Product Variety in Religious Markets

Brooks B. Hull
University of Michigan-Dearborn

Frederick Bold
University of Nevada, Las Vegas

Abstract   This paper analyzes the relationship between religious market product variety and church membership. We find that denominational variety is negatively associated with the total level of church membership in U.S. counties. This result appears to contradict the standard religious product variety model. Our data are consistent with a more general view of markets that incorporates the cost to consumers of product variety. Where product variety has significant costs, an increase in variety may reduce total market penetration. The paper suggests market characteristics that might give rise to this situation, characteristics present in the religion market.

Keywords: religion, church, product variety, concentration

INTRODUCTION

In ordinary markets, an increase in the variety of products results in an increase in total market sales, *ceteris paribus*. A number of researchers have begun analyzing the "religion" market treating churches or denominations as firms operating in ordinary markets. Does a greater variety of denominational choice in a religious market lead to larger total church membership? Are religious markets ordinary?

This paper suggests that religious markets are not ordinary markets. A consumer in a religion market faces significant costs if religions with incompatible doctrines are in the market. If the cost to a consumer of inconsistent doctrines exceeds the benefit of denominational variety, regions with greater denominational variety will have lower total church membership. As an important extension, consumers in some non-religious markets may also experience substantial costs of product variety. Not all markets are ordinary.

We first outline the standard economic model of product variety and its application to religious markets. The standard theory is a natural extension of Lancaster's (1975, 1979) analysis of product variety. The theory is plausible for religious markets. However, the empirical evidence from religious markets supporting the theory is not completely convincing.

In the subsequent section, we present an alternative view that more accurately describes the unique character of religious markets. This view emphasizes the role of uncertainty and commitment costs in selecting a religion. The fourth section examines data on the number of church adherents by U.S. county. We find that denominational concentration is positively associated with the total level of church membership. The final section summarizes results and suggests applications to other markets.

THE STANDARD PRODUCT VARIETY MODEL

The role of product variety in markets was first comprehensively explored by Kelvin Lancaster (1975, 1979). In Lancaster's formulation, people have differing preferences for product characteristics within a product family or industry. Given some degree of economies of scale, a monopoly protected by entry restrictions produces a limited variety of products and limits total industry output. If entry is permitted, both product variety and total output in the industry increase. Removing restrictions on entry increases product variety as new firms enter the market. Since consumers have a greater choice of products at lower prices, total sales in the industry increase. The natural extension of Lancaster's work is the idea that as product variety in an industry increases, total market sales also increase, holding price and other factors constant.

That religion might be amenable to this sort of market analysis is not a new notion. A model of religious market structure first appears in Adam Smith's *The Wealth of Nations* (1979 [1776]). Smith treats churches as firms participating in a market for religion. As such, churches are motivated and challenged in the same way as ordinary firms. Smith contrasts an established church—a state-funded and protected monopoly—with disestablished competing churches supported by member donations. Because they survive on voluntary contributions, successful disestablished churches are compelled to behave in a way that is attractive to members. Smith then predicts disestablished competing churches will have greater total membership than an established church. Posner (1987) resurrects this argument and draws related conclusions. Recent research by Hamberg and Pettersen (1994) tests and confirms Smith's prediction using contemporary Swedish data. Stark and Iannaccone (1994) use European data to support the theory. Although they do not quite use Lancaster's theory, these researchers

demonstrate clearly the value of economic analysis in explaining aspects of religious market conduct. In fact, a substantial body of work applies economic models to religious activity other than just market structure and conduct (for one survey, see Iannaccone and Hull 1991).

Iannaccone (1991) makes the first explicit application of a Lancaster-like product variety model to religious markets. He presents survey data from a number of Western European countries showing that the degree of religious commitment and membership among Protestants increases as the concentration ratio of denominations in a country falls. Although Iannaccone appeals to Smith's comparison of established and non-established churches, the data analysis is consistent with the Lancaster product variety approach. Work by Stark, Finke, and Iannaccone (1995) further supports the product variety theory using mid-1800s data from England and Wales. Zaleski and Zech's (1995) data on member contributions to 179 U.S. congregations in three Protestant denominations and the Catholic church also appeals to the product variety model. There thus seems to be substantial support for a Lancaster-like product variety model applied to religious markets.

This was the starting point for our research. Having been exposed to the standard model, we were sympathetic to its implications. We planned a straightforward application of the model to a massive survey conducted by the Glenmary Research Center which compiles 1980 membership data for one hundred eleven Judeo-Christian denominations in each of the roughly 3,100 counties in the United States. Here apparently was an ideal opportunity to reconfirm the standard product variety prediction. The data are ideally suited. The United States religious market is arguably the most competitive and has a long constitutionally based tradition of independence from government involvement. As such, potential problems inherent in comparing religions across countries with different cultures and government policies are eliminated. The county level data allows comparisons based on local markets, an appealing scale for individual denominational choice.

