

THE MARKET FOR RELIGION IN LATE NINETEENTH CENTURY SCOTLAND: SIZE, STRUCTURE AND ACTIVITY

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1. Introduction

In May 1843, a large group of ministers resigned from the Church of Scotland in protest against the British government's assertion that the civil courts' jurisdiction was supreme in matters of church governance. This event, commonly known as the 'Disruption', represented the culmination of a decade-long debate both within the established Scottish church and between the church and the British government, over the issue of patronage, i.e. the right of local patrons (often leading landowners) to determine the choice of parish minister².

Those quitting the Church of Scotland, approximately one third of all ministers and half of the Church of Scotland's membership, went on to establish the Free Church of Scotland. For the next forty years there was intense interdenominational rivalry between the Church of Scotland, the Free Church and another large dissenting body, the United Presbyterian Church (formed in 1847 from groups that had seceded in the eighteenth and early nineteenth centuries from the Church of Scotland). Increased voluntary giving to the rivalrous denominations funded efforts to evangelise the Scottish population. Large scale competitive church building programmes, especially in the rural areas and small towns that are the focus of this study, underlined the determination of the new denominations to consolidate their positions in the religious market³.

The Disruption has been characterised by some historians as the most important single social and political event in Scotland during the nineteenth century.⁴ Not surprisingly an extensive historiography has grown up analysing the fortunes of rival factions and denominations after this event, from social, political and theological perspectives⁵. Yet no attempt has been made to bring the distinctive theoretical and empirical insights of economic analysis to bear in this area, even though such analysis

¹ We thank Robert Stonebraker and participants at the SSSR 2006 Conference for very helpful comments on earlier drafts. All remaining errors are the authors' responsibility.

² While patronage was the immediate *casus belli*, we consider it important to understand the Disruption also in terms of the response of evangelical churchmen to social changes associated with the industrial revolution and the urbanisation of Scottish society.

³ The evidence of competitive church building can still be seen in Scotland's towns and cities today. Drummond and Bulloch (1978, chapter 4) discuss the unfolding competitive church building programme in detail.

⁴ Fry (1987, p.52), "So the Disruption turned out also the most important event in the whole of Scotland's nineteenth-century history, overshadowing even the Reform Act in its repercussions."

⁵ Cheyne (1999) is a reliable guide to these literatures.

is particularly well adapted to analysing questions of institutional rivalry and competition. This paper addresses that gap in the literature.

Grounded in historical analysis of the effects of the Disruption, as well as economic analysis of denominational behaviour, the paper differs from previous studies by placing considerable emphasis on the structure of local markets for religious services. Two related questions are examined. First, whether larger markets supported a greater number and variety of churches, and second, whether in markets with a greater number and variety of churches giving per head, congregational income and participation rates were higher than in markets with fewer and less diverse churches. Answers to these questions promise not only to enrich understanding of 19th century Scottish church history, but to contribute to the ongoing debate within the economics of religion literature between proponents of demand-side and supply-side explanations of religious participation⁶.

In analysing the structure and characteristics of the national (Scottish) and local (parish) religious markets the paper employs empirical data for 1885. This is close to the mid point of a period of denominational rivalry in Scotland that ran from the Disruption (1843) to the eventual Union of the largest Presbyterian denominations in 1929⁷. For the purposes of economic analysis the Disruption may be characterised as the end of a long period in which the established Church of Scotland had enjoyed unquestioned market leadership and, possibly, monopoly power in many local markets. In 1929 the merger of the largest denominations created, once more, a single dominant supplier. The late nineteenth century was therefore marked by a relatively high degree of rivalry in the provision of religious services in the context of the Scottish market, with a small number of Presbyterian denominations seeking, through vigorous competitive activity via networks established across much of the country, to maximise market share. The extent of this market dominance was that, together, they accounted for 88 per cent of all Protestant church members in 1885⁸.

The paper is organised as follows. Section 2 outlines the theoretical background to the paper. Section 3 discusses the economic characteristics of the late nineteenth century religious market in Scotland in more detail and outlines the testable hypotheses. Sections 4 and 5 describe and analyse the data and section 6 concludes.

⁶ See for example Perl and Olson (2000).

⁷ In 1874, Parliament legislated for the abolition of patronage in the Church of Scotland. This measure was in part a response to the campaign for the disestablishment of the Church of Scotland, launched by the United Presbyterian and the Free Churches a year earlier. The campaign continued until 1886 when Parliament voted decisively against disestablishment. From that point on, the attention of policymakers within the Free and United Presbyterian churches turned to questions of how they might relate to one other, and to the Church of Scotland, in the knowledge that Establishment was, for the foreseeable future, a permanent feature of the ecclesiastical landscape.

⁸ Membership of Presbyterian denominations accounted for 68% of all Church members (including Roman Catholics). In 1885, 78% of all Church members in Scotland adhered to Protestant denominations. Source: *The Distribution and Statistics of the Scottish Churches* (1886).

