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RATIONAL CHOICE: Framework for the Scientific Study of Religion*

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Since finishing my thesis in 1984, I have had the good fortune to find an employer willing to subsidize my research on the economics of religion, colleagues willing to read my papers and take them seriously, and collaborators with interests and agendas that complement my own. Rightly or wrongly, this run of luck has left me ever more convinced that rational choice theory offers a new framework for the social scientific study of religion. I find rational choice approaches to be both theoretically rigorous and empirically fruitful. They explain and integrate much of what is already known about religious participation, generate new predictions that suggest new avenues for empirical research, yield policy implications about the welfare effects of government intervention in the religious marketplace, and forge links between religious research and a growing body of rational choice research on other "nonmarket" institutions and activities.

This essay reviews the rational choice approach to religion, drawing from my own research to illustrate both general principles and specific applications. I will not defend the approach against its standard criticisms, having done so in another paper (Iannaccone, 1995a), nor will I venture a comprehensive survey. Instead, the essay provides something approximating an illustrated "how-to" manual for those interested in the approach. Starting with a brief overview, the essay traces rational choice through progressively higher levels of aggregation--from households, to groups, to entire religious "markets"--always emphasizing the general assumptions underpinning the approach.

The Rational Choice Approach

Gary Becker (1976:5) has aptly characterized the "heart" of the rational choice approach as "the combined assumptions of maximizing behavior, market equilibrium, and stable preferences, used relentlessly and unflinchingly." It was this broad and ambitious view of economics that drew me to the field¹, and in many ways my subsequent research has remained unabashedly "Beckerian." Frankly, I cannot imagine a meaningful rational choice model of religion that does not ultimately rest upon these three assumptions. Hence:

Assumption #1: *Individuals act rationally, weighing the costs and benefits of potential actions, and choosing those actions that maximize their net benefits.*

Assumption #2: *The ultimate preferences (or "needs") that individuals use to assess costs and benefits tend not to vary much from person to person or time to time.*

Assumption #3: *Social outcomes constitute the equilibria that emerge from the aggregation and interaction of individual actions.*

Of these three assumptions, maximizing behavior is fundamental. One must, however, emphasize its status as a simplifying *assumption* to be employed and assessed within the context of predictive models that are themselves simplified representations of reality. One may assert its usefulness without for a moment believing that people always act logically, efficiently, or in

accordance with their own self-interest. I do not claim to *know* that people truly are rational. I simply know that rational choice assumptions have borne considerable fruit in the social sciences, particularly economics; that rational choice theory is well suited to the task of building and testing formal models of human behavior; and that the rational choice approach to religion has until recently gone largely untried.²

Rational choice theorists assume that people approach all actions in the same way, evaluating costs and benefits and acting so as to maximize their net benefits. Hence people choose what religion, if any, they will accept and how extensively they will participate in it. Over time, most people modify their religious choices in significant ways, varying their rates of religious participation and modifying its character, or even switching religions altogether. Given the assumption of stable preferences, the rational choice theorist is almost never content to explain such changes with reference to changed tastes, norms, or beliefs. The theorist seeks instead to model behavioral changes (and interpersonal differences) as optimal responses to varying circumstances--different prices, incomes, skills, experiences, technologies, resource constraints, and the like.

Similar assumptions apply to religion's supply side. Religious "producers" are also viewed as optimizers--maximizing members, net resources, government support, or some other basic determinant of institutional success. Evolutionary forces will favor maximizing behaviors even if religious firms do not consciously strive for "success," since the individuals, organizations, and policies that yield greater resources are more likely to survive and grow. The actions of church and clergy are thus modeled as rational responses to the constraints and opportunities found in the religious marketplace.

The combined actions of religious consumers and religious producers form a *religious market* which, like other markets, tends toward a steady-state equilibrium. As in other markets, the consumers' freedom to choose constrains the producers of religion. A "seller" (whether of automobiles or absolution) cannot long survive without the steady support of "buyers" (whether money-paying customers, dues-paying members, contributors and coworkers, or governmental subsidizers). Consumer preferences thus shape the content of religious commodities and the structure of the institutions that provide them. These effects are felt more strongly where religion is less regulated and competition among religious firms is more pronounced. In a highly competitive environment, religions have little choice but to abandon inefficient modes of production and unpopular products in favor of more attractive and profitable alternatives.

Finally, the rational choice approach presupposes a commitment to the goals and methods of science in general. This does not imply that narrative and metaphor have no place in a rational choice argument (McCloskey 1985) or that qualitative field work must play second fiddle to quantitative survey data. But it does involve a search for behavioral laws that satisfy the criteria of objectivity, reproducibility, and refutability. (For more on this subject, see Rodney Stark's essay in this volume.)