The results of our preliminary analysis were frustrating. Instead of a positive relationship between denominational variety and total membership, the relationship was significantly negative. Believing that our result must simply be due to variables omitted from the regression equation, we incorporated various plausible demographic variables from Census Bureau data. While the explanatory value of the regression equations improved, the key result remained contrary to the standard theory. In the United States, denominational variety is *negatively* associated with total church membership at the county level.

A more careful reexamination of the standard product variety model and the evidence extant supporting its application to religious markets proved

3

enlightening. First, as mentioned earlier, two distinct models and lines of evidence emerged. The first follows Smith's insight about established and disestablished churches. Here the data strongly support the theory, Hamberg and Pettersen's (1994) and Stark and Iannaccone's (1994) work being examples. These results are important but not applicable to the United States, whose churches have long been disestablished.

The second model and strand of evidence concerning the relationship between denominational variety and total church membership is relevant to the U.S. situation and seems to show a positive relationship between total membership and denominational variety. However, closer examination of this research often reveals significant unresolved issues. Iannaccone, for example, acknowledges problems with his European religion data and results arising from the high concentration and high church membership in the predominately Catholic nations in Europe. This fact contradicts the product variety prediction. So serious is the problem that Iannaccone treats Catholics separately in his regressions. Further, Catholics respond in the regression results in a manner inconsistent with the standard prediction. Iannaccone's analysis also does not address the difference between established church monopolies (mainly Scandinavian Protestant countries) and highly concentrated religious markets that do not have an established church (several Catholic countries). Subsequent research by Chaves and Cann (1992) addresses these issues and shows that government support and regulation of religion better explains the variation in total church membership in Western European nations than does religious market concentration (although the index of government support and regulation is somewhat arbitrarily constructed). Importantly, Chaves and Cann's result is consistent with Smith's original prediction that state support is a key predictor of total membership.

Similarly, Stark, Finke, and Iannaccone in their England and Wales data must also exclude Catholics from their measure of denominational variety in order to achieve the standard product variety model's predicted result. Zaleski and Zech run separate regressions and report different results for Catholic and Protestant churches. Note also that Zaleski and Zech's independent variable is church member contributions. Contributions are a valuable measure of member commitment, but do not measure market penetration.

Further investigation outside the economics literature revealed other researchers who had tested versions of the religious market model. An exchange between Brealt (1989a, 1989b) and Finke and Stark (1989) in the *American Sociological Review* is an illustration. Using the Glenmary data, albeit without additional demographic variables, Brealt finds a significant negative relationship between denominational variety and church membership, contradicting Finke and Stark's (1988) analysis of 1906 U.S. census data for 150 cities. Brealt notes that Finke

4

and Stark obtain their result by treating Catholics separately. Finke and Stark reply in part that Brealt's result is invalid because it does *not* control for Catholics (and Mormons). The debate in the sociology literature includes other papers as well and addresses a variety of issues not applicable to our work here, including whether or not religion should even be treated as a market and whether there is a trend toward secularization in Europe and the United States. See, for example, Bruce (1992), Chaves (1995), Finke and Stark (1992), and Stark (1992, 1994).

The key conclusion from a review of the existing evidence supporting the standard market model is that the standard model's predictions about behavior in religious markets obtain only when those observations which do not support the theory are excluded or treated separately. The early statistical results that so puzzled us were not anomalous at all. Of course, the authors who choose this approach present arguments for doing so. On grounds of methodology, however, we could not. It seemed to us that the theory needed to be comprehensive enough to embrace all of the data.

Of necessity, we returned to the economics literature on product variety. Surprisingly, in a review of the literature we could find no formal prediction of a positive relationship between product variety and total market penetration. Lancaster and others deal with the differences between monopoly and competition in product variety or with the question of whether competitive markets provide the optimal degree of product variety. No implications about market penetration emerge from these analyses.

To summarize, Adam Smith's application of economic theory to the religion market is both plausible and strongly supported empirically. Competing disestablished churches have greater total membership than an established monopoly church. Lancaster's product variety model is also plausible, but the empirical evidence is consistent with the theory only when Catholics (the largest single denomination) are treated separately. Finally, the commonly accepted notion that product variety and total market penetration are positively related is not explicitly supported by a formal theory.

ALTERNATIVE MODEL

People are also getting mighty tired of the endlessly escalating, extremely confusing war of the pain relievers. At one time, years ago, there was just aspirin, which was basically for headaches; now, there are dozens of products, every single one of which seems to be telling you that, not only is it more EFFECTIVE than the other ones, but also the other ones could cause a variety of harmful side effects such as death. It seems safer to just live with the headache.

(Barry 1997)

5

Modeling a church as a firm is a useful approach that yields a number of testable implications. However, even as a firm, a church produces a unique set of products in a unique manner, as we show in other work (Hull and Bold 1989). Modeling aspects of church products that are unique can in turn generate nonobvious implications about religious markets.