2. Theoretical Background

The analysis of religious behaviour from an economic perspective has flourished in the last twenty years. Iannaccone (1998), the seminal literature survey in this new field of the economics of religion, attributes its emergence primarily to religion's pervasive and continuing importance in the lives of individuals and societies around the world⁹, but also to the increased willingness of economists to engage with this phenomenon. This paper contributes to that branch of the economics of religion analysing the behaviour of religious institutions, in which standard microeconomic techniques are used to explain patterns of religious behaviour among individuals, groups and cultures.

Drawing inspiration from Adam Smith's discussion, in the *Wealth of Nations*¹⁰, of the incentives facing clergymen in established churches¹¹, authors such as Iannaccone (1991), Stark and McCann (1993), Zaleski and Zech (1995) and Iannaccone *et al* (1997) have been at the forefront of such work, and in particular have developed supply side explanations for the patterns of religious behaviour observed in different markets. Generally, such analyses have been cast within a monopolistically competitive framework, allowing for variation in the quality of the religious services offered by individual churches, but presuming only limited market power. Church 'performance' defined in these models, is generally implicitly understood in terms of the way in which they conduct themselves i.e. operate, which in turn is determined to a large extent by the structural parameters of the religious market. Thus the strong assumption of unidirectional causality from structure through conduct and ultimately to performance features in many leading studies¹². This paper seeks to make these linkages more explicit in the context of the competitive environment of late nineteenth century Scotland.

As noted, an important strand of the economics of religion literature is the debate between proponents of demand-side and supply-side explanations of religious activity, specifically religious participation¹³. A catalyst for this was the work of Finke and Stark (1988) who challenged received sociological orthodoxy based on variants of the secularisation hypothesis, and in particular the claim of Berger (1967) that religious pluralism undermines the institutions that reinforce the plausibility of belief¹⁴. The Finke and Stark (1988) hypothesis, that religious pluralism actually increases church membership, claimed to explain the divergence between patterns of participation in North American and European religious markets in the twentieth century.

⁹ He notes (Iannaccone 1998, p.1466), *inter alia*, the resurgence of evangelical Christianity in the USA, the rise of Islamic fundamentalism in the Middle East, the rapid growth of Protestantism in Latin America and the religious upheavals in Eastern Europe and the former Soviet Union.

¹⁰ Smith (1776).

¹¹ Smith's discussions of the role of religion are discussed by Anderson (1988).

¹² See Iannaccone (1998).

¹³ See Perl and Olson (2000) for a discussion.

¹⁴ This point is made by Voas *et al* (2002, p.212).

The issue was taken up in many subsequent studies,¹⁵ in which correlations between measures of religious participation and indices of pluralism were analysed. Negative correlations were taken to support demand-side or secularisation-based sociological explanations, whilst positive correlations lent weight to supply-side or religious economies models within a monopolistically competitive framework. Unfortunately, as shown by Voas *et al* (2002), many of these studies, were flawed. By allowing for differing variances of intra-denominational market share, Voas *et al* demonstrated that, even if pluralism were to have no effect on participation, there may still be a non-zero correlation between these variables. Given this finding, more recent studies, for example Perl and Olson (2000), have favoured market share, rather than pluralism, in analysing religious competition.

In this paper we depart from the usual ‘economics of religion’ structural characterisation of the religious market, favouring an oligopolistic rather than a monopolistically competitive model. Within this framework both supply and demand side explanations are considered in the analysis of the relationship between market size (proxied by population), competition (proxied by the number and variety of churches within a particular market), and religious activity (proxied by the level of voluntary giving and participation). Before framing our testable hypotheses, however, it is necessary to outline the main economic and institutional characteristics of the market for religion in nineteenth century Scotland.

3. The Market for Religion in Nineteenth Century Scotland.

Employing the terminology of industrial organisation theory to discuss the main economic characteristics of the market for religion in nineteenth century Scotland, we consider the product, the technology of production, the factor inputs, demand, supply and the market structure.

The product was the ordinances of religion, by which was meant collective or public acts of Christian worship and associated pastoral care. The technology of production required both labour and capital inputs. Labour inputs were provided by a minister, who was responsible for leading public acts of worship, and had pastoral oversight of people living within a geographically defined area; the church parish. Such oversight at this time involved visitation, instruction in matters of the faith and the conduct of baptisms, weddings and funerals. Capital inputs included a building or church, whose purpose was to be the venue for public acts of worship and associated activities, and a house (manse) for the minister.

A revealed preference for religion, specifically the ordinances of the Christian religion, expressed itself as demand for the product. In order to consume the product individuals attended public worship in person and enjoyed the pastoral care services of the minister in an individual capacity. Individual utility was raised, however, by consuming the services collectively i.e. in community. Demand was expressed locally and because religious services could not be consumed ‘remotely’, local markets set up. The local markets were delineated geographically, by church parish boundaries, and were separated from one another because of transport costs. During

¹⁵ Chaves and Gorski (2001) review this literature.

this period the time and cost for a resident travelling to attend worship in an adjacent parish was prohibitive, except in larger towns and cities¹⁶ where parishes were geographically smaller and transports costs lower.