The Household Behavior Model

Rational choice models have a distinctive logical structure. They explain religious behavior as the consequence of actions designed to solve one or more problems of the following form:

choose: *{actions}*
that maximize: *{objective}*
subject to: *{constraints}*

To make any headway, a theorist must therefore state the actors' objective in a manner that is both analytically tractable and relevant to the question at hand. For example, in a model designed to predict church attendance, religious participation may appear as a separate source of utility while numerous other activities (recreation, transportation, dining, sleep, and social interactions) are lumped under a broad heading such as "other sources of satisfaction." Another model, designed to explore the interactions between religious "firms" and their "customers" may isolate different facets of religious participation, classifying some acts (such as preaching) as production and others (such as listening to a sermon) as consumption. Finding a level of abstraction that balances generality and clarity against practical relevance and predictive detail is always important and rarely easy.³ (I am reminded of Albert Einstein's maxim that "theories should be as simple as possible, but not more so.") In practice, standard economic models of households, firms, or markets provide a natural starting point; the trick is finding an appropriate modification of an already fruitful approach.

Although the theorist will often experiment with different levels of abstraction, the actors' *ultimate* objectives, variously labeled "tastes" or "preferences," are assumed to remain stable. This assumption has both a philosophical basis (the conviction that fundamental human needs really do not differ much over time and place) and a pragmatic basis (the fact that we lack, as yet, any objective way to model and measure taste formation). In practice, it means that a rational choice model must explain changing behavior in terms of changing constraints. The assumptions

of rational choice and stable preferences thus have the following corollary:

Corollary: *Behavioral changes (over time) are the consequence of changed constraints; behavioral differences (across individuals) are the consequence of differing constraints.*

Prices and incomes constitute the typical model's most salient constraints, but the overall state of technology and the actors' state of knowledge, ability, experience, and social position function as additional constraints. The theorist seeks to explain and predict behavior as optimal responses to changes in these constraints--a price increase here, an income shift there, a technological innovation, or a difference in native ability or investment capital. This strategy can work only if one embraces a broad view of concepts like "price," "production," and "capital." Prices and costs refer to anything that must be sacrificed, regardless of its form--money, time, status, and so forth. Production occurs in the household just as it does in the factory, yielding both tangible commodities like home repairs and intangibles like relaxation. Educational and on-the-job investments in "human capital" (knowledge and skills) enhance productivity just like physical capital (machinery and structures). It is this perspective more than anything else that distinguishes the "new home economics" pioneered by Becker and his associates from traditional, commerce-oriented economics on the one hand and traditional sociology on the other.

Assumption #4: *Constraints take a wide variety of forms--explicit and implicit prices, income and ability, physical and human capital, technology governing both commercial and household production, and so forth.*

Starting Simple: Household Production

The simplest models of religious behavior ignore interactions and equilibrium, focusing instead on the behavior of individuals and households (e.g, Azzi and Ehrenberg 1975). Viewing religion as just one of many household commodities, one may then analyze religious participation as a standard consumer choice problem:

choose: *{the amounts of time and money to devote to religious versus secular activities}*

to maximize: *{the overall utility derived from secular and religious commodities}*

subject to: *{constraints on the total stock of household resources}*

One must, however, emphasize that most religious commodities are not tangible goods like cars or computers that can be manufactured, packaged, and sold in stores. Nor are they commercial services like haircuts or banking that we have others do for us. Rather, they fall into a third category that economists have labeled "household commodities"--valued goods and services that families and individuals produce for their own consumption (Becker 1976:89-114).

Household commodities may be as concrete as meals and laundry or as abstract as relaxation and love. Like the products of a commercial firm, household commodities are produced with scarce resources--purchased goods, household labor, and human skill. Hence even though we cannot quantify the relaxation and enjoyment derived from a commodity like "recreation," we may usefully speak of households "producing" this commodity by combining purchased inputs (such as ski equipment, automobile services, or VCRs, televisions, and stereos)

with their own skills and time.

To model religious practice as a productive process, note that households routinely combine purchased goods and household time to "produce" religious satisfaction in much the same way that they produce meals, health, offspring, and recreation. To be sure, religious products are complex and largely unobservable (though possibly no more so than recreational enjoyment). Nevertheless, the principal *inputs* to religious production--time and money--are measurable and indeed are already routinely measured by researchers. Time inputs include the time spent attending and traveling to and from church services; devotional time spent praying, meditating, and reading scriptures; and time and effort required for religious charity or other religious activities. Money inputs include religious expenditures for Sunday attire, transportation to religious services, Bibles and other religious items, sacrificial offerings, and, above all, contributions that pay for religion's staff, services, and charitable works. (The knowledge, skills, and experiences specific to one's religion constitute a third class of inputs, which I will discuss in the next section.)