An individual church offers some mix of attributes defining doctrine and other church products given the attribute mix offered by other churches. Market entry occurs so long as expected revenue exceeds expected opportunity cost. Some economies of scale in production or fixed costs of entry are present so that the competitive equilibrium number of churches is finite.

A church might enter a market even if doing so reduces total market sales—a possibility that we explain below. Such entry can occur so long as average revenue per church exceeds average cost per church, and this can happen even when industry total revenue is falling (i.e., when industry marginal church revenue is negative). Competitive entry into formerly monopolized markets, congested roads, and the overexploitation of common-property resources such as fisheries are examples of situations with similar characteristics.

Declining total market sales can result from an important special characteristic of religious markets ignored by Smith and most subsequent researchers. For religion, church members may benefit from *reducing* the variety of products. Lancaster acknowledges this possibility by recognizing that his product variety model "abstracts from such problems as search and information costs, and disutilities of uncertainty or consumer confusion in the face of variety" (1975: 567). In sufficient strength, such a tendency would result in competitive forces reducing total market output. This possibility is also recognized by Scherer and Ross:

> Variety is not always a good thing. Wholly apart from the cost savings attainable through longer production runs, there are cases in which standardization serves consumers better than diversity. The adoption of common technical standards for records and compact discs, so that any product can be played on any manufacturer's audio equipment, is one example.
>
> (Scherer and Ross 1990: 607)

Perhaps the standard product variety model needs to be revised and extended to incorporate explicitly the potential costs to the consumer of product variety, especially in religious markets. Certainly consumers gain utility from a particular mix of church attributes (doctrine). Importantly, and unlike Lancaster, consumer cost might also be affected by the presence of other churches and their doctrines. The increase in cost as the number of competing churches increases can have several causes. We suggest that there are at least four ways by which product

6

variety in religious markets increases consumer costs:

Uncertainty: Conflicting doctrinal messages tend to reduce the plausibility of any particular doctrine. For example, all claims about the afterlife are less plausible when members are aware that different churches have different claims, especially since these claims can be mutually exclusive. One church's doctrine might permit or even encourage behavior that is prohibited by another church. As the number of denominations increases so does the uncertainty about the claims of all of them.

Commitment: The decision to adopt a particular religion requires significant investment in religious "human capital" (Iannaccone 1990), making a future change in religious affiliation particularly costly. This commitment cost increases the loss associated with an incorrect decision. Further, an incorrect decision might be very costly indeed, involving eternal damnation and forgone eternal bliss long after the "product" is purchased.

Search: Increased product variety in religions may also increase a consumer's search costs if the individual believes that there are significant negative consequences for selecting the "wrong" religion. For example, if the consumer believes that eternal salvation depends on selecting the single right or best religion, the consumer will devote more care, time, and resources to the search process. A possible consequence is that the consumer may select none of the available religions for fear of making the wrong choice and instead decide on an independent "personal" religion, delay making a religious choice, or choose no religion at all. This approach to search differs from the general thrust of the substantial literature on search in which an increase in the number of firms does not harm consumers. The seminal work is by Stigler (1961). Contemporary contributions include Chou and Talmain (1993), Fershtman and Fishman (1992), Greenwald and Stiglitz (1988), and Wilde (1992). According to this literature, an individual can always choose a minimum search, ignoring additional available options. Additional options may cause an individual to engage in additional search, but such search cannot make the individual less likely to purchase a product at all. The preceding applies, however, only so long as there is no cost to making an incorrect decision. In the case of religion, the usual search model result may not apply because the cost of an incorrect decision can be substantial.

Some information about religions might be available at zero cost given that people often gain information incidentally from friends, schools, newspapers, and as a result of marketing efforts by the churches themselves. Part of this information may have a negative cast to it as when one denomination portrays another unfavorably. In some cases one church may condemn another and threaten sanctions against individuals who might consider other religions. As an example of the latter, official Catholic doctrine held until recently that all

7

Protestants were automatically condemned to hell (doubtless causing some young Catholics to raise the question, "What is a Protestant?"). The belief that Jews sacrificed Christian children was widespread in Medieval Europe (Cohn 1967). Regardless of its accuracy, such low-cost information highlights the presence and conflicting doctrines of other churches. Further, the early stage of a costly search might include gathering low-cost information about the number of alternatives available for searching. Alternatively, as a costly search proceeds, an individual might receive increasingly contradictory information. The point is that information about the number of alternatives is available to individuals and the information affects individuals' budget constraints.