Individual congregations faced considerable constraints on their behaviour. In Scotland, the supply of religious services was normally provided through particular denominations. The largest church denominations were organised nationally, but delivered services locally, within parish areas. They trained, licensed and employed ministers, who themselves identified with, and discharged their functions under the auspices of, a particular denomination. Networks of church buildings were often owned by local trustees, but were generally managed in some way by church denominations. Capital used to fund church buildings came from two main sources, state funding and voluntary giving. Growing religious toleration meant it was possible in theory for any church denomination to operate within any individual local market¹⁷.

Given the technology of production suppliers faced relatively high fixed costs and low marginal costs. As a rough approximation, until the capacity of a church building was met, congregations effectively faced zero marginal costs of production, but a very ‘lumpy’ investment profile for the church buildings themselves. These (quasi)fixed costs were potentially a significant barrier to entry for any group wishing to establish a new congregation.

3.1 Market Structure

The national (Scottish) market for religious services in 1885 can be characterised as an oligopoly with a competitive fringe. The Established Church of Scotland – the incumbent monopolist - had adopted Presbyterian governance in the 1690 Revolution Settlement and continued to enjoy a very close relationship with the British state. It was required by law to provide a church and a minister in every parish. In return, it was able to rely on some local revenues (endowments) for a large part of its income. Its two largest competitors were also Presbyterian, having formed through a process of secession and amalgamation since 1690. The Free Church of Scotland emerged from the ‘Disruption,’ setting itself the task of matching the established church in providing universal coverage, and assuming the status of the national church. The United Presbyterian Church, formed in 1847 from groups that had seceded in the eighteenth and early nineteenth centuries from the Church of Scotland, had no such aims, and so formed congregations across most of the industrialised areas of Scotland, but only rarely in more remote, rural areas. Only one other Protestant denomination enjoyed something approaching national coverage. This was the Episcopal Church of Scotland which had survived the reestablishment of Presbyterianism in 1690, had

¹⁶ For example, the Royal Commission into Religious Instruction in Scotland, 1837, noted evidence from parish ministers in Edinburgh that approximately half of their congregation travelled from beyond the parish bounds to worship.

¹⁷ A 1712 Act of Toleration signalled the state’s intention not to force members of the population into the Established Church. The repeal of various penal laws against Roman Catholic and Episcopalian adherents in the late eighteenth century effectively removed the remaining legal barriers which had inhibited the ability of rival denominations to establish, gather and serve congregations.

enjoyed toleration since 1712, and which secured the loyalty and support of a number of leading landowners throughout the country. Other Protestant denominations formed a competitive fringe and included Congregationalists, Baptists, Methodists, and another two, very small Presbyterian denominations.

One other denomination, the Roman Catholic Church, featured significantly on the ecclesiastical landscape of the time. Although a very small Scottish Roman Catholic population had survived the Reformation and its aftermath, large scale Irish immigration during the mid nineteenth century transformed its position so that by 1885 it ranked fourth in terms of the number of adherents and fifth behind the Scottish Episcopal Church in terms of the number of church buildings. In many ways, however, the largely immigrant Roman Catholic community remained divided from those adhering to the various protestant denominations and the rest of Scottish society. Theologically many of its doctrines were at variance with those held by Presbyterians, Episcopalians, Congregationalists, Baptists and Methodists. Geographically, its community was concentrated overwhelmingly in the industrial west of Scotland in cities and towns such as Glasgow, Greenock, Paisley, Lanark and Hamilton. Educationally, the community lagged well behind its protestant counterparts. Thus for example in the Registrar-General's Report on Marriages in Scotland for 1869 (Registrar-General 1874) over 46% of men and 61% of women married according to the Roman Catholic rite for that year were unable to write their name on the marriage register. The comparable figures for those married according to the rite of the Church of Scotland were 7% for men and 17% for women¹⁸. The Roman Catholic community of the time was therefore both ghettoised and marginalised from the rest of Scottish society. There was, in effect, a separate religious market for Protestants and Roman Catholics¹⁹; a reality that in the industrial west of Scotland fostered both cultural rivalry and bigoted sectarian division throughout the twentieth century. In this paper we focus exclusively, therefore, on the majority Protestant market. We return to this point later.

3.2 Denominational Variety

From the consumer point of view the Protestant denominations were differentiated from one other in various ways. Doctrinally the Free Church was generally more conservative than the Church of Scotland, the United Presbyterian Church and the Scottish Episcopal Church. In terms of worship, communion was celebrated most frequently in the Episcopal and Methodist Churches, and adult baptism was favoured within the Baptist Church as against child baptism in the others. The musical contribution to worship in the Presbyterian churches consisted primarily of the singing of Psalms and paraphrases led by a precentor without instrumental accompaniment. Hymns were a mark of Methodism, Episcopalianism and some of the more 'progressive' United Presbyterian and Church of Scotland churches. Generally, throughout the protestant denominations congregations laid great store by the reading of the Bible and expository preaching.

¹⁸ Figures for the Free Church were 7% for men and 16% for women, and for the United Presbyterian Church 4% for men and 12% for women.