Assumption #5: *Individuals and households produce religious "commodities" by combining money inputs (that pay for physical goods and services) with inputs of their own time.*

Despite its apparent simplicity, the household production model generates noteworthy predictions. Consider, for example, the concept of *input substitution* as it applies to religious production. Virtually all productive activities, whether household or commercial, concrete or abstract, require both time and money inputs. But the ratio of these inputs can often be varied.

Home-cooked meals and restaurant meals can be equally good (or bad), but the former require greater inputs of household time relative to purchased goods. In like manner, lawns can be watered by hand or by automated sprinklers, trips can be taken by car or by plane, and children can be cared for by parents or preschools. In each of these cases, the efficient method of production will depend on the monetary value of the household's time. The higher the value of time, the more likely it is that the household will substitute time-saving, *money-intensive* forms of production for money-saving, *time-intensive* forms. Hence, it comes as no surprise that high income households are more likely to dine out, install sprinklers, travel by air, and send their children to preschools.

Applied to religion, the concept of input substitution implies that people with high monetary values of time will tend to engage in money-intensive religious practices. In particular, their money contributions will be high relative to their rates of attendance and vice versa. People with low monetary values of time will adopt more time-intensive practices and contribute relatively less money. To the best of my knowledge, these predictions have no precedent within traditional models of religious participation. They are, however, confirmed by survey results on church attendance and contributions (Iannaccone 1990:309). Although the surveys do not specify the ways in which people substitute money for time, casual observation suggests that richer congregations opt for a variety of time-saving, money-intensive practices: shorter services, more reliance on professional staff (such as clergy, custodians, choir directors, and paid soloists), larger and more costly facilities (permitting less use of members' homes for special meetings), less reliance on volunteered labor, and more reliance on purchased goods and services (such as catered meals in place of potlucks).

A second set of predictions concern religious contributions, and more specifically the *distribution* of contributions within congregations and across the entire population. A spate of recent research identifies "skewness" as the most striking unexplained feature of church contributions. According to Hoge (1993:2), the highly skewed distribution of contributions "is an empirical finding in every study, and it is considered a bedrock rule of thumb by professional fundraisers." In practice, this means that a mere twenty percent of church members provide up to eighty percent of the financial support in most congregations. Unfortunately, "past tradition in thinking about religious giving ... has proven unsuited to explain ... the highly skewed distribution of individual contributions in a typical church" (Hoge 1993:35).

To explain skewness in terms of household production, it suffices to recall that church attendance and contributions constitute the principle "expenditures" made in order to obtain religious commodities. Standard expenditure surveys and standard utility maximization models both suggest that: (1) the amount of money that a particular household devotes to any broad category of commodities tends to correlate very strongly with its income, (2) corresponding expenditures of time are relatively insensitive to changes in income (because the total amount of available time remains constant), and (3) a household's underlying propensity to consume broad categories of commodities depends on a wide range of factors that are largely unobservable, uncorrelated, and independent of income. Applied to a secular activity, such as vacationing, these facts lead us to (correctly) predict that richer people spend a great deal more *money* on their vacations (traveling to exotic locations, renting expensive equipment, and purchasing expensive meals and accommodations) but that they are not likely to consume much more vacation *time* (per year) than members of the middle class.

Similar predictions apply to religious activities. (1) Household contributions--the amount of money devoted to religion--will correlate very strongly with household income, but the contributed *share* of household income will be much less strongly linked to income.⁴ (2) Income will have much less impact on church attendance--the amount of time devoted to religion. And (3) numerous other random factors will determine a person's overall propensity to participate in religious activities, raising or lowering both contributions and attendance while having little impact on their ratio.

It follows that dollar contributions will depend upon two distinct causal factors-- household income and underlying religiosity--and that these two factors tend to interact *multiplicatively*. In contrast, church attendance will depend mostly upon a single factor-- underlying religiosity. Drawing upon two additional facts (the empirical fact that the actual distributions of incomes tends to be skewed and the statistical fact that the product of independent, nonnegative distributions tends to be more skewed than the underlying distributions), we can conclude that church contributions are virtually guaranteed to follow a distribution that is far more skewed than the distribution of church attendance, income, or underlying religiosity. The apparent mystery of skewness is thus solved by modeling church contributions as a particular class of commodity expenditures. For more on this subject, see Iannaccone (1993).

Complicating Things: Experience Effects

The most fruitful rational choice models of religious behavior spring from a marriage of abstract theory and empirical insight. Economics often can supply the theory, but the results are generally uninteresting (and sometimes absurd) if they ignore sociological observations.⁵ As an economist and student of Becker, I was immediately drawn to the concept of religious commodity production, but it was my own familiarity with religion and the sociological research on religious participation that highlighted the importance of religious upbringing, social networks, and denominational ties. I developed the concept of *religious human capital* to bring these other determinants within the household production framework.