Membership: Church members may benefit in various ways from an increased number of members. Association with other people as well as the positive aspects of communal worship are examples. This latter is of obvious importance and is termed "participatory crowding" by Iannaccone (1992). A closely related concept is "network externality" where the value of a product depends on the number of people using the product or on the number of complementary products in the market. A presentation of the latter is in Katz and Shapiro (1992). To the extent that an increase in the number of churches reduces average church membership and interpersonal association, a cost is imposed on existing members as the number of churches increases.

The key observation here is that the nature of product variety may be different in the religion market than in ordinary markets. In most markets, variety occurs over product characteristics where uncertainty or commitment costs are insignificant. Shoes, for example, are available from a number of manufacturers in an incredible variety of shapes and colors. The decision to purchase a particular pair of shoes, however, involves little uncertainty. A consumer can see the color of the shoes and try on the shoes before purchase. Any remaining uncertainty is minimized because the shoes customarily can be returned after purchase. Further, purchase of a given pair of shoes does not preclude purchase of other pairs—in the present or the future—nor does it increase the cost of purchasing other pairs. In this type of market, consumers see little or no cost to product variety, and we expect that the usual Lancaster-type prediction should obtain. An increase in product variety will increase total market penetration. By contrast, in the market for religion the presence of negative as well as positive aspects of product variety implies that there is a potential for the Lancaster-type prediction to be reversed. Here an increase in product variety may reduce total market penetration.

Our model retains Lancaster's view of consumer behavior. A consumer chooses to become a member of a church at a threshold level of utility where the benefit of membership exceeds the cost. If so, the person becomes a member of the "closest" church in terms of the person's preferred doctrinal mix. The

threshold is different for different people, so that there is a probability or proportion function of people who join at given distances from the most desired doctrinal mix. As they are closer to a given doctrinal mix, a larger fraction of people join.

Again following Lancaster, individuals prefer additional denominations because additional denominations mean a consumer's chosen denomination moves "closer" to the consumer's ideal denomination type. Alternatively, the number of denominations might affect utility indirectly through the bundle of church goods offered. Product characteristic spaces are filled as new denominations enter. This positive relationship between the number of denominations and utility is consistent with the usual market models where consumers prefer greater product variety.

Our model extends Lancaster's approach by allowing the number of denominations to affect a consumer's budget constraint. In particular, as the number of denominations increases, uncertainty, commitment, and search costs increase. A consumer is aware of these alternative denominations because we assume that some level of information is available at zero or very low cost.

For individuals who are indifferent between being members and non-members, the net utility from membership equals the net utility from non-membership. If the cost to marginal church members of an additional denomination exceeds the benefit of an additional denomination, an increase in the number of denominations will cause marginal members to become non-members and so reduce the total number of church members. The model cannot determine *a priori* whether an increase in the number of denominations necessarily increases or decreases total church membership, and we would not expect the model to do so. Nevertheless, the costs of product variety in the religion market might indeed be substantial, possibly substantial enough to overcome the benefits of denominational variety.

As is clear from the earlier discussion, the cost of product variety in religious markets is greater than in any number of "ordinary" markets. Religions commonly require of members significant long-term commitments of time and money. These commitments are lost if a person changes religion. Furthermore, a correct decision may imply eternal reward and an incorrect decision eternal punishment, extremes in outcomes not present in ordinary markets and again resulting in high uncertainty costs. Also, these afterlife outcomes only occur well after the decision to adopt a religion is made. The decision to choose a denomination is irreversible after some point. If there is any market where the net effect of product variety is negative, it is the religion market.

While the number of denominations is exogenous to an individual, the equilibrium denominational variety in an unregulated market is influenced by the

underlying distribution of individual preferences, population density, and other factors including church cost functions. If individuals in a market have very similar preferences, denominational variety will be low, even without external market restrictions. We largely abstract from the issue of the distribution of preferences in our model, as well as the issue of which particular set of denominations is chosen within a community. Nevertheless, for a given distribution of preferences, as population in an area increases, the market can support more churches and religious market concentration will fall. If at the same time, the costs of increased variety outweigh the benefits, then total membership or total membership as a share of population will decline.

The preceding also suggests that there may be a tendency for significant religious market concentration at the local level where the total population is small. New denominations can enter a local market only when the population is great enough to allow the new denomination to succeed in the face of a decline in overall membership due to the entry of the new denomination.

The cost of product variety serves to protect current producers from the threat of new entry by making new entry more difficult in a manner similar to the way economies of scale makes subsequent entry more difficult. As long as the costs of local denominational variety are more important to the consumer than national denominational variety, market concentration at the local level can be high even if national concentration is low. A similar phenomenon occurs in markets for newspapers, which tend to be locally or regionally concentrated but unconcentrated using national aggregate market shares.

A final insight is that the average level of religious commitment by church members can rise even if an increase in the number of denominations causes a fall in total membership. The level of utility (commitment) varies across members. As an increase in the number of denominations reduces membership in a given church, it is the marginal members who leave the church. Therefore, the remaining members are more committed, on average. Zaleski and Zech's (1995) regressions show that member contributions as a percentage of income increase as the number of members in a given church falls. Such a result is consistent with our model and could apply even with falling levels of total membership.