¹⁹ Drummond and Bulloch (1978, p.148) note, "Between Roman Catholic and Protestant there was a complete lack of understanding."

Differences in church governance were also present between denominations. Within the Church of Scotland and the Episcopal Church, there was a strong tradition of clerical domination, which carried over, at least during its formation, to the Free Church. The United Presbyterians, Methodists, Baptists and Congregationalists emphasised lay involvement to a greater extent, with fewer distinctions between ordained ministers and lay members of the denomination.

One other distinction is important for the purposes of the later analysis, the different financing arrangements for the various church denominations. The most important distinction to be drawn in this regard is between the Church of Scotland and all other denominations.

The Church of Scotland, as the established church, had a statutory duty to deliver the ordinances of religion to all residents in a parish wishing to avail themselves of them; a type of 'universal service obligation'. Endowments, originally granted by the state or privately created as ownership rights over property, financed this work in various ways. For example, the main source of ministerial stipends within the Church of Scotland, especially in rural areas, was teinds, a right to payments from local landowners based on the value of certain amounts (usually) of agricultural produce. Owners of certain properties within a parish were its heritors, and shared the duty to erect and maintain suitable buildings for worship. Congregational revenue generally came from seat rents, charges levied for the right to sit in a particular location in the building, however these and other collections from the congregation were generally small subsidiary sources of income, traditionally reserved for distribution among the poor of the parish. The established church's financing arrangements enabled it to maintain a presence in even the poorest areas with the smallest congregations. The government through the preservation of the system of endowments effectively underwrote the Church's universal service obligation and its status as 'supplier of last resort'.

None of the other denominations enjoyed the same level of endowment and all therefore relied heavily, in some cases exclusively, on voluntary giving. In densely populated, affluent areas this meant that rival denominations could establish congregations, fund church building and the payment of ministerial stipends with relative ease. In the poorer rural areas the need to raise finance sufficient to fund the construction of a church building and pay a minister proved insurmountable barriers to entry in the absence of cross subsidy. Recognising this some denominations, including the United Presbyterian Church and the Methodist Church, operated systems to transfer surplus funds from the prosperous to the less prosperous congregations. It was the Free Church, however, that was without peer in this regard.

At its founding the Free Church set out its clear intention to become a national church providing Gospel ordinances for every part of the land. Without access to endowments such as those enjoyed by the established church however, it was, it hoped temporarily, forced to embrace the practice of voluntary giving for funding purposes. The 'Sustentation Fund' was established, a centrally managed scheme through which each congregation was required to pay an assessment according to capacity, based on the principle that each congregation should help in sustaining the whole denomination. This Fund subsidised the payment of stipends, on the basis of an

“equal dividend” being paid to all ministers irrespective of the level of congregational assessment. The scheme permitted very substantial cross subsidies from urban to rural congregations. In the absence of statutory funding, seat rents were an important source of income particularly in the large cities, but the need to mobilise large sums, especially for the Sustentation Fund, led to much higher dependence on freewill offerings than in the Church of Scotland.

3.3 Testable Hypotheses

Having characterised the market for religion economically, noting that at national level an oligopoly pertained at this time, we turn now to the empirical analysis of the relationship between market size, competition and religious activity at the local (parish) level. In this we build on the theoretical insights of Montgomery (2003), Barro and McCleary (2005) and Pepall *et al* (2006) who all use variants of the Hotelling (1929) model of spatial competition applied to local religious markets in order to prosecute their analysis. Key to this approach is the assumption that it is possible to locate every individual, and the bundle of services offered by each denomination within a characteristics space, such as the unit interval of Hotelling (1929), the circular road of Salop (1979), or the unit square of Montgomery (2003). The nature of competition between denominations is understood to be determined both by the size of the local market, but also by whether the marginal consumer in that market is indifferent between the products of rival producers, or between consumption and remaining out of the market. A greater number or variety of denominations within any one local market, i.e. entry, is not therefore, *prima facie* evidence of increased competition. Further exploration must be made of firm conduct or behaviour, for example in terms of response to the composition of demand (demand-side explanations) or changes in firm effort (supply-side explanations).

We consider first the link between market size and competitiveness. The starting point for this is to revisit the earlier discussion and consider consumer preferences for religion to be expressed as demand for religious services; in our context the ordinances of the Christian religion. Consumers are assumed to have different tastes for alternative varieties of religious services on offer. Church denominations seek to satisfy this demand by supplying religious services in various, non-identical, ways²⁰. Individual denominations supply religious services of one variety within geographically distinct local markets – parishes - where there is sufficient demand for their product variety in that locality. Total demand in a local market, the extent of the market, is assumed to be a function of the number of residents i.e. the size of the parish population, and denominations will enter a particular local market if financial break-even can be secured, i.e. if congregations can raise sufficient funds to cover the fixed costs of church building and the ongoing costs of ministerial stipend and building maintenance. It is hypothesised, therefore, that local markets with larger populations have the potential to sustain either a greater variety of church denominations, or a greater number of churches of one or more denominations, or both. In order to make the empirical analysis tractable, in the

²⁰ Montgomery (2003) and Pepall *et al* (2006) present horizontal differentiation models where church rivalry takes the form of greater evangelisation efforts or the establishment of social-programmes.

absence of an unambiguous measure of market competitiveness we introduce and employ a proxy term, ‘complexity’²¹. Market A is said to be more ‘complex’ and thus more competitive than Market B if it has a greater number of churches of one or more denominations.²² Our first testable hypothesis follows directly: as market size (proxied by population) increases, the competitiveness (proxied by complexity) of the religious market structure will not decrease. More formally, the set of denominations operating in a market with a larger population cannot be a proper subset of the set in a market with a smaller population.