Religious capital denotes a person's accumulated stock of religious knowledge, skills, and sensitivities. It is an abstraction designed to encompass church ritual, doctrinal knowledge, friendships with fellow worshipers, and even faith (insofar as it is the product of experience). The term *human capital* is borrowed from labor economics, which introduced it to explain patterns in wages, career choice, and occupational mobility. In the case of religion, however, the distinction between a productivity-enhancing stock of "capital" and a taste-altering stock of "habits" is largely semantic (Iannaccone 1984:7).⁶ The critical feature, regardless of terminology, is this: experience enhances the (real or perceived) value of religious activities, thereby raising rates of religious participation. Moreover, since most religious experience is "context specific" (relevant only to the particular congregation, denomination, or religious tradition in which it arose), human capital also shapes patterns of religious affiliation.

Assumption #6: *As individuals and households produce religious commodities, they also accumulate a stock of "religious human capital" that enhances the satisfaction they derive from subsequent religious activity.*

Assumption #7: *Most religious human capital is "context specific," enhancing the real or perceived value of the particular activities, group, and religion that occasioned its accumulation.*

The human capital model yields predictions concerning denominational mobility, religious intermarriage, the timing of conversions, the influence of religious upbringing, the impact of mixed-faith marriage, and the age-profile of religiosity. For example, the similarities between religious capital and professional capital lead us to predict that most conversions and religious mobility will, like career choices and job mobility, occur at relatively young ages. Conversions and switching reflect people's efforts to find a better match between their religious capital and the context in which they will produce religious commodities. Over time, the gains from continued searching diminish, just as the benefits of job switching diminishes with age. Rates of intergenerational mobility tend to be low, particularly within distinctive religious traditions, since most children accumulate their religious capital in a (home and church) context determined by their parents. Switching will be most prevalent between relatively similar denominations (which allow the switchers to conserve on the value of their previous religious investments). Religious intermarriage will follow similar patterns, as people seek out partners whose religious human

capital complements their own. The complementarity inherent in shared-faith marriages will lead to higher levels of church attendance and contributions. Churchgoers tend to accumulate religious capital as they age, and this leads to age-increasing patterns of religious participation. Survey data support all these predictions (Iannaccone 1990, c.f. Sherkat and Wilson 1993).

More Complications: Religious Risk

Having begun with a simple model of religious commodity production, and having complicated it to take account of experience effects, we may complicate things further still by incorporating what Stark and Bainbridge (1985:8) view as a defining feature of religion--its reliance on supernatural forces.

The supernatural imbues religious commodities with unique advantages and disadvantages, for although it can offer the prospect of otherwise unobtainable rewards (eternal life, peace on earth, unending bliss), the rewards are inherently risky, the existence and efficacy of these rewards must be taken on faith. Religion thus confronts its would-be producers and consumers with an obvious dilemma.

Assumption #7: *Most religious commodities are risky, promising large but uncertain benefits.*

Insights from the economics of uncertainty help us understand the activities and institutions that arise in response to this dilemma. After all, risk itself is hardly unique to religion, as any stock market investor or heart bypass candidate will readily attest. Secular markets and secular consumers deal with risk in various ways. In the case of stock market investments, the

standard strategy is to diversify one's portfolio. In the case of heart surgery, the standard strategy is quite the opposite. Patients are well advised to identify a single, highly qualified specialist with whom they can develop a long-term relationship and to whom they will take all their business. As I will argue below, these two strategies have religious analogues that lead to different types of religious organizations and different patterns of religious practice. Risk thus paves the way from models of individual behavior to models of religious groups.

Religious Groups⁷

Problems of risk arise whenever the attributes of a commodity cannot be fully determined prior to its purchase. The problems prove especially serious when the commodity is expensive, hard to evaluate even after purchase, and impossible to return. Used cars embody all these features, as many a disappointed buyer will attest. Since potential buyers have difficulty assessing the quality of a used car in advance of purchase, used car sellers are tempted to overstate the value of their merchandise and to disguise its true nature. Knowing this, buyers will endeavor to reduce the odds of deception. They may demand guarantees, seek information from third parties, investigate the seller's reputation, and so forth. This motivates sellers to provide, or at least appear to provide, proof that their claims are true.

The uncertainty surrounding most religious goods is far greater than that which surrounds used cars. No amount of personal experience suffices fully to evaluate a religion's claims. Hence we can predict the emergence of institutions and arrangements designed to increase information (or at least the appearance of information) and reduce fraud.