DATA AND TESTS

In this section we discuss the data and structure of the regressions used to examine the relationship between religious affiliation and denominational concentration. Data used are for virtually all of the 3,137 counties in the United States. Church membership data for 111 Judeo-Christian denominations come from *Churches and Church Membership in the U.S., 1980*, compiled by Glenmary Research

Center. Other data come from the *County and City Data Book* (1983 edition).

The dependent variable, the level of religious affiliation for each county, is based on the reported number of "adherents" for all denominations per thousand people in the county. The primary independent variable of interest is a standard Herfindahl index of denominational concentration, the sum of the squared market shares of denominations in the county. If the standard product variety model is correct, the coefficient for this variable should be positive because the model maintains that there is a negative relation between concentration and market penetration. If the costs of variety are greater than the benefits, the coefficient for the concentration variable will be positive. Also of interest is the effect of population density on market penetration. The alternative model predicts a negative relationship between these two variables since, as the population within a market area increases, more denominations should enter and the membership proportion should decline, other things equal.

We include additional demographic variables to control for other factors that will affect the proportion of the population affiliated with a religion. Community stability should positively affect church membership. This is proxied with the percentage of the population that are new residents in the last five years, the inverse of stability. As people age, they might become more concerned about the afterlife, might have made a decision about a religion, and might have more time to devote to religion, suggesting a positive relationship between the median age and church membership. Included also are the unemployment rate, income, and education level. These factors have a generally recognized association with the level of church membership. Regressions with a variety of other independent variables had no material effect on the key results.

The first column of Table 1 summarizes the basic regression result. The positive coefficient for the concentration variable (HERFINDAHL) is clearly at odds with the standard product variety model and consistent with the alternative model presented here. Also consistent with the alternative model, population density is negatively related to church membership. For the other variables, community (in)stability (NEW RESIDENTS), unemployment, and income are negatively related to church membership, while age and education are positively related. Although not shown in Table 1, we also estimate the equations replacing the Herfindahl index with a simple count of denominations. The results were again consistent with the alternative model. The number of denominations (a measure of market diversity) was negatively related to total church membership.

A possible criticism of using the entire sample of counties is that low church membership may be mainly a function of the unique character of urban areas not captured by our measure of population density. If so, the Herfindahl index would simply be a proxy for urban population. We therefore repeated the basic

TABLE 1: Church Market Structure Regressions

	All Counties	Urban Counties	Rural Counties	Non-Black Counties
constant	6381	12403	4724	7162
HERFINDAHL	**1814**	**1456**	**1781**	**3176**
POP DENSITY	−0.051	−0.027[b]	−9.74	−1.351[a]
NEW RESIDENTS	−73.9	−63.3	−97.9	−106
UNEMPLOYED	−194	−307	−148	−185
AGE	58.0	−39.6[b]	90.5	30.2
INCOME	−0.224	−0.232	−0.017[b]	0.010[b]
EDUCATION	19.0	−19.0[b]	14.7[a]	15.4
R^2 adjusted	0.300	0.395	0.318	0.402
n	3099	337	1181	1498
p	0.000	0.000	0.000	0.000

Notes:
Includes all denominations
Dependent variable is ADHERENTS
All coefficients are statistically significant at 0.01 except where noted.
[a] Significant at 0.05.
[b] Not statistically significant.

regressions with urban and rural subsets of the data. The urban subset is for counties with 75 percent or more of the population defined by the census bureau as urban. The rural subset is for counties with 25 percent or less of the population defined as urban. The coefficient for the Herfindahl index remains significantly positive. The population density variable coefficients lose statistical significance for the urban counties. This is not surprising, since the urban counties already have high population density, representing roughly the top 10 percent of counties in terms of population density (n = 337). Coefficients for the new residents and unemployment variables remain negative and significant. Coefficients for the other independent variables are not consistently significant.

A final concern is that, as Stark (1987) shows, the Glenmary data underreport membership in predominantly African–American denominations. To address this potential problem, we estimate equations for a subset of the data that includes only counties where the proportion of African Americans in the population is less than or equal to 1 percent. The Herfindahl index coefficient remains significantly positive and, interestingly, is even larger than for the other regressions. As with the urban and rural regressions, coefficients for the new residents and unemployment variables remain negative and significant. Coefficients for the other independent variables are not consistently significant. Examination of the data

12

showed no compelling evidence of heteroscedasticity. Nevertheless, we ran regressions using weighted least squares. The key results were unaffected and are not shown here. Regression results with nonlinear specifications were also not materially different.

