregations which were often under stress from both within, see 1 Cor, and without. The reality of community required more structure than that outlined in the Scriptures. Persecution of Christian communities throughout the Roman Empire revealed the importance of "maintaining

ecclesiastical unity, pastoral integrity, and consistent standards of membership” (Hayes, 2002, p. 155). This required leaders, but little in the Gospels or in Paul’s letters suggested how leaders would be chosen, or the extent of their power beyond their own congregation. The church as a universal institution did not yet exist. Leaders, the bishops of the early church, were required to guide the communities (Young, 2002), where the bishop was God’s representative on earth. As the community grew, the need to maintain it, that is, to coordinate the activities of members to the common good, led to the ordination of priests and the hierarchical structure of the church, both of which conferred authority and provided a leadership structure.

2.3 The church in community formation/urbanization

At the end of the Patristic period (late antiquity), the Roman Empire was collapsing, and the security of individuals in society was constantly under threat. The social structure imposed by the Empire was slowly breaking down and it was, as Peter Brown (1981) suggests, the Church that offered its current members and the pagans it wished to evangelize a community structure, an extended family, but one not based on kinship. Further, while the Church provided an ordered society for the living, it also honored the dead, especially its saints. Around these saints a cult was nourished, via rituals such as annual pilgrimages to the grave of the saint, to provide definition to and cohesion within the community. Also, the cult of the saints provided a place for both women and the poor — two marginalized groups in late antique society, since at the shrine women and the poor had the protection of the saint and the patronage of the bishop. These were physical places where charity and love were to, and largely did, prevail.

Katherine Lynch (2003) argues forcefully that the medieval Church, like the early Church, provided the intellectual foundation and organiza-

tional model for community life. Cities of the medieval and early modern period were characterized by high mortality, large numbers of temporary and permanent migrants, small families, and many single people. What these people did not have was the security and support in times of need provided by a large extended family or other kinship relationships. Yet such support was needed, and it was the Church that provided the models for support networks, the framework upon which communities were built. There were a number of different mechanisms, beginning with the idea that the family was a voluntary association between two people, rather than a strategic association between families, and that community was an extension of this family. Community bonds were formed between the believers who made up the Church. Voluntary kinship relationships could also be created via godparenthood. This kinship relationship, exceptionally important in times of high mortality, was a spiritual rather than a blood relationship, and as such it carried no right of inheritance. Rather it was built on mutual assistance and gift — voluntary ties that bind — rather than strategic considerations.

When kinship ties of family or marriage were absent, single individuals, especially women, were still able to create surrogate families by the formation of residential communities. These communities of single lay women, were patterned after, and often associated with, monasteries. However, in contrast to female religious, these residents were not required to be cloistered. These women, known as beguines, were religiously observant, were dedicated to the ideals of chastity and charity, but worked in the market economy to support themselves rather than relying on the charity of others or their families to support them. What is important from our perspective is that these were voluntary associations where individuals joined together for the betterment of all within their own community, that the beguines were concerned with the welfare of those in the broader community, and that they were associated with

and patterned after religious orders.

Still looser ties, but important nonetheless, were forged by membership in confraternal societies. These societies, often open to both men and women, married and single, were nonresidential religious organizations built on the premise of the importance of a community based devotional life, of mutual assistance in time of need, and of charity to those less fortunate in society. This charity was directly given by society members to the poor. Communal links were forged via direct contact. The societies also prescribed a code of conduct towards other members. Further, they provided networks of friends and requirements of aid and assistance not hampered by ties of kinship (and thus of inheritance). While they were lay organizations, a member of the clergy would generally act as chaplain and moral guide.

de Swaan (1988) contends that parish communities as well as urban centers could not have formed without a system of poor relief, and it was the clergy who organized and facilitated that relief. To establish a viable system it was necessary to ensure that all involved played their parts — that is, there were no free-riders either among those giving the charity or those receiving the charity. This required a mutually agreed upon set of rules, trust that if you played by the rules you would receive your reward, oversight and persuasion to preclude free riders and other forms of cheating. Ensuring that these requirements were met fell to the clergy. Those providing the charity did so for reasons both practical — personal and economic security — and spiritual — since they would be prayed for by the recipients of their largesse. Moreover, being charitable was a duty and obligation of all Christians who would be rewarded in the next life if not in this. To the extent that charity was a public activity, and it was since those who gave wanted to be sure that their generosity was recognized and rewarded, it was capable of being monitored. Thus, social control could be exerted.

Poor relief was initially local, and this made the system unstable since if relief collapsed in one parish or town, perhaps because of the plague or agricultural blight, the poor would either travel to the next parish, straining the system to the breaking point, or meet their needs by more violent means. The church was able to reduce this strain by providing resources from its abbeys and monasteries that were outside the local parish system, but with those resources came the requirement that each locality had to take on some of the vagrant poor. Mutual assistance which is at the heart of community formation also formed the basis for the formation of a community of communities.

As countries developed, the universal power and wealth of the church diminished or became fractured, and cities grew, civic duty replaced religious charity as the source of poor relief. Compulsion (taxation) replaced voluntary (if incentivized) cooperation. And, while material wealth has clearly increased over the two centuries or so of state domination of poor relief, the collectivization of society “has taken some of the tragedy, some of the magic and much of the religion out of life” (de Swann, 1988, p. 10).

2.4 Challenges to church led community formation today

Today the role of the Christian church has moved from the center to the periphery (Hester, 2002), making it harder for it to fulfill its pastoral (coordinating) role even narrowly for its own community. What appears to be required for success is high market density, a large enough community of faith, which leads to higher participation and better economic outcomes (Gruber, 2005). Although challenged to sustain themselves in a changing environment (Webster, 2002; Hester, 2002; Volf, 2002), faith communities maintain their concern and commitment to the broader, multicultural community of which they are a part. When faith communities seek to help build a sustainable multicultural community they are often actively excluded by statutory agencies and secular funding agencies

when they apply for outside funding for community regeneration and renewal projects (Smith, 2002). Perhaps this is because they have been ignored or distained by theorists of multiculturalism whose perspective is decidedly secular and at least implicitly anti-religious (Modood, 1999). This is true even though many who are members of this multicultural community, and are the disadvantaged and socially excluded, identify themselves first by their religious affiliation (Farnell, 2001). Yet it remains that, although often marginalized, “religious communities maintain a role as a forum for social interaction, mutual support and personal networking” (Smith, 2002, p. 168): they can provide the coordinating mechanism.