Examples are not hard to find. Testimonials are commonplace in religion and, predictably, are more common in those variants that place greater emphasis on material blessings. Testimonies are more likely to be believed when they come from a trusted source, such as a personal acquaintance or a respected figure. They are especially credible when testifiers have relatively little to gain (or, better yet, much to lose) from having their claims heard and believed. This helps to explain why the character of religious activity is so often *collective* and the structure of religious organizations is so often *congregational*.⁸ Fellow members are more trustworthy than strangers. They also have less incentive to overstate the benefits of the religion than do members of the clergy, whose livelihood depends on a steady stream of "sales." The clergy, in turn, are more persuasive when they do not benefit materially from their followers' faith or when they receive low salaries relative to their level of training.

Rational choice theory thus explains several distinctive features of religious institutions in terms of their ability to reduce the risk of consumer fraud. These include: a minimal professional staff whose financial compensation is low or independent of customer contributions/payments; heavy reliance on part-time and volunteer workers (and thus reliance on payments of time and service rather than money); a congregational structure, which limits the need for full-time professionals and provides a source of credible product endorsements; and collective activities, which provide continuous assurance through the enthusiasm, devotion, conviction, and testimony of fellow members.

Assumption #8: *Collective production tends to reduce the risk and raise the value associated with religious activities.*

Congregations and Free-riders

Congregational structure has costs as well as benefits. It does indeed reduce the risk of fraud, thereby making religion more compelling and attractive, but it also makes it more vulnerable to "free-rider" problems. Such problems arise wherever individuals find it possible to reap the benefits of other people's efforts without expending a corresponding effort of their own.

One need not look far to find examples of anemic congregations plagued by free-riding--a visit to the nearest old-line Protestant church usually will suffice. However, far more striking examples are found in cults and communes. In such groups, which can only survive with high levels of commitment, the costs of free-riding are laid bare. Consider, for example, the Shakers' problems with transient members, or the Moonies' struggles with "exploiters" who joined the movement for "inexpensive room and board, money, ... or sex" (Lofland 1977: 152). Kanter (1973:157-8) documents the "commitment problems" that plagued most nineteenth century communes and quotes Charles Guide's observation that "these colonies are threatened as much by success as by failure ... [for] if they attain prosperity they attract a crowd of members who lack the enthusiasm and faith of the earlier ones." The same perverse dynamic threatens *all* groups engaged in the production of collective goods.

Assumption #9: *Collective religious activities are susceptible to free-rider problems.*

It would seem that religions are caught on the horns of a dilemma. On the one hand, a congregational structure which relies on the collective action of numerous volunteers is needed to

make the religion credible. On the other hand, that same congregational structure threatens to undermine the level of commitment and contributions needed to make a religion viable.

Costly demands offer a solution to the dilemma (Iannaccone 1992, 1994). The costs are not the standard costs associated with the production or purchase of secular commodities. Rather, they are apparently *gratuitous* costs--sacrifice and stigma--such as: burnt offerings, which destroy valued resources; distinctive dress and grooming that invite ridicule or scorn; dietary and sexual prohibitions that limit opportunities for pleasure; restrictions on the use of modern medicine or technology. The list goes on. Such costs are present to some degree in all religions, but they are especially pronounced in cults and sects.

Costly demands mitigate the free-rider problems that otherwise undermine a religious group. They do so for two reasons. First, they create a social barrier that tends to screen out half-hearted members. No longer is it possible simply to drop by and reap the benefits of attendance or membership. To take part, one must pay a price, bearing the stigma and sacrifice demanded of all members. Second, they increase the relative value of group activities, thereby stimulating participation among those who do join the group. Social stigmas make it costly (or even impossible) to engage in activities outside the group, and as the price of external activities rises, the demand for internal substitutes increases. To put the matter crudely: a comprehensive ban on dances, movies, gambling, drinking, and "worldly" friendships will turn Friday church socials into the highlight of one's week.

Cost-benefit analysis thus reveals why strict churches survive and flourish. Strictures mitigate free-rider problems. Potential members are forced to choose: participate fully or not at all. The seductive middle-ground is eliminated; average levels of commitment and participation

increase; and, strange as it may seem, many members come out ahead. Efficient religions may thus embrace stigma, self-sacrifice, and bizarre behavioral standards; and perfectly rational people can be drawn to decidedly unconventional groups. This conclusion is in extreme contrast with the view, prevalent among psychiatrists, clinical psychologists, and the media, that conversion to religious cults or sects is inherently pathological, the consequence of psychological abnormality or coercive "brainwashing."