CONCLUSION

Using U.S. data for one hundred eleven Jewish, Catholic, and Protestant denominations in roughly 3,100 counties we find significant evidence that denominational concentration and religious affiliation are positively related. This result holds for a variety of subgroups of the population. We suggest that the explanation for this finding is that there is a negative effect of denominational variety on total religious affiliation. In particular, conflicting doctrines cause an increase in uncertainty, commitment, search, and membership costs. Most importantly, increased doctrinal variety leads to a diminished strength of belief that any single doctrine is correct. Further, the regression results show that increases in population result in lower membership as a proportion of population. Although this result is less strongly supported with the data, it is consistent with the model.

Our results stand in contrast to those of Iannaccone, Finke, and Stark by showing a negative relationship between denominational concentration and the total number of religious adherents. What explains this apparent contradiction between our results and those of other researchers?

We suggest the contradiction is due first to confusion between Smith's insight about established and disestablished churches and with the standard product variety model. Second, the standard product variety model proves to be too narrow to apply to markets, like religion, where product variety can have significant costs. Referring to the first issue, our discussion shows that some empirical results reported by other authors, Iannaccone (1991) in particular, appeal to the product variety theory but are in fact comparing established state-supported churches to competing disestablished churches. Here the empirical results are consistent with Hamberg and Pettersen (1994) and Adam Smith's analysis of established and competing disestablished churches where competing disestablished churches have greater total membership than an established church due to the pressure on competing disestablished churches to attract members and donations. No contradiction of our model is implied because the theories address different situations.

Referring to the second issue, note again that researchers presenting evidence of a Lancaster-like religious product variety model omit or treat Catholics separately. In other words, other researchers assert that the usual product variety

13

result occurs among Protestant denominations but not between Protestants and Catholics. By the same argument, Jewish denominations ought to be treated separately as well. The least degree of product variety occurs among Protestant denominations. It is possible that the benefits of this limited degree of variety outweigh the costs of the variety. Thus, among Protestant denominations, it is perhaps reasonable to expect the usual product variety result.

Addressing this issue, we repeated our regressions with the dependent variable being the membership share of the population attributable to Protestant denominations. The Herfindahl index was recalculated to include Protestant denominational shares only. Table 2 summarizes these regressions.

The results are nearly identical to those in Table 1 which include Jewish denominations and Catholics. While one might suspect that the standard product variety market model applies within the Protestant submarket, in the United States it does not. The costs of variety among the Protestant denominations apparently overwhelm any benefits from variety among them.

We should emphasize, however, that restricting the sample to Protestants is not appropriate in our model, regardless of the fact that the restriction does not change the statistical results. Moreover, treating Protestants as a separate and distinct market because individuals are more likely to substitute between Protestant

TABLE 2: Church Market Structure Regressions

	All Counties	Urban Counties	Rural Counties	Non-Black Counties
constant	−579[a]	−283[a]	382[a]	−305[a]
HERFINDAHL (PR)	**1811**	**3992**	**693.5**	**2748**
POP DENSITY	−0.066	−0.011[a]	−6.67	−2.84
NEW RESIDENTS	−63.9	−31.7	−94.2	−95.6
UNEMPLOYED	−109	−71.4	−84.4	−114
AGE	89.1	−11.8[a]	81.9	64.9
INCOME	−0.35	−0.263	−0.002[a]	0.076[a]
EDUCATION	77.5	−67.5	63.2	71.6
R^2 adjusted	0.322	0.329	0.348	0.405
n	3094	337	1176	1493
p	0.000	0.000	0.000	0.000

Notes:
Includes Protestant denominations
Dependent variable is PROTESTANT ADHERENTS
All coefficients are statistically significant at 0.01 except where noted.
[a] Not statistically significant.

denominations than between Protestant and Jewish denominations and the Catholic church is questionable and arbitrary even within the context of the standard product variety model. It is as if Protestant religions offer variety, but non-Protestant religions offer too much variety.

However, in terms of the costs of religious product variety, it is clearly appropriate to include non-Protestants, not because they are viewed as viable substitute choices, but because these religions can increase the costs of product variety. In particular, they represent conflicting doctrines that might reduce the plausibility of any given doctrine. People who would never consider becoming Catholic might face increased uncertainty about their Protestant denomination in the presence of a strong local Catholic church. The argument applies as well to the idea of using a separate variable for Catholics in the regressions. The model appropriately should aggregate all denominations. In fact, it is unfortunate that we have no data for the small fraction of Americans who are members of non-Judeo-Christian religions. Nevertheless, to the extent possible, our statistical analysis accounts for the full range of product variety in the U.S. religion market.

But is religion unique? Might not other markets face similar costs of product variety? One interesting insight in thinking about variety in the religion market is that doing so highlights the degree of product similarity within most markets. Our attention as economists often tends to focus on the enormous variety of products available in modern competitive markets, not on the forces that minimize differences. Much of the impetus for minimizing differences comes from the familiar pressures of competition on producers to find ever better solutions to the problem of meeting consumer wants. This pressure, combined with the options and limitations imposed by existing technology, frequently guides producers to the same or similar solutions.