While churches are, grudgingly, recognized as useful and perhaps even a necessary component of community revitalization, they are also acknowledged as essential for the maintenance of civil society in modern Western democracies. This is because “egalitarianism in a commercial republic such as the United States unleashes a materialistic quest. At this juncture, faith communities, not simply as a goad and a kind of adjunct feature of the civic but, rather, in their robust specificity and particularity, are vital. Why? Because such traditions and communal institutions serve as a chastening influence on striving ambition by inspiring contrary urges that draw people into community and away from narrow materialism. Religion, in Toqueville’s words, helps to ‘purify, control, and restrain that excessive and exclusive taste for well-being human beings acquire in an age of equality.’ Tocqueville surely had in his sights the early covenantal tradition and its living remnants. The notion of covenant is one that stresses mutual accountability of persons to one another and before God. This creates and sustains ‘a kind of moral equality among people’ (Elsh-tain, 2001, pp. 44–45). Peter Drucker (Forbes, 1998) echoes Tocqueville by stating that the pastoral church is the most important social movement of our time because it provides community, a sense of belonging,

gives meaning to one's life, and pastoral care for those in need.

3 A Model of Church and Community

We develop a model akin to Cooper's (1999) basic model of coordination failure games. In these games individual agent's choices affect the payoffs to other agents' choices, but this external effect is not priced by the market. As a result, agents may make choices that are individually rational, but result in a Pareto inferior equilibrium outcome. The problem is that without a functioning market they may be unable to coordinate their choices. But, because of the nature of the interrelationship among payoffs, a market will not open, which leaves "sunspots" or "animal spirits" (see Weil, 1989) or an institution, such as the government, or in our case the church, to play the coordinating role.

In many macroeconomic applications of the coordination failure model, the role played by the government is as often stabilizing, (e.g., Diamond and Dybvig, 1983), as it is — perhaps inadvertently — destabilizing, (see Kydland and Prescott, 1977, or Barro and Gordon, 1983). The problem is that the government must be able to commit itself to taking specific actions (and thus to be able to commit future governments as well as the current government to taking these actions) without having the mechanism to do so. The church, however, has two channels through which it can achieve coordination. First, through its doctrine, which provides a commitment mechanism and assesses implicit spiritual penalties and rewards. And second, through its clergy, who have close relationships with the members of their congregations and who communicate the church's commitment, the cost of the penalties and the benefits of the rewards, can facilitate or even achieve coordination.

Our model also shares some features with Tirole's (1996) model of collective reputation. Here the collective reputation is mediated through

the doctrinal strength of the church and behavioral norms held to by the believers following the tenets of their faith. Doctrinal collapse, like a reputation squandered, cannot be easily reversed, so communities fracture just as a firm loses market share.

3.1 The Individual

Consider a society in which there are $n + 1$ agents who have a potential joint religious affiliation. Each agent $i = \{1, 2, \dots, n + 1\}$ has individual preferences defined over leisure time, l , material goods, m , and their spirituality, σ , given by

$$u(l, m, \sigma) = (l - \lambda)^\alpha (m - \mu)^\beta \sigma,$$

where

$$\sigma(r, \bar{d} | h) = h(1 + r)^{y_T} (1 + \bar{d})^{y_M}.$$

The agent's spirituality is defined over time spent in religious observance r and donations made to one's church relative to one's income, \bar{d} .¹ The multiplier h , discussed in greater detail below, denotes potential spiritual rewards and penalties that stem directly from theological doctrine and indirectly from one's choices.

The amount of time spent in leisure activities that is considered "socially necessary" is denoted by λ ; and μ is the "socially necessary" amount of material consumption. Socially necessary time-use and material consumption are the outcome of socio-cultural imperatives, such as keeping up with the Joneses, both in terms of goods consumed and activities attended.²

¹This normalization of donations follows from Mark 12:41-44 in which the poor widow's generosity is contrasted with the relative miserliness of the crowd.

²That individuals gauge their happiness not by what they have, per se, but rather by how what they have compares with what their peers have has been found by Blanchflower and Oswald (2004) among others. We represent the comparison consumption and leisure activities as social norms.

The constraints faced by the agent are:

$$\text{Time: } T \equiv 1 = l + r \quad (\text{with } \lambda < T) \quad (1)$$

$$\begin{aligned} \text{Money: } M = pm + d \quad (\text{with } \mu < M) \\ \Leftrightarrow \bar{d} = \frac{M - pm}{M}, \quad \text{or } m = \frac{M}{p} (1 - \bar{d}), \end{aligned} \quad (2)$$

where p is the price of material goods.

The parameter restrictions are:

$$\alpha, \beta, \gamma_T, \gamma_M > 0$$

$$\alpha + \beta \leq 1.$$

Thus, the benefit to consumption of material goods and leisure diminish at the margin, but this need not be the case for one's spirituality.

3.2 The Church

Let $\chi(R, D, \rho)$ denote the institutional strength of the agent's church or congregation and index the agent whenever needed by i . Here

- $R = \sum_{j \neq i} r_j$ is the amount of time devoted by the agent's fellow religious community members;
- $D = \sum_{j \neq i} d_j$ are the financial resources available to the congregation independently of the agent's contributions; and
- ρ measures theological factors affecting the institutional strength of the church, e.g., church doctrine.

We assume that χ is increasing at a decreasing rate in all three of its arguments. Specifically, we let

$$\chi(R, D, \rho) = R^{\kappa_1} D^{\kappa_2} \rho^{\kappa_3}, \quad (3)$$

$$\text{with } \kappa_k > 0 \forall k = 1, 2, 3, \text{ and } \sum_k \kappa_k = 1.$$

Thus, a church that lacks a coherent doctrine ($\rho = 0$), or in which none of its members devotes any time to religious practice ($R = 0$), or which is devoid of resources ($D = 0$), also has no institutional strength.

Notice, institutional strength has both a temporal and a spiritual dimension, and it is through this spiritual dimension — which links actions today with eschatological rewards or punishments — that the church provides spiritual incentives for individually and community oriented good behavior.