The proposed model of cost-induced commitment leads to a formal theory of church and sect (Iannaccone 1988, 1992). By characterizing numerous religious demands as functionally equivalent solutions to free-rider problems, the model implicitly categorizes religions according to the extent to which they limit the consumption opportunities of their members. Groups that demand similar levels of sacrifice should display similar behavior despite differences in organization, history, and theology. Mainstream "churches" and extremist "sects" thus emerge as analytically distinct modes of religious organization rather than *ad hoc* descriptive categories, and the empirical correlates of sectarianism--strict behavioral standards, dramatic conversions, high levels of religious participation, resistance to social change, lower-class and minority appeal--emerge as formal consequences of a sectarian strategy. This single framework explains numerous empirical regularities that have fascinated religious scholars for most of a century.

Religious Portfolios

We have traced the consequences of religious risk down a lengthy path: from collective activities and congregational structures, to free-rider problems, to sacrifice and stigma, to a religious market equilibrium encompassing both low-cost "churches" and high-cost "sects."

There is, however, an alternative response to risk familiar to any market investor--*diversification*. One may reduce risk by spreading investments over a *portfolio* of assets.

To apply the portfolio concept to religious behavior, recall that many religious activities have the character of risky investments, sacrificing concrete resources for uncertain rewards. Note also that most people have access to a variety of different religions or different classes of religious acts within a single religious tradition. This situation gives religious "investors" a strong incentive to assemble *diversified portfolios of competing religious assets*. Such investors might hedge their religious bets by going to confession on Sunday, consulting a medium on Monday, and engaging in transcendental meditation on Wednesday.

Assumption #10: *Diversification can reduce the perceived risk associated with religious commodities.*

One is tempted to dismiss this line of thought as a case of economic logic pushed to the brink of absurdity. The typical American churchgoer is, after all, firmly wedded to a single religious tradition, a single denomination, and a single congregation. If the demand for diversification is as great as the preceding argument suggests, then why does not competition force churches to accommodate it? How do churches demand, and maintain, the sort of brand loyalty that secular producers only dream of?

The answer is that some religions *do* permit diversification, but these religions employ a very different "production technology" than that which characterizes standard American religion. The technology of religious production may be either "collective" or "private," and only the latter

lends itself to diversification.

Assumption #11: *Religious commodities may be either "collective" (benefitting groups) or "private" (benefitting individual consumers).⁹*

Most Western religions rely on collective, congregational production. In describing the risk-reducing advantages of the collective approach, I have emphasized that such religions must limit free-riding. Many do so through costly demands that effectively isolate members from competing groups. The demands can be sustained, despite competition from other religions, because the costs of exclusivity are for many people more than balanced by the gains from collective action. But exclusivity and diversification do not mix. A church cannot isolate its members and at the same time permit them to participate in competing groups--the two strategies are incompatible. Hence, congregationally-oriented religions can (and generally do) limit their members' involvement in competing religions. These limitations are most extensive in highly sectarian groups such as the Mormons, Jehovah's witnesses, Adventists, Krishnas, Moonies, and fundamentalist Christian denominations.

But not all religions are congregationally oriented. Some deal in "private commodities" analogous to standard consumer products. These private commodities can be transferred directly from an individual producer to an individual consumer without recourse to a mediating group. Most New Age products fall into this category--books, tapes, and seminars; herbs, crystals, and pyramids; and techniques for meditation. Production and distribution of these products are not hampered by free-rider problems. Hence the costly strategies described in the previous section--

exclusivity, sacrifice, and stigma--are not needed. Indeed, a producer of private commodities who employs these strategies will suffer a competitive disadvantage relative to other private-commodity producers, since the former imposes a cost upon his or her customers but can offer no special benefit in return. Religious firms that deal in private commodities are thus forced to sell their products "with no strings attached." It follows that their customers will patronize other firms so as to diversify their portfolio of religious assets. We may summarize the argument with a pair of propositions about the types of religious firms that can exist in equilibrium:

Prop. 1: *Wherever religious firms exist to provide private commodities, competitive forces and risk aversion will lead consumers to patronize multiple firms, thereby diversifying their religious portfolios.*

Prop. 2: *Wherever religious firms exist to facilitate the production of collective commodities, the firm and its patrons will demand exclusivity to mitigate the free-rider problems.*

Proposition 2 does not assert that a collective setting alters people's tastes. It is not their *desire* for a diversified portfolio that is diminished, only their *opportunity* to indulge that desire. In the absence of institutional constraints, people will yield to the temptation to free ride and to diversify, and this in turn will undermine the collective. Hence, only those firms that maintain sufficient exclusivity (by means of strictness, monitoring, and the like) can remain viable producers of collective commodities. The members' impulse to diversify will be accommodated only in a limited sense and *only within the individual firm*. It follows that these firms will be

under pressure to take a department store approach to religion--comprehensive belief systems, cradle to grave services, extensive and varied social networks, and so forth. In contrast, religious firms that produce private goods and services will be under no pressure to provide a full range of products. The forces of competition will, in fact, drive them to specialize, much as secular firms tend to specialize. Hence, private commodity firms over time will come to resemble highly specialized boutiques.