Other reductions in variety are the result of more deliberate decisions. In particular, product standardization is so widespread as to be nearly pervasive in our economy. Standardization often involves eliminating variety across some set of product attributes so that products from competing producers can be used conveniently with complementary products. Household appliances, for example, are manufactured by a number of competing firms in any number of styles. However, they all come in a small number of matching colors, standardized across competing manufacturers and across different products (such as stoves, refrigerators, counter tops, and toasters). Similarly, no two lamp models look alike, but they all use the same outlet plug and one of a few standardized bulb socket types. It is fair to say that firms in most well-established markets recognize the benefits of product standardization along some product dimensions and take action to capture these benefits. Several government and private standard-setting organizations such as the U.S. Bureau of Standards, ANSI, and Underwriter's

Laboratory exist in large part to foster standardization. Other examples abound. The point cannot be emphasized too much. Most of what we treat as product variety is variety within a standardized environment. Much attention is given to the variety. Relatively little mention is given to the standardization.

The issue of standardization emerges under a different guise in the network externality literature. Here researchers attempt to model a market where consumers gain when other consumers purchase the same product or where a given product is more valuable when complementary products are also available. In both of these cases, competitive markets are shown to be capable of producing suboptimal results (Church and Gandal 1992; Katz and Shapiro 1992). That is, competitive markets can provide excessive product variety when network externalities are important.

Further, firms in less well-established markets can be seen trying to create standards, including *de facto* standards. The market for personal computers was growing modestly until IBM introduced the PC, a model that was easily imitated and had the ability to use standardized components and accessories. Subsequent competition between manufacturers caused prices to plummet and the market to expand dramatically, but the competition occurred within the standardized PC design. The failure of non-PC Apple Macintosh and Apple II to maintain market share is consistent here. Few contemporary computer users are even aware of the early non-standardized computers such as Tandy, Wang, Amiga, and various CP/M systems.

While differences in religions are apparent, so too is the considerable degree to which religions are similar. This is particularly true of mainstream Protestant denominations, most of which now teach tolerance toward other denominations. The worldwide historic success of the Catholic church may be due to its willingness to allow fairly substantial local variation on a standardized doctrine. Periodic ecumenical movements in the U.S. can be interpreted as efforts at standardization. The Ten Commandments, shared by Judeo-Christians, are a clear instance of attribute similarity.

Despite these efforts, however, the religion market is unlikely ever to achieve the sort of standardization that occurs in other competitive markets. As discussed, the essential characteristics of religion involve substantial uncertainty and commitment costs. Efforts by ecumenicists may have reduced these costs (among mainstream Protestants) but no amount of effort has or likely will reduce these costs sufficiently to make the religion market an ordinary market. The regressions in Table 2 reinforce this assertion within the Protestant submarket in the United States.

We conclude, therefore, that not all markets are ordinary, and that the religion market is least likely of all to be ordinary. In ordinary markets, competition occurs within a framework where key product characteristics are uniform across

manufacturers or where such attribute uniformity is unimportant. In these markets, increases in product variety result in increases in total market penetration, the usual result. In other markets, the religion market being an outstanding example, key product characteristics are not identical and product variety increases costs, especially uncertainty, commitment, and search costs to such an extent that competitive markets cause a reduction in total market penetration.

ACKNOWLEDGMENTS

REFERENCES

Barry, Dave (1997) "Mr. Whipple, Please Don't Squeeze Again," *Detroit Free Press* February 9: E 5.

Breault, Kevin D. (1989a) "A Reexamination of the Relationship Between Religious Diversity and Religious Adherents," *American Sociological Review* 54 (December): 1056–1059.

——— (1989b) "New Evidence on Religious Pluralism, Urbanism, and Religious Participation," *American Sociological Review* 54 (December): 1048–1053.

Bruce, Steve (1992) *Religion and Modernization,* Oxford: Clarendon Press.

Chaves, Mark (1995) "On the Rational Choice Approach to Religion," *Journal for the Scientific Study of Religion,* 34 (March): 98–104.

Chaves, Mark and Cann, David E. (1992) "Regulation, Pluralism, and Religious Market Structure," *Rationality and Society* 4 (July): 272–290.

Chou, Chien-fu and Talmain, Gabriel (1993) "Nonparametric Search," *Journal of Economic Dynamics and Control* 17 (September/November): 771–784.

Church, Jeffrey and Gandal, Neil (1992) "Network Effects, Software Provision, and Standardization," *Journal of Industrial Economics* 40 (March): 85–103.

Cohn, Norman (1967) *Warrant for Genocide,* London: Eyre and Spottiswoode.

Fershtman, Chaim and Fishman, Arthur (1992) "Price Cycles and Booms: Dynamic Search Equilibrium," *American Economic Review* 82 (December): 1221–1233.