3.3 The Church & The Individual

A relationship between the church and the individual is provided through the individuals' spirituality function, σ , and potential spiritual penalties, h . Thus, the institutional strength of the church has a positive effect on the agent's benefit from religious activity, both in terms of time spent in religious pursuits and in terms of resources devoted to religion. This is formalized in the following assumption.

ASSUMPTION 1 The church strengthens the individual's spirituality by increasing the agent's marginal utility from time spent in religious pursuits and from charitable giving. Thus, for $S = T, M$ let $y_S = y_S(\chi)$ be continuous and twice differentiable, with

$$y_S(0) \geq 0, \quad \lim_{\chi \rightarrow \infty} y_S(\chi) = \infty \quad \text{and}$$

$$y'_S > 0, \quad y''_S \leq 0 \quad \forall \chi > 0; \quad S = T, M.$$

Given this assumption, we study the indirect effect that the church has on leisure time and material consumption, given that it directly affects time spent in religious pursuits and charitable giving. We later also consider how the church or an individual's religious activities may affect

their leisure and material consumption directly, by influencing perceived and actual social pressures that the individual accounts for.

Consider now the multiplier h . For a large set of agent choices, we consider h to be a constant multiplier (which can be normalized to 1). However, we also include the possibility that an individual can be assessed a “spiritual penalty” in circumstances in which adherence to minimal religious covenants is violated. If these can be represented by a minimum of religious activity, $r_{\min}(\rho)$, or charitable giving, $\bar{d}_{\min}(\rho)$, one can think of h as an indicator function,

$$h(r, \bar{d}) = \begin{cases} \bar{h} \equiv 1 & \text{if } r \geq r_{\min}(\rho) \wedge \bar{d} \geq \bar{d}_{\min}(\rho), \\ \underline{h} < \bar{h} & \text{if } r < r_{\min}(\rho) \vee \bar{d} < \bar{d}_{\min}(\rho). \end{cases}$$

Here \underline{h} may be equal to 0, or even negative, e.g., $\underline{h} = -1$. Indeed, if one were to include realizations of h in the after-life, one might also consider $\bar{h} = +\infty$ or $\underline{h} = -\infty$.

See, for example,

But I say to you that every one who is angry with his brother shall be liable to judgment; whoever insults his brother shall be liable to the council, and whoever says, ‘You fool!’ shall be liable to the hell of fire [Matt 5:22]

And if your hand causes you to sin, cut it off; it is better for you to enter life maimed than with two hands to go to hell, to the unquenchable fire [Mark 9:43]

Even now the axe is laid to the root of the trees; every tree therefore that does not bear good fruit is cut down and thrown into the fire [Luke 3:9]

But as for the cowardly, the faithless, the polluted, as for murderers, fornicators, sorcerers, idolaters, and all liars, their lot shall be in the lake that burns with fire and sulphur, which is the second death [Rev 21:8]

That is, according to Catholic doctrine, “the chief punishment of hell is eternal separation from God, in whom alone man can possess the life and happiness for which he was created and for which he longs” (Catechism of the Catholic Church, paragraph 1035). These penalties represent behavioral inducements which define minimally acceptable behavior of an individual *vis-à-vis* God and as a member of the community of men. The minima depend on church doctrine, ρ , and may differ from church to church.

4 The agent’s time allocation problem

Given the model of church and community, consider now how an agent acts within the community and how this affects himself and others.

For now we consider only cases in which $h = 1$ or, equivalently, cases in which the agent’s decisions are not affected by the presence of the h multiplier. Let $v(M)$ denote the agent’s utility associated with income M when it is optimally allocated between material consumption m^* and religious contributions \bar{d}^* , i.e.,

$$v(M) := \frac{u(l, m^*, \sigma(r, \bar{d}^*))}{(l - \lambda)^\alpha (1 + r)^{y_T}}.$$

Then the agents time-allocation problem is given by

$$\begin{aligned} v(M)(l - \lambda)^\alpha (1 + r)^{y_T} &\rightarrow \max_{\{l, r\}}! \quad \text{s.t. } l + r = 1 \quad \text{and } l, r \geq 0 \\ \Leftrightarrow v(M)(1 - r - \lambda)^\alpha (1 + r)^{y_T} &\rightarrow \max_{\{r\}}! \quad \text{s.t. } r \in [0, 1] \end{aligned}$$

The first order conditions of the modified objective are:

$$\begin{aligned} -\alpha v(M)(1 - r - \lambda)^{\alpha-1} (1 + r)^{y_T} + y_T v(M)(1 - r - \lambda)^\alpha (1 + r)^{y_T-1} \\ = -\alpha(1 + r) + y_T(1 - r - \lambda) \leq 0 \\ \text{and } r \geq 0, \end{aligned}$$

with at least one of the two inequalities holding with equality. So, using br as a mnemonic for “best response,” the agent’s optimally chosen time spent in religious pursuits is given by

$$r^{br} = \max \left\{ 0, \frac{y_T(1 - \lambda) - \alpha}{\alpha + y_T} \right\}. \quad (4)$$

Given Assumption 1, we would like to ascertain when agents obtain an equilibrium in which they are religiously observant, and how such an equilibrium is affected by parameter values, including such factors as church doctrines. However, we do not preclude the possibility that, despite agents valuing their spirituality, there are outcomes in society in which there is no religious activity. That is, we assume that absent a functioning church (i.e., $\chi = 0$), individuals’ marginal utility from leisure exceeds that from religious activity. Formally,

ASSUMPTION 2 *Absent a functioning church, the marginal rate of substitution between religious activities and leisure is less than one, i.e.,*

$$\left. \frac{\partial u / \partial r}{\partial u / \partial l} \right|_{\chi=0} < 1.$$

An implication of Assumption 2 is that absent a functioning church, i.e., whenever $\chi = 0$, the individual will choose not to spend time in religious activity despite being religious (nor will he make charitable contributions). Formally,

LEMMA 1 (POTENTIAL FOR COORDINATION FAILURE) *Although agents are spiritual ($y_T > 0$), an implication of Assumption 2 in conjunction with Equation (3) is that there always trivially exist equilibrium configurations in which there is no religious activity.*

PROOF Given the time constraint (1), the agent engages in religious activity only if the marginal utility from doing so is greater than or equal to the marginal utility from leisure time. \square

While we do care about circumstances that can lead to such equilibrium outcomes, we are not primarily interested in trivial coordination failure outcomes. It is therefore important to determine under what circumstances an equilibrium without religious activity is the unique outcome, rather than simply a coordination failure outcome.