If propositions 1 and 2 are correct, then the degree to which a religious firm provides its customers/members with collective versus private goods should correlate with its tendency to make exclusive versus non-exclusive demands. The comprehensiveness of the firm's product line should also correlate. Even the content and financial strategies of the religion will be affected. Private religion will usually deal in specific goods and services, items that can be produced by one set of individuals and sold to another. Collective religion will deal in collective action and collective services--commodities that blur the line between producer and consumer and that do not lend themselves to buying and selling. The distinction between private and collective goods thus helps explain why some religions organize around client/practitioner or buyer/seller relationships whereas others organize as collectives in which all members are, to varying degrees, coworkers and co-consumers.

Empirical support for these predictions appears at many levels--within the United States, across the globe, and throughout history (Iannaccone, 1995b). Traditional Western religions, particularly their more sectarian variants, exemplify collective religion. In contrast, New Age religions exemplify what I am calling *private* religion. They are less susceptible to free-rider problems, but also less capable of generating commitment. They attract many "customers" but few real "members." Their practices center on client/practitioner relationships or fee-for-service transactions, and consumers tend not to form exclusive attachments to a single religion or religious firm. Monetary payments for services rendered tend to overshadow costly demands for an austere, deviant, or sacrificial lifestyle. Asian religions, in general, and Japanese Shintoism and Buddhism, in particular, exhibit similar features. Within the Greco-Roman Empire, Paganism manifested many, if not all, of the attributes of private, portfolio religions. In contrast, Early Christianity and Hellenistic Judaism were "classic" examples of exclusive, collective religions.

Religious Markets: Monopoly versus Competition

The preceding propositions about collective and private commodities concern the types of religious firms that can survive in a state of long-run equilibrium. But economic theory has much more to say about equilibrium, particularly as it relates to different market structures.

To account for the appearance of religious markets, it suffices to note that gains from trade and specialization exist in religion as in virtually all other areas of life. People differ in their underlying capacities to produce religious commodities, and even those with similar abilities and endowments can dramatically increase their productivity by forgoing self-sufficiency in exchange for specialized training and market exchange. Firms specializing in the production of religious

goods and services thus arise naturally and inevitably.

The simplest models of religious markets abstract from the special characteristics of religious commodities such as risk, human capital, and household production. Demand-side decisions then become a relatively simple matter of choosing the optimal level of religious consumption at the going price. Supply-side assumptions may be kept correspondingly simple.

Thus:

Assumption #12: *Churches are profit-maximizing firms specializing in the production of religious goods and services. Church workers are motivated by the same sort of self-interest that motivates secular workers.*

These are *by no means* the most realistic assumptions that one might adopt. I have chosen them over more "nuanced" formulations merely to keep the analysis tractable, thereby allowing the model to be judged against its formal predictions.

The concepts of religious supply and demand tap directly into a huge body of economic theory and data pertaining to markets, competition, and regulation. If church members act as utility-maximizing demanders and churches as profit-maximizing suppliers, then market forces constrain churches just as they do secular firms, and the benefits of religious competition, the burdens of monopoly, and the hazards of government regulation are as real as in any other sector of the economy. The market model thus predicts that pluralistic competition will stimulate religious markets just as it does secular markets, forcing suppliers to efficiently produce a wide range of alternative faiths well adapted to the specific needs of consumers. On the other hand, a

state-sponsored religious monopoly will provide only the appearance of piety--an ineffective clergy and an apathetic population lie just below the surface.

Beginning with Finke and Stark's (1988) analysis of church membership in turn-of-the-century American cities, evidence for "the market model" has piled up with surprising speed. Finke and Stark found higher rates of religious affiliation and activity in cities with higher rates of religious diversity. Hamberg and Pettersson (1994) document a similar pattern across the provinces of Sweden. My own study of religious participation in seventeen Western nations finds significantly higher rates of church attendance and religious belief in countries with more religious pluralism (Iannaccone 1991, cf., Chaves and Cann 1992). Stark and McCann's (1989) analysis of data from one hundred American Catholic dioceses finds a strong negative correlation between Catholic market share and the fraction of Catholics males entering the priesthood. Iannaccone and Finke (1993) document the importance of religious regulation in America, Europe, and Japan. Martin (1990:13) traces back the recent "explosion" of Protestantism to the elimination of state-established Catholic monopoly and "the general deregulation of religion" (cf., Gill 1992). The demise of the Communist Party's repressive secular monopoly has ushered in a similar explosion of old and new religious faiths in Eastern Europe and Russia.