We consider next the link between competition (or complexity) and religious activity, in order to establish whether rival demand side or supply side explanations are supported by the data. In markets with more than one church denomination, supply side theories suggest that the presence of one or more rivals leads to an increase in the effort levels of all churches which in turn yields higher levels of individual giving, congregational income and church participation. Demand side theories cast doubt on this causal link suggesting that supply responds to expressed demand, which implies that the presence of rivals may not have any significant effect on quantitative measures of religious activity such as giving and participation. Instead the presence of rivals offering a differentiated product gives marginal members of existing denominations, or those who are not currently affiliated to a church, the opportunity to gain utility from switching allegiance or affiliating for the first time. In the latter case, total participation would increase. The demand side explanation relies on the presence of increased variety and not increased effort on the part of churches.

In order to determine whether a supply or a demand side explanation is the more satisfactory we consider a second testable hypothesis: that religious activity, as measured by giving per member, church income and participation, will not decrease as market competitiveness (complexity) increases. Or more formally, if the set of denominations operating in the first market is a proper subset of the set operating in the second, then giving per member, income per congregation and participation cannot be higher in the first market than in the second.

4. Data

For the purposes of empirical testing this paper draws on a dataset compiled at the height of the lengthy, and politically important²³, disestablishment campaign in Scotland. Both the leaders of this campaign and their opponents recognised the value, in purely political terms, of deploying carefully collated and reliable statistics relating to membership and giving, in undermining or defending the Church of Scotland’s establishment status. To this end a comprehensive statistical report, the *Distribution and Statistics of the Scottish Churches*, (hereafter D&S) was published in 1886.

²¹ Montgomery (2003, p.795) associates a larger number of denominations with increased competition, but in the context of this proposition this seems too strong a claim, hence we employ the ‘complexity’ proxy.

²² Both complexity and competition share the dimension, ‘number of firms’.

²³ By 1885 the supporters of disestablishment were seeking its inclusion as a prominent element of the Liberal Party’s election manifesto.

The report drew together denominational membership and financial records for 1885 at the parish level, its purpose being to show, “what is done for the supply and the support of religious ordinances by the different denominations.” (D&S, p.3). For the largest towns and cities and for the smaller denominations, aggregate membership and giving figures were reported. However in every case it was possible to determine the identity of denominations present either in the individual parishes (the majority of cases) or the largest towns and cities (where aggregate figures were reported).

As noted earlier, in this paper, our analysis is confined to the majority, Protestant market. The rationale for doing so, separation of Protestant and Roman Catholic religious markets, has already been outlined. The case is reinforced further by the observation that the basis of Roman Catholic affiliation and the nature of production of religious services in the Roman Catholic Church, were both quite different from that of the Protestant denominations²⁴. In terms of overall market share the four largest Protestant denominations accounted for over 76% of all church members including Roman Catholics, and 96 percent of all Protestant church members²⁵.

Table 1: Concentration of Scottish religious market²⁶

Denomination	Congregations	Membership	Contributions Received (£/p.a.)
Church of Scotland	1,479	540,061	349,466
Free Church	1,067	329,541	500,057
United Presbyterian Church	543	177,517	348,519
Episcopal	251	29,744	44,124
Congregational	101	15,037	31,859
Evangelical Union	87	13,210	21,760
Original Secession	27	3,249	5,606
Baptist	88	9,688	18,217
Methodist	75	4,653	8,749
Total	3,718	1,122,700	1,328,357
Church of Scotland	39.8%	48.1%	26.3%
Presbyterian and Episcopal churches	89.8%	95.9%	93.5%
Herfindahl index ²⁷	26.9%	34.4%	28.2%

²⁴ The Roman Catholic Church based their reported measure of affiliation on the number of baptised members of the community. The main Protestant denominations linked affiliation with profession of faith – a more rigorous test. Roman Catholic parish areas generally covered more than one Church of Scotland parish area and had several priests working together within them.

²⁵ Total Church membership was reported as 1.46 million with 1.12 million Protestant and 0.34 million Roman Catholic.

²⁶ Source: D&S, p.55.