4.1 Secular and Religious Equilibrium

Taking $h = 1$ as given, it can be shown that even when $R, D, \rho > 0$, so that $\chi > 0$ and the church is potentially viable, an agent may be best off without any religious participation (which, by symmetry, is then true for all agents). In technical terms, an equilibrium in which no-one participates in religious activity is remarkably stable. Thus, even (the potential for) religious dedication and (the potential for) financial dedication to one's religious community is not sufficient to support societal outcomes with active religious participation, whenever church doctrine is weak.

PROPOSITION 1 (UNIQUE SECULAR EQUILIBRIUM) *Given finite time and finite financial resources of a (potential) congregation, all agents refrain from religious participation if the church does not have sufficient doctrinal strength, i.e.,*

$$\begin{aligned} \forall \bar{R}, \bar{D} < \infty \quad \exists \underline{\rho} > 0 \quad \text{s.t.} \quad \forall \rho < \underline{\rho} \quad \gamma_T(\chi(\bar{R}, \bar{D}, \rho))(1 - \lambda) \leq \alpha, \\ \implies r_i^{br} = 0, \forall i. \end{aligned}$$

Thomas Hobbes in his philosophical treatise *Leviathan* described humans as innately religious, and suggested that religion provides men with behavioral norms that ensure a civil society in which both earthly and

divine laws are promulgated and followed. But, since the authority of religion, the church, depends on those who lead it, that authority can be undermined by those leaders behaving in ways contrary to their own doctrine. To Hobbes this explained the expulsion of the Roman Catholic Church from England, but also the downfall of those leading the Reformation. Without the authority of the church, man falls into a state of “war” with each individual seeking his own end without concern for others. This state describes both our trivial and our secular coordination failure equilibria. While life in these equilibria will not be “solitary, nasty, brutish, and short,” (Hobbes, 1958 [1651], p. 107), they will bring individuals less happiness than the religious equilibrium.

Nevertheless, while a secular equilibrium always exists as a coordination failure equilibrium, when the church becomes stronger, there also exists a religious equilibrium.

COROLLARY 1 (RELIGIOUS EQUILIBRIUM) *A symmetric equilibrium with a high level of religious activity exists whenever $\rho \geq \underline{\rho}$. Moreover, whenever $\rho > \underline{\rho}$, there exist two symmetric Pareto-rankable religious equilibrium outcomes. The Pareto dominant one entails a higher level of religious activity and is stable, whereas the inferior one is not stable. In both cases, religious activity is (non-uniquely) implied by*

$$0 < r_i^{eq} = r^{eq} = \frac{\gamma_T ((nr^{eq})^{k_1} D^{k_2} \rho^{k_3}) (1 - \lambda) - \alpha}{\alpha + \gamma_T ((nr^{eq})^{k_1} D^{k_2} \rho^{k_3})}, \quad \forall i.$$

PROOF The proofs to Proposition 1 and its Corollary are in the appendix in reverse order.

An informal proof and the intuition behind the equilibrium is discussed in the next subsection. Note first, however, that analogous Propositions and Corollaries exist that demonstrate the need (and potential sufficiency) of a minimum of religious devotion by the congregation and

concerning a minimum of financial resources available in order to support a religious equilibrium. In other words, religious observation (in this model) is inherently a group activity — even if we model the rewards as individualistic. Thus, even a strong religious doctrine need not be sufficient for an individual to reap the benefits of religious activity (so that in response $r_i^{br} = 0$) independent of the financial resources of the church.

4.2 Discussion of the Religious Equilibrium and its Attainment

Before characterizing and studying the religious equilibrium in detail, we first show how its attainment depends on how one agent’s actions are direct responses to the actions of other members in the community, and how — in turn — the individual’s actions affect the overall community.

Let $\rho > \underline{\rho}$ be given, so that the church provides a sufficiently strong doctrinal foundation to allow for a religious equilibrium given the resource and time constraints of the community. We assume that all members of the community — save the individual whose optimal responses we wish to analyze — chose the same level of religious activity. We then seek to determine how the individual responds to this level.

From the agent’s first order condition (Equation 4) in conjunction with Assumptions 1 and 2, we know that when the remaining members of the community have religious participation levels that are too low, the agent will not devote any time to religious activities. However (by virtue of the existence of a religious equilibrium) there exists a threshold religious activity level in the community, call this \tilde{R} , so that the agent is on the verge of participating in religious activity (see Figure 1). Formally, $\gamma_T (\tilde{R}^{K_1} D^{K_2} \rho^{K_3}) (1 - \lambda) = \alpha$. For this level, let \tilde{r}_{-i} denote the (symmetric) religious activity of members of the community other than the individual i associated with \tilde{R} , that is, $\tilde{r}_{-i} := \tilde{R}/n$. Then the agent’s first order

condition (Equation 4) is

$$r_i^{br} = \frac{y_T ((n\tilde{r}_{-i})^{\kappa_1} D^{\kappa_2} \rho^{\kappa_3}) (1 - \lambda) - \alpha}{\alpha + y_T ((n\tilde{r}_{-i})^{\kappa_1} D^{\kappa_2} \rho^{\kappa_3})} \equiv 0.$$

Thus, despite others being involved in religious activity, the individual does not find it worth his while to take part. However, it is also clear that this choice is in response to what the other members of the community chose to do. Hence, consider now how the individual optimally responds to a change in the others' actions. Specifically, the right-derivative is,

$$\left(\frac{d}{dr_{-i}}\right)^+ r_i^{br}(r_{-i}) = \frac{y'_T \kappa_1 \lambda \alpha (2 - \lambda)}{r_{-i} (\alpha + y_T)^2} > 0.$$

That is, one's own desired religious activity level r_i^{br} increases with the overall level of religious activity in the community. This insight is important in its own right:

LEMMA 2 (MULTIPLIER EFFECTS) *An agent's optimal choice of religious observance, r_i^{br} is increasing in others' religious activities. That is,*

$$\frac{d}{dr_{-i}} r_i^{br}(r_{-i}) \geq 0.$$

PROOF Noting that for all $r_{-i} < \tilde{r}_{-i}$ the best individual response is $r_i^{br} = 0$, we obtain the equality of the lemma. The inequality follows from the preceding discussion. \square

At levels of $R = nr_{-i}$ at which the agent begins to actively participate in religious activity, the derivative in Lemma 2 is in fact greater than one. Thus, an increase in religious activity by other members in the community, r_{-i} , by one unit of time (e.g., an hour per week), leads to an optimal response of the individual that is greater than one unit of time, e.g., the agent responds by spending more than an hour at religious activities, albeit, still less than the other members of the community do.