Finke, Roger and Stark, Rodney (1988) "Religious Economies and Sacred Canopies: Religious Mobilization in American Cities, 1906," *American Sociological Review* 53 (February): 41–49.

——— (1989) "Evaluating Evidence: Religious Economies and Sacred Canopies,"

American Sociological Review 54 (December): 1054–1056.

———— (1992) *The Churching of America, 1776–1990; Winners and Losers in Our Religious Economy*, New Brunswick, NJ: Rutgers University Press.

Glenmary Research Center (1982) *Churches and Church Membership in the United States 1980*, Atlanta: Glenmary Research Center.

Greenwald, Bruce and Stiglitz, Joseph E. (1988) "Pareto Inefficiency of Market Economies: Search and Efficiency Wage Models," *American Economic Review* 78 (May): 351–355.

Hamberg, Eva M. and Pettersen, Thorleif (1994) "The Religious Market: Denominational Competition and Religious Participation in Contemporary Sweden," *Journal for the Scientific Study of Religion* 33 (September): 205–216.

Hull, Brooks B. and Bold, Frederick (1989) "Towards an Economic Theory of the Church," *International Journal of Social Economics* 16: 5–15.

Iannaccone, Laurence R. (1990) "Religious Participation: A Human Capital Approach," *Journal for the Scientific Study of Religion* 29 (September): 297–314.

———— (1991) "The Consequences of Religious Market Structure: Adam Smith and the Economics of Religion," *Rationality and Society* 3 (April): 156–177.

———— (1992) "Sacrifice and Stigma: Reducing Free Riding in Cults, Communes, and Other Collectives," *Journal of Political Economy* 100 (April): 271–292.

Iannaccone, Laurence R. and Hull, Brooks B. (1991) "The Economics of Religion: A Survey of Recent Work," *ACE Bulletin*, Issue no. 18 (Fall): 7–13.

Katz, Michael and Shapiro, Carl (1992) "Product Introduction with Network Externalities," *Journal of Industrial Economics* 40 (March): 55–83.

Lancaster, Kelvin J. (1975) "Socially Optimal Product Differentiation," *American Economic Review* 65 (September): 567–585.

———— (1979) *Variety, Equity, and Efficiency*, New York: Columbia University Press.

Posner, Richard A. (1987) "The Law and Economics Movement," *American Economic Review* 77 (May): 1–13.

Scherer, F. M. and Ross, David (1990) *Industrial Market Structure and Economic Performance*, 3rd edn., Boston: Houghton Mifflin.

Smith, Adam (1979 [1776]) *An Inquiry into the Nature and Causes of the Wealth of Nations*, Oxford: Clarendon Press.

Stark, Rodney (1987) "Correcting Church Membership Rates: 1971 and 1980," *Review of Religious Research* 29 (September): 69–77.

———— (1992) "Do Catholic Societies Really Exist?" *Rationality and Society* 4 (July): 261–271.

———— (1994) "Rational Choice Theories of Religion," *The Agora* 2 (Winter): 1–5.

Stark, Rodney, Finke, Roger, and Iannaccone, Laurence R. (1995) "Pluralism and Piety: England and Wales, 1851," *Journal for the Scientific Study of Religion* 34 (December): 431–444.

Stark, Rodney and Iannaccone, Laurence R. (1994) "A Supply-Side Reinterpretation of the 'Secularization' of Europe," *Journal for the Scientific Study of Religion* 33 (September): 230–252.

Stigler, George J. (1961) "The Economics of Information," *Journal of Political Economy* 69 (June): 213–225.

U. S. Department of Commerce, Bureau of the Census (1983) *County and City Data Book*, Washington: U.S. Government Printing Office.

Wilde, Louis L. (1992) "Comparison Shopping as a Simultaneous Move Game," *Economic Journal* 102 (May): 562–569.

Zaleski, Peter A. and Zech, Charles E. (1995) "The Effect of Religious Market Concentration on Church Giving," *Review of Social Economy* 53 (Fall): 350–367.

APPENDIX: VARIABLE DEFINITIONS

ADHERENTS:	Adherents per 10,000 population in county.
PROTESTANT ADHERENTS:	Protestant adherents per 10,000 population in county.
HERFINDAHL:	Herfindahl index of denomination concentration.
HERFINDAHL(PR):	Herfindahl index of denomination concentration using only Protestant denominations.
POP DENSITY:	Population per square mile in county.
NEW RESIDENTS:	Percent of population who moved into county in previous five years.
UNEMPLOYED:	County unemployment rate.
AGE:	Median age of county population.
INCOME:	Median per capita income of county population.
EDUCATION:	Percent of county population age 25 and older with high school education.

Sources: Glenmary Research Center (1982), U. S. Department of Commerce, Bureau of the Census (1983).