²⁷ The Herfindahl Index $H = \frac{\sum_{i=1}^n x_i^2}{\left(\sum_{i=1}^n x_i\right)^2}$

Table 1 draws on the dataset to illustrate the extent of concentration of the provision of Protestant religious services for Scotland as a whole. Note that within local markets the number of denominations differed, and every parish contained at least one Church of Scotland congregation. (Of the 1150 local markets reported in D&S, in 158 there was in fact more than one.) Given denominational objectives, it is not surprising that the Free Church had the next most extensive network followed by the United Presbyterian and Episcopal Churches.

Membership statistics for many of the smallest denominations organising in Scotland at this time have not survived. D&S (p.56) indicates that no attempt was made to identify independent congregations unaffiliated to any denomination.

The 1881 Census recorded a total population for Scotland of 3,735,573. Using this as the basis for calculating membership as a share of the total population, the three main Presbyterian denominations alone, with 1.047m members, had achieved just over 28%. The established church, the Church of Scotland, was slightly larger than its two main competitors combined, but had rather fewer places of worship. However, contributions from members to the Church of Scotland ran at a much lower level than in its competitors. The mean contribution per congregation in the Church of Scotland (£236) was barely half of the comparable total in the Free Church (£468), and slightly less than three eighths of the £641 in the United Presbyterian Church. Since Church of Scotland income is reported net of stipend payments, it might be argued that congregational income available for purposes other than ministerial remuneration was broadly similar in the Church of Scotland and the Free Church. On the basis that Free Church congregations were required to fund stipends from their own resources, while Church of Scotland congregations were not, the comparison in Table 2 for the three main Presbyterian churches seems to be appropriate.

A preliminary reading of the financial data in Table 2 might suggest that the established church by 1885 lacked the vigour of its competitors, other data indicate quite the reverse. Smout (1986, p.191), for example, provides evidence from registrations of marriages indicating that the proportion of marriages conducted by the Church of Scotland remained fairly constant at about 45% of total marriages throughout the period 1860-1929²⁸. But even between the seventh and ninth decades of the nineteenth century, the proportion of marriages conducted within the Free Church and the United Presbyterian Church fell from 37.8% to 33.9%. By 1929, this proportion fell further to 20.5%, largely because of an increase in 'irregular' marriages before witnesses (effectively civil marriages).

As additional background evidence of the continued strength of the Church of Scotland, we note that compared with data from the 1851 Census (Census of Population, 1854), the Church of Scotland erected more buildings for worship between 1851 and 1885 than the main competing Presbyterian denominations, and had the highest proportion of members in 1885 to sittings in 1851, perhaps suggesting the greatest growth. However, the 1851 returns also indicate that the Church of Scotland had considerable excess capacity, with actual attendances comparable to

²⁸ The Church of Scotland finally reunited with its competitors in 1929.

those of the Free Church.²⁹ It appears that the Church of Scotland was, by 1885, gaining market share from its rivals. Explaining this observation, however, lies beyond the scope of this paper.

Table 2: Relative size of main Presbyterian denominations, 1885³⁰

	Church of Scotland	Free Church of Scotland	United Presbyterian Church	Total
Congregations	1479	1067	543	3089
Members	540,061	329,541	177,547	1,047,149
Contributions (£/yr)	349,466	500,057	348,519	1,198,042
Stipend/Income	n/a ³¹	46.0%	37.2%	
Contribution/ Congregation (£/yr)	236.29	468.66	641.84	387.84
Contribution/ Member (£/yr)	0.65	1.52	1.96	1.14
Members/ Congregation	365.15	308.85	326.97	338.99
Membership/ Population	14.46%	8.82%	4.75%	28.03%

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²⁹ Evidence of the extent of capacity utilisation in the three denominations for 1885 is not readily available. The Reports of the Church of Scotland's Committee for Christian Life and Work in the 1870s did include statistics derived from extensive surveys of ministers, and these suggest utilisation of about 25%. United Presbyterians continued to claim that attendance exceeded membership into the 1880s, although part of that might be explained by counting children, who could not be members.

³⁰ From D&S, p.55.

³¹ Stipends are not paid out of Church of Scotland parish income because teinds were due only to owners. There is a particular problem that in parishes created in the nineteenth century, teinds were not allocated, and it has not been possible to find out the precise stipend arrangements for these parishes.

³² Evidence of the extent of capacity utilisation in the three denominations for 1885 is not readily available. The Reports of the Church of Scotland's Committee for Christian Life and Work in the 1870s did include statistics derived from extensive surveys of ministers, and these suggest utilisation of about 25%. United Presbyterians

gaining market share from its rivals. Explaining this observation, however, lies beyond the scope of this paper.

5. Empirical Analysis

Having outlined in some detail the institutional context and the available data we turn now to the empirical analysis.

In analysing the link between market size and competitiveness we avoid use of concentration measures³³ preferring instead population and complexity as the respective proxies. In analysing competition and religious activity we again deploy complexity as the competition proxy, and for religious activity offer three alternative proxy measures; giving per member (individual giving), giving per congregation (congregational income) and participation (market share).