Thus, the agent's religious participation increases more quickly than that of the other members in the community, leading to a convergence

in activities. Indeed, at some point all agents in society spend the same amount of time in religious activities, call this level $\hat{r}_i = \hat{r}_{-i} = \hat{r}$ (see Figure 1).

Once this level of religious activity is reached, an equilibrium is attained. That is, since \hat{r}_i is the optimal individual religious activity level (i.e., the best response) when others are at the same level, society's actions are not only individually optimal, but also mutually consistent. Formally, the condition of religious equilibrium given in Corollary 1 is met at \hat{r} , i.e.,

$$\hat{r} = \frac{y_T ((n\hat{r})^{K_1} D^{K_2} \rho^{K_3}) (1 - \lambda) - \alpha}{\alpha + y_T ((n\hat{r})^{K_1} D^{K_2} \rho^{K_3})}.$$

However, this equilibrium is not considered “stable” in the following sense. Because the slope (derivative) of an agent's best response is still greater than one at this point, if the other members each contribute another hour to religious activity, the individual best responds by increasing his activity by more than an hour — which, in turn, leads to the others optimally further increasing the amount of time they spend in religious activity.³ Such propagation slows once the derivative of the best-response function is less than one. However, it does not come to an end until society's actions are again individually optimal and mutually consistent — i.e., a new equilibrium is reached, call this equilibrium level of religious activity $r_i^* = r_{-i}^* = r^*$ (see Figure 1), again with,

$$r^* = \frac{y_T ((nr^*)^{K_1} D^{K_2} \rho^{K_3}) (1 - \lambda) - \alpha}{\alpha + y_T ((nr^*)^{K_1} D^{K_2} \rho^{K_3})}. \quad (5)$$

This equilibrium is stable, in the sense that individual deviations lead only to minor responses of others, that are weak enough to make it worthwhile for the deviator to return to the original equilibrium. This stable equilibrium is the equilibrium we will henceforth refer to when speaking of the “religious equilibrium.”

³Conversely, if any agent spends less than \hat{r} in religious activity, all others best respond by reducing their activity levels, and as this is self-perpetuating, society collapses back onto the secular equilibrium given in Proposition 1.

4.3 Properties of the Religious Equilibrium

In light of the preceding discussion, the critical importance of the inter-relationship between members of the community is clear. Indeed, attainment of a religious equilibrium is not possible without others to interact with. This has an implication for the quality of the religious equilibrium, as well as individual members' actions, spirituality and wellbeing.

PROPOSITION 2 *In the religious equilibrium, an increase in church membership yields higher religious participation by individual members and results in higher levels of spirituality and over-all wellbeing. That is,*

$$\frac{d}{dn}r^* > 0; \quad \frac{d}{dn}\sigma > 0; \quad \frac{d}{dn}u > 0.$$

PROOF The formal proof of this and the following results are in the appendix. Note, however, that this and the following results are in part represented by an increase in the $r_i^{br}(r_{-i})$ function in Figure 1. \square

Christianity is an evangelical religion, and, as such, Christians by their behavior of living the Gospels are supposed to convert others to their beliefs. In our model, that translates into increasing n . An increase in the size of the religious community increases each individual member's spirituality by increasing the strength of the faith community and thereby the institutional strength of the church. All, new and old members of the community alike, are made better off. This improved spiritual and temporal welfare is, in essence, what Pope Benedict is suggesting when he speaks of returning God to the public consciousness and to the center of European culture (Ratzinger, 2005) and of re-evangelizing Europe (Thavis, 2005).

Note that thus far the role of church doctrine, i.e., ρ has been discussed as a minimum (necessary, but not sufficient) requirement to obtain the religious equilibrium. However, even when $\rho > \underline{\rho}$ so that a religious equi-

librium is attainable (and attained), church doctrine plays an important role in the characterization and the “quality” of that equilibrium. Thus,

PROPOSITION 3 *In the religious equilibrium, a strengthening of church doctrine yields higher religious participation by members and results in higher levels of spirituality and over-all wellbeing. That is,*

$$\frac{d}{d\rho}r^* > 0; \quad \frac{d}{d\rho}\sigma > 0; \quad \frac{d}{d\rho}u > 0.$$

The doctrinal strength of a church can be affected by a wide variety of things including conscious decisions to revise doctrine taken by church leaders, behavior of church leaders in ways inconsistent with the received doctrine of the church, or changes in society that lead to changes in how doctrine is perceived. Whatever the source of the strength or the cause of its change, churches with stronger more coherent doctrine attract adherents, and those with weaker less coherent doctrine lose adherents. Thus, the decline in attendance at and membership in Christian churches of all denominations throughout Europe can be explained by church teachings being perceived as less compelling than a secularist alternative, the decline in attendance at mainline Protestant churches in the United States can be explained by doctrinal conflict, for example the schism caused by the election of an openly gay Bishop by the U.S. Episcopal Church and the blessing of same sex marriages by the Canadian Anglican Church in contravention of Anglican Communion doctrine (Blair, 2005), and the decline in attendance at the Roman Catholic Church in the United States and Ireland as a result of the pedophilia scandals which exposed the church hierarchy’s protection of guilty priests rather than of innocent children (John Jay College of Law, 2005 ; Murphy, et al., 2005).

In addition to church membership and doctrine, the resources of the church are also critical in effecting its mission and thus the activities and wellbeing of its members. This is captured in the following proposition.