Historical research provides further evidence of the weakness of monopoly faiths and the vigor that comes with competition. It is becoming clear that Europe's so-called "age of faith" was in fact an era of widespread religious apathy, and that American rates of church membership and religious practice rose steadily as the established churches of the original colonies gave way to a free and increasingly diverse market of competing denominations (Finke and Stark 1992). Econometric estimates by Kelly Olds (1994) document the increased demand for clergy that

followed the disestablishment of religion in colonial New England.

Conclusions

Rational models of religion have begun to make good on their promises--integrating predictions, providing new explanations for observed regularities, and generating new hypotheses to guide future empirical research. This essay has traced the rational choice approach from simple models of individual behavior, to arguments about religious groups, to generalizations about religious markets. At each step, I have emphasized the assumptions that give the approach its distinctive character and provide the conceptual basis for further research. At the same time, I have tried to highlight the interplay between theoretical analysis and empirical insights.

Continued progress depends on this interplay. Economists have much to offer in the way of theory, but other social scientists have generated virtually all the survey data, ethnographic research, and studies of textual material. Economic theorists cannot simply assemble models from the bits of information that others have unearthed; one needs a "feel" for religion to know what to retain and what to abstract. Sociologists of religion have an overwhelming comparative advantage when it comes to empirical insights of this sort.

The models described in this essay cry out for additional empirical work. Some has begun to appear (in recent tests of the relationship between pluralism and religious participation). But I fear that longstanding debates over secularization and pluralism threaten to crowd out more basic research. Despite the obvious importance of these and other "macro" debates, I would urge more attention to micro-level questions. Do people really perceive some religions as more costly or risky than others, and are these perceptions consistent enough to justify cost-benefit analyses? Do

individuals and organizations actually trade off between time and money when they "produce" religious commodities? How much time and money do people actually devote to religion, and how do these amounts vary across different groups? Do the consumers of "private" religion really hold religious portfolios? Do the producers of different types of religions finance their activities in systematically different ways? Until now, most rational choice research has made do with old data that happened to address the questions at hand. The rate of return to this research has proved high enough to justify investing in new empirical studies aimed squarely at the theory and its predictions. Traditional, psychologically-oriented scales of religious attitudes and behavior should be augmented by new measures of time and money, human capital, costs and benefits, collective versus private commodities, religious firms and their products, market competition, and religious regulation. The field is wide open, and any number can play.

Notes:

1. The standard undergraduate approach to economics left me cold--so much so that after repeatedly enrolling in introductory economics (and always quitting after the first few lectures), I abandoned the subject in favor of the far more interesting social science offerings in sociology, anthropology, psychology, and political science. It was only after receiving a Masters in mathematics at the University of Chicago and sampling graduate lectures by Gary Becker, Milton Friedman, and George Stigler that I decided to give economics a second try.
2. The rational choice approach may eventually give way to models that employ more complex assumptions about human behavior, but we are not likely to develop such models without first working out the strengths and weaknesses of rational choice. The rapidly growing body of research in "behavioral economics" and "behavioral finance" exemplifies this sequence (Thaler 1992).
3. For an impressive example of this balancing act, see Montgomery's (1994) rational choice model of denominational transformation.
4. Recent empirical research conclusively verifies both of these predictions. In survey after survey, income is by far the strongest single predictor of church contributions--richer people do give more. But the *share* of income given is only weakly (and somewhat negatively) related to income. Hence, the rich contribute a slightly smaller percentage of their income to religion.
5. The problem arises because theory fails to identify the objects of satisfaction in any given model. Azzi and Eherenberg's (1975) model of religious participation, which posited "afterlife consumption" as the principle motivation for church attendance, illustrates this problem. Their failure to take account of sociological research on the empirical determinants of church attendance seriously weakens an otherwise ingenious application of household production theory.
6. The mathematical model is identical in either case. Elsewhere, I used the same model to analyze habit formation (Iannaccone 1986), and Becker and Murphy (1990) extended the model in their theory of "rational addiction."
7. The following discussion draws heavily from Iannaccone (1992 and forthcoming).
8. These observations parallel longstanding insights into the sociology of religion, such as Durkheim's (1965: 62) definition of religion as a collective phenomenon based on group rituals and shared meanings, and Berger's (1969:46) claim that a religion cannot remain plausible unless it is embedded within a community that shares and reinforces its worldview.
9. Here and throughout the paper, I adopt the standard economic definitions of the terms "private" and "collective." A commodity is said to be "private" if its benefits can be limited to a single individual or select group of individuals and if its use by that one person (or select group)

precludes use by others. Most standard goods and services fall into this category--meals, haircuts, the use of a car, and so forth. A commodity is said to be "collective," "public," or "quasi-public" if it naturally benefits an entire group or population and if its use or consumption by one member of that group does not preclude its use by other members. Common examples include fire protection, national defense, public parks, and TV transmissions.

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