For testing purposes we confine our attention to those parishes in Scotland in which there was, in 1885, a maximum of one church of any particular denomination, although there may of course have been more than one denomination operating in the particular local market. The reasons for this are twofold. First, we wish to analyse distinct local religious markets, markets which operated more or less autonomously from one another. In the large towns and cities it was possible, even in 1885, for individuals to cross parish boundaries in order to consume the services of the same or a different church denomination. Outside these areas however, across the majority of Scotland, time and transport costs precluded participation in adjacent religious markets (neighbouring parishes). Religious services, we reiterate, were consumed locally. Second, we wish to rule out cases in which more than one church of any denomination was present in any one local market and had the potential to offer a differentiated product. In other words we confine our attention strictly to the analysis of inter rather than intra-denominational variety. These restrictions therefore exclude parishes in the large towns and cities where, typically, more than one Church of Scotland or Free Church was present³⁴.

Restricting attention to the four largest Protestant denominations which together accounted for 96% of Protestant membership it is possible to characterise the complexity ordering of markets completely, rather than relying upon an approximation method, such as the Hierarchical Class Analysis of Montgomery (2003). A further simplification occurs because the Church of Scotland's status as the established church meant that it had a presence in every religious market. There were therefore only seven other market structures to consider: three in which the Church of Scotland was present, along with one other denomination; three in which two of the

continued to claim that attendance exceeded membership into the 1880s, although part of that might be explained by counting children, who could not be members.

³³ Following Perl and Olson (2000).

³⁴ Data from 168 local markets in which more than one Church of Scotland congregation is located are omitted from the sample. This exclusion effectively eliminates the majority of the Roman Catholic population which was concentrated in towns and cities such as Edinburgh, Dundee, Aberdeen, Glasgow, Greenock, Paisley, Dumfries, Dumbarton, Hamilton, Kilmarnock etc.

other denominations were present; and one in which all denominations were present. The full complexity ordering is shown in the Hasse diagram in Figure 1.

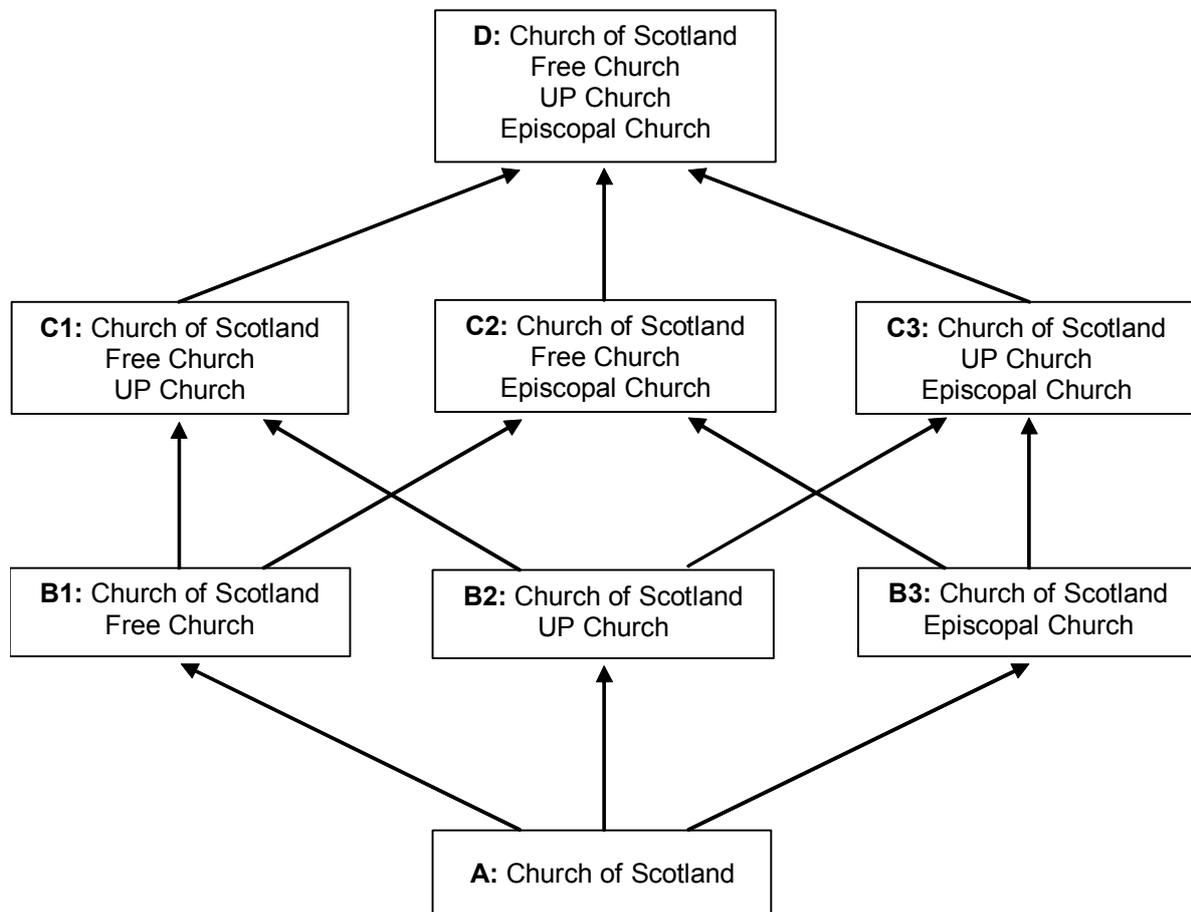


Figure 1: The complexity relationship for religious markets with four denominations.