PROPOSITION 4 *In the religious equilibrium, an increase in the financial resources available to the church yields higher religious participation by members and results in higher levels of spirituality and over-all wellbeing. That is,*

$$\frac{d}{dD}r^* > 0; \quad \frac{d}{dD}\sigma > 0; \quad \frac{d}{dD}u > 0.$$

The wealth of one's congregation or church allows it to carry out its ministry of charity to those in need, whether members of the congregation or not. This, as established in the work of Lynch (2003) and de Swaan (1988), strengthens and stabilizes communities, and thereby makes community members better off. These same communities can be weakened, and the wellbeing of their members reduced, by decreases in the temporal wealth of the church as a result, for example, of income taxation which reduces individuals after tax income and thus their ability to give. This weakening and the effects thereof are the case even if the tax revenues are used to provide the same charitable services as were previously provided by the church. de Swaan (1988) suggests that the differential effect arises because of how the funds are provided — if by taxation they are compulsory, while if by donations to the church they are voluntary, and because of the distancing of those providing the charitable sources (taxpayers, rather than members of the church) from those receiving them (the poor, rather than members of the church).

Lastly, we consider how secular society affects individual religiosity, spirituality, and overall wellbeing.

PROPOSITION 5 *In the religious equilibrium, an increase in the socially minimal 'requirements' on time spent at leisurely activities yields diminished religious participation by members and results in lower levels of*

spirituality and overall wellbeing. That is,

$$\frac{d}{d\lambda}r^* < 0; \quad \frac{d}{d\lambda}\sigma < 0; \quad \frac{d}{d\lambda}u < 0.$$

The difficulties inherent in turning away from this world and the demands thereof and toward God have been recognized since Biblical times. In the parable of the great dinner,

But he said to him, “A man once gave a great banquet, and invited many; and at the time for the banquet he sent his servant to say to those who had been invited, ‘Come; for all is now ready.’ But they all alike began to make excuses. The first said to him, ‘I have bought a field, and I must go out and see it; I pray you, have me excused.’ And another said, ‘I have bought five yoke of oxen, and I go to examine them; I pray you, have me excused.’ And another said, ‘I have married a wife, and therefore I cannot come.’ So the servant came and reported this to his master. Then the householder in anger said to his servant, ‘Go out quickly to the streets and lanes of the city, and bring in the poor and maimed and blind and lame.’ And the servant said, ‘Sir, what you commanded has been done, and still there is room.’ And the master said to the servant, ‘Go out to the highways and hedges, and compel people to come in, that my house may be filled. For I tell you, none of those men who were invited shall taste my banquet.’”

[Luke 14: 16-24]

many of those invited do not come, but instead spend their time in worldly rather than spiritual pursuits. Here, the demands of the world, the activities one engages in to meet and surpass a socio-cultural norm, also take one away from religious activities. This leads, ultimately, to less rather than greater happiness, since all community members will

respond similarly to the worldly demands by reducing religious participation, and then reducing it further in response to the lower level of participation by their peers. This is the important implication of the multiplier effects described in Lemma 2.

5 The agent's money allocation problem

Having analyzed the agent's time allocation problem, consider now how money is allocated between competing desires. Again, we consider only cases in which $h = 1$ or, equivalently, cases in which the agent's decisions are not affected by the presence of the h multiplier. Let $v(T)$ denote the agent's utility associated with time T when it is optimally allocated between leisure l^* and religious activities r^* . Then, analogously to the time allocation problem, one obtains the agent's money allocation problem and solution,

$$\begin{aligned}
 v(T) \left(\frac{M}{p} (1 - \bar{d}) - \mu \right)^{\beta} (1 + \bar{d})^{\gamma_M} &\rightarrow \max_{\{\bar{d}\}}! \quad \text{s.t. } \bar{d} \in [0, 1]; \\
 \Rightarrow \bar{d}^{br} &= \max \left\{ 0, \frac{\gamma_M \left(1 - \frac{p}{M} \mu \right) - \beta}{\beta + \gamma_M} \right\}. \quad (6)
 \end{aligned}$$

The solution in Equation 6 resembles that of the time allocation problem given in Equation 4. Notice, however, that the marginal utility from material consumption, μ , is now weighted by (the inverse of) the real value of monetary income.

Similar to Assumption 2, absent a functioning church (i.e., $\chi = 0$) marginal utility from material consumption exceeds that of charitable giving. Formally,

ASSUMPTION 3 Absent a functioning church, the marginal rate of substitution between charitable giving/donations and material consumption is

less than one's real income, i.e.,

$$\left. \frac{\partial u / \partial \bar{d}}{\partial u / \partial m} \right|_{x=0} < \frac{M}{p}.$$

Given this structure, the analysis of equilibrium is analogous to that of time allocation, with the Pareto-superior religious equilibrium being characterized by,

$$\bar{d}^* = \frac{\gamma_M \left(R^{\kappa_1} (nM\bar{d}^*)^{\kappa_2} \rho^{\kappa_3} \right) \left(1 - \frac{p}{M}\mu \right) - \beta}{\beta + \gamma_M \left(R^{\kappa_1} (nM\bar{d}^*)^{\kappa_2} \rho^{\kappa_3} \right)}. \quad (7)$$

Moreover, all of the results derived for the individual and for the community concerning religious activity carry over *mutatis mutandis* for the equilibrium with charitable giving. Of the analogous results, the one most noteworthy is that concerning (perceived or actual) pressures put on the individual by secular society. That is, the parallel to Proposition 5:

PROPOSITION 6 *In the religious equilibrium, an increase in the socially minimal 'requirements' on material consumption yields diminished religious donations by members and results in lower levels of spirituality and overall wellbeing. That is,*

$$\frac{d}{d\mu} r^* < 0; \quad \frac{d}{d\mu} \sigma < 0; \quad \frac{d}{d\mu} u < 0.$$

The difficulties faced by the rich in getting into heaven are found throughout the synoptic Gospels, as is evident from the following four citations:

And Jesus looked around and said to his disciples, "How hard it will be for those who have riches to enter the kingdom of

God!” And the disciples were amazed at his words. But Jesus said to them again, “Children, how hard it is to enter the kingdom of God! It is easier for a camel to go through the eye of a needle than for a rich man to enter the kingdom of God.” [Mark 10: 23-25]

“Hear then the parable of the sower. When any one hears the word of the kingdom and does not understand it, the evil one comes and snatches away what is sown in his heart; this is what was sown along the path. As for what was sown on rocky ground, this is he who hears the word and immediately receives it with joy; yet he has no root in himself, but endures for a while, and when tribulation or persecution arises on account of the word, immediately he falls away. As for what was sown among thorns, this is he who hears the word, but the cares of the world and the delight in riches choke the word, and it proves unfruitful. As for what was sown on good soil, this is he who hears the word and understands it; he indeed bears fruit, and yields, in one case a hundredfold, in another sixty, and in another thirty. [Matt 13: 18-23]

“But woe to you that are rich, for you have received your consolation.” [Luke 6: 24]

And a ruler asked him, “Good Teacher, what shall I do to inherit eternal life?” And Jesus said to him, “Why do you call me good? No one is good but God alone. You know the commandments: ‘Do not commit adultery, Do not kill, Do not steal, Do not bear false witness, Honor your father and mother.’ ” And he said, “All these I have observed from my youth.” And when Jesus heard it, he said to him, “One thing you still lack. Sell all that you have and distribute to the poor, and you will have treasure in heaven; and come, follow me.” But when he heard

this he became sad, for he was very rich. Jesus looking at him said, “How hard it is for those who have riches to enter the kingdom of God!” [Luke 18: 18-24]

They all suggest that the pull of the comforts of this life, more available to the rich than the poor, are a distraction from dedicating oneself and one’s wealth to achieving the riches of the next life. But this accumulation of goods also fails to provide happiness in this life. In the middle ages the problem of riches was recast in terms of greed or avarice. The problem here was not wealth in and of itself, but an excess of wealth not shared with those less fortunate (Newhauser, 2000), thus leading to the breakdown of the social order, as is also suggested by Lynch (2003) and de Swaan (1988). This tension between glorifying oneself in this world, by consuming more than one’s peers (more than μ) and providing for the next by higher donations relative to one’s income, appears a constant in the human condition.

In contrast to religious activity, individual spirituality responds to charitable giving relative to one’s income, rather than absolute amounts of donations. And this difference yields some additional insights about individual wellbeing and the religious community.

PROPOSITION 7 In the religious equilibrium, an increase in the financial resources available to the the individual, yields greater relative donations by members and results in higher levels of spirituality and over-all wellbeing. That is,

$$\frac{d}{dM} \bar{d}^* > 0; \quad \frac{d}{dM} \sigma > 0; \quad \frac{d}{dM} u > 0.$$

As income rises, so do donations to the church, the more one has to share, the more one shares. Further, the higher the wealth of the church, D , all else equal, and thus the better able the church is to fulfill its pastoral missions, the better off the members of the church — and the more,

again, members are willing to give, resulting from further multiplier effects.

However, the source of those funds does matter. So suppose, as in many European countries, individuals' incomes are taxed, reducing M , and those tax revenues are used to fund churches. Suppose prior to the imposition of the tax the wealth of the church is D^a , and the government agrees to maintain this level of funding after the tax and the government further agrees that it will tax no more than is needed to maintain D^a . Then, because individuals' income has fallen, they will reduce their donations, taxes will have to be increased to compensate, and this process can continue until the entire funding of the church is provided by the state. Even though the wealth of the church is maintained, members of the faith community are made worse off: their own spirituality and their personal happiness are unambiguously diminished.

6 The Role of an Effective Church

As stated at the outset, the church, compared to the state, is well-placed to provide a coordinating function, which may assure the attainment of the Pareto-superior equilibrium. It does so by providing incentives. These incentives can be positive (rewards) — the eschatological benefits of the Kingdom of God. And negative (punishments) — consider, e.g., Christ's explanation of the parable of the weeds,

Just as the weeds are gathered and burned with fire, so will it be at the close of the age. The Son of man will send his angels, and they will gather out of his kingdom all causes of sin and all evildoers, and throw them into the furnace of fire; there men will weep and gnash their teeth. [Matt 13:40-42];

or

For whoever is ashamed of me and of my words in this adulterous and sinful generation, of him will the Son of man also be ashamed, when he comes in the glory of his Father with the holy angels [Mark 8:38].

Also, the church institutes rituals, communal gatherings for prayer and reflection in which beliefs held in common are reiterated, and, for Christians, in the reaffirmation of their oneness with Christ. That is, the church reminds its members that they have obligations to their fellow men and in considering themselves they must consider all others as well, since they together, form the church, which, divided against itself (when coordination fails) cannot stand. In practical (coordinating) terms the church can make its members aware that their actions affect others, even others they do not know and who do not know them.

However, to the extent that church leaders are able to coordinate community actions, they may even be able to induce individuals to behave specifically as a member of the community, and thus in a socially optimal, rather than in an individually optimal, manner. In so doing, the church can cause agents to each act for the greater good, i.e., as ‘social planners,’ and thereby lead the community to a Pareto optimal outcome — the best outcome for all agents individually as well as communally.

THEOREM 1 (PARETO-OPTIMALITY) *Pareto-optimality is achieved — and thus overall societal and individual wellbeing are maximized — at levels of religious activity and donations that exceed the (decentralized) individual optimal levels of the Pareto-superior religious equilibrium. That is,*

$$u(\cdot, \sigma(r^{**}, \bar{d}^{**})) > u(\cdot, \sigma(r^*, \bar{d}^*)),$$

*with $r^{**} > r^*$, and $\bar{d}^{**} > \bar{d}^*$,*

*where r^{**} and \bar{d}^{**} are the individual levels of religious activity and do-*

nations that maximize

$$(l - \lambda)^\alpha (m - \mu)^\beta h(1 + r)^{y_T(x(r, M\bar{d}))} (1 + \bar{d})^{y_M(x(r, M\bar{d}))}$$

The church's prescribed solution suggests that all members of the community should engage in a level of religious activity and donations in excess of the individually optimal level (i.e., $r^{**} > r^*$ and $\bar{d}^{**} > \bar{d}^*$), because of the positive external effects of their actions on others (see the multipliers in Lemma 2 and the supporting discussion). The church then exhorts its members to this level of activity by revealing the positive effects of individuals' actions one on the other, thereby revealing what in the market would remain hidden. Whenever the church is able to do this, Pareto optimality can be achieved. That is, while individuals would like to alter their behavior, given what others are doing in the Pareto-optimal state (i.e., $r_i^{br}(r_{-i}^{**}) < r^{**}$ and $\bar{d}_i^{br}(\bar{d}_{-i}^{**}) < \bar{d}^{**}$), they recognize that the overall effect of individual best-responses (Corollary 1), is strictly dominated by following church recommendations.