Market complexity increases on moving up the diagram, following the arrows, so that in each row an additional denomination is added to the market structure. Hence from market A, adding one of the three other denominations, the three market structures in the row B obtain. Each of the three market structures in row C is related to two of the three structures in row B. Lastly, there can only be a single market structure in row D, in which all four denominations are present. This gives twelve relationships between pairs of markets of differing complexity.

Table 3 analyses the data according to market structure by recording for each market type the number of observations, the average population based on 1881 census returns, market share defined as the ratio of membership to population (a proxy for participation), individual giving per member and finally congregational income or giving per congregation.

Table 3: Mean values of population and participation according to market complexity

Market structure	A	B1	B2	B3	C1	C2	C3	D
No. observations	266	357	52	8	125	48	2	53
Population	876 (751)	1408 (1003)	1490 (1008)	898 (526)	2742 (1637)	1991 (1932)	2206 (122)	3905 (2077)
Market Share	0.306 (0.14)	0.393 (0.14)	0.384 (0.14)	0.343 (0.12)	0.394 (0.13)	0.484 (0.19)	0.304 (0.09)	0.397 (0.10)
Individual Giving	0.444 (0.82)	0.661 (0.49)	0.913 (1.07)	0.714 (0.59)	0.885 (0.41)	0.757 (0.81)	3.077 (3.38)	1.186 (0.68)
Congregational Income	90 (167)	142 (116)	195 (188)	89 (97.9)	262 (168)	172 (233)	595 (592)	375 (265)

(Standard errors in parentheses)

Within the sample the most common market structures are those where there is only a Church of Scotland (structure A-29.2% of cases) and where the Free Church is the only entrant (structure B1-39.1% of cases). The smaller size of the Episcopal Church and the spread of the Free Church are both reflected in the infrequency with which we observe structure B3, where the Episcopal Church is the only entrant. The extent of the Free Church's success in establishing itself across the whole of Scotland can be seen from its absence from only 62 (9.6%) of the cases in which entry takes place.

The testable hypotheses are addressed in the first instance through tests for differences in means. These are reported in table 4. Although results are reported for all 12 paired relationships, the small number of observations in cells B3 and C3 mean that the discussion concentrates on those linking other cells.

Table 4: *t*-statistics for tests of differences in means

Structure	Market Share	Individual Giving	Congregational Income	Population
A, B1	7.614**	3.839**	4.347**	7.570**
A, B2	3.663**	2.984**	3.746**	4.173**
<i>A, B3</i>	<i>0.836</i>	<i>1.263</i>	<i>-0.028</i>	<i>0.115</i>
B1, C1	0.071	5.027**	7.395**	8.564**
B1, C2	3.268**	0.805	0.876	2.054*
B2, C1	0.439	-0.183	2.226*	6.185**
<i>B2, C3</i>	<i>-1.243</i>	<i>0.903</i>	<i>0.954</i>	<i>4.357**</i>
<i>B3, C2</i>	<i>2.764**</i>	<i>0.181</i>	<i>1.718</i>	<i>3.261**</i>
<i>B3, C3</i>	<i>-0.519</i>	<i>0.984</i>	<i>1.205</i>	<i>6.379**</i>
C1, D	0.165	2.745**	2.865**	3.627**
C2, D	-2.884**	2.871**	4.089**	4.798**
<i>C3, D</i>	<i>1.479</i>	<i>-0.790</i>	<i>-0.524</i>	<i>5.699**</i>

* Significant at 5% level

** Significant at 1% level

The first testable hypothesis is that the set of denominations operating in a market with a larger population cannot be a proper subset of the set in a market with a smaller population. Results in Table 4 are congruent with this hypothesis. Mean population rises with market complexity and the differences in mean populations for every pairing except one³⁵ are statistically significant. Thus as market size (proxied by population) increases, competitiveness (proxied by market complexity) does not decrease.

The second testable hypothesis is that if the set of denominations operating in the first market is a proper subset of the set operating in the second then participation (proxied by market share), giving per member (individual giving) and giving per congregation (congregational income) cannot be higher in the first market than the second. On this, the results are more difficult to interpret.

Looking at the results relating to the sum of all church market shares (or participation), with the exception of the very small number of markets in which only the Free Church does not organise (C3), the sum of all market shares is lowest in those markets where the Church of Scotland is the monopoly provider of religious services. Market share is higher in those markets where either a Free or United Presbyterian Church is also present, the difference in means being statistically significant. No other strong pattern, however, is evident. Indeed it is notable that participation does not rise consistently with market complexity.

A similar story may be told for individual giving and congregational income with a significant difference in means where a duopoly involving a Free or United Presbyterian Church operates as compared with a monopoly Church of Scotland position