The church can obtain this outcome through moral suasion, or it can resort to a formalization of the h -function discussed earlier, i.e., $r_{\min}(\rho) = r^{**}$ and $\bar{d}_{\min}(\rho) = \bar{d}^{**}$. Although this threat of hell is coercive, all agree that the prescribed behavior is optimal, and would readily agree to the coercion. Thus, concerning donations, e.g., in the Old Testament individuals are commanded to tithe, since one tenth of their wealth is the Lord's portion:

“When you have finished paying all the tithe of your produce in the third year, which is the year of tithing, giving it to the Levite, the sojourner, the fatherless, and the widow, that they may eat within your towns and be filled.” [Deut 26:12]

And in the New Testament individuals are commanded to give to God what is God's:

Jesus said to them, “Render to Caesar the things that are Caesar’s, and to God the things that are God’s.” [Mark 12:17a]

These specific recommendations can be thought of as providing a level of donations great enough to insure against the coordination failure equilibrium outcome. But they may be more than that, and rather set a level of donations, explicitly or implicitly, that will lead to the Pareto optimal coordinated outcome.

The great potential of the Church, compared to the State, in modern Western societies, thus becomes clear, for it is incompatible with modern views of a free society that individuals be forced to the degree possibly required to achieve the Pareto efficient outcome (especially when it comes to one’s time) by means of the force of the State. Yet, rather than the State’s force, the Church’s power to use coercion is voluntary and acceptable. Yet, herein also lies the challenge to the Church in Western (increasingly secular) societies, for it is easier for the individual to leave the Church than it is for him to leave the State.

7 Conclusion

The church has played a central role in establishing and maintaining, as well as, perhaps inadvertently, undermining, communities throughout modern history. Yet today it finds itself often on the periphery, less able to build communities of faith and to minister to the wider community. In this paper we explore some of the mechanisms through which the church can coordinate individual behavior so as to achieve improvements in individual and social welfare, and in so doing reveal the ways in which the church can fail, causing established communities to founder or dissolve.

In our model of community formation inherently religious individuals may become trapped in a secular equilibrium because no one else practices, or because what is offered by the church is less than what is offered

by secular society because of the church's doctrinal weakness, poverty, or lack of adherents. These secular equilibria are strictly dominated by a religious equilibrium in which individuals' actions bestow positive external benefits on other community members. The church reveals the benefits of coordinated behavior, both in this world and in the world to come, and the costs of uncoordinated behavior, separation from God and one's fellow man, to induce community members to take actions which are both individually and socially (communally) beneficial.

The power of the church's exhortations is diminished by doctrinal weakness, which can have its source in the doctrine itself, how that doctrine is interpreted, applied, or perceived, or how that doctrine is communicated. The rapid growth of the so called Evangelical Christian (Protestant) Churches in the United States, and the decline of the so called Mainline Protestant Churches have been attributed to doctrinal strength in the former and weakness in the latter. The decline in religious practice in Europe may be attributed to issues of doctrine and to the ceding to the State what had once been the provenance of the Church, such as the provision of charity for the poor, and other social-welfare programs for the community at large. Additionally, funding of the Church by the State, as is found in many European countries, can erode the benefits of membership in one's faith community, and, perhaps, lead to the dissolution of the community (reversion to the secular equilibrium).

Churches have proven themselves to be very resilient institutions which can play a vital role in strengthening communities. Whether they can continue to do so depends on what they can offer to those struggling to meet the demands of this world, in a world in which many of their traditional ministries have been ceded to the State, and in a world in which their doctrine is often perceived to be at variance with rather than the source of shared cultural beliefs. The challenge to churches today is great, but the benefit to society of their succeeding may be greater still.

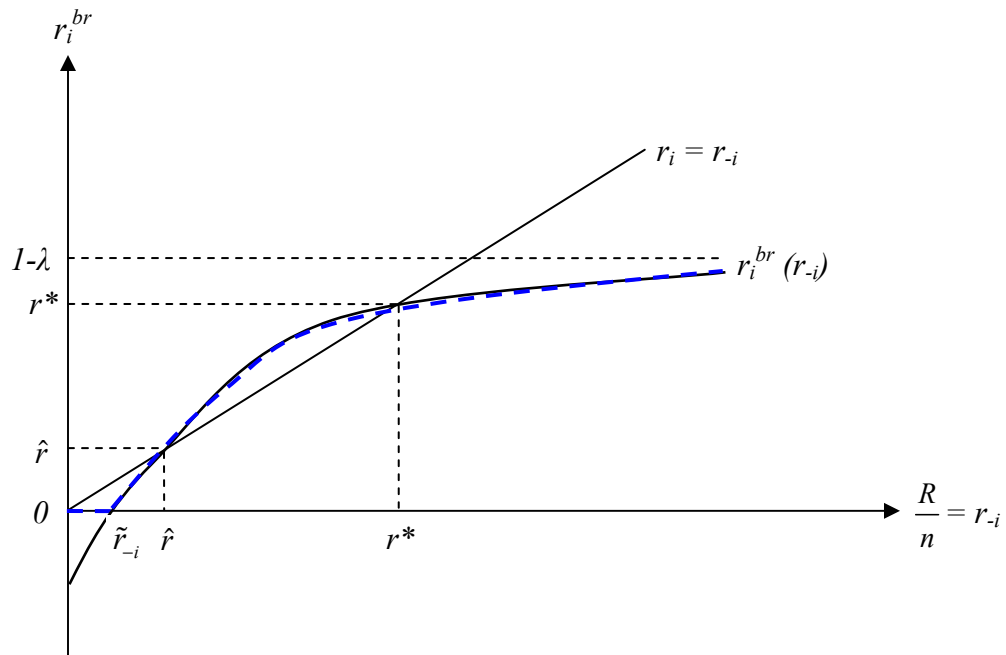


FIGURE 1: *The individual's optimal amount of time devoted to religious activities (thick dashed line) as a function of other members' time allocation. There is a (stable) secular equilibrium in the origin, the (stable) religious equilibrium is given by \hat{r} .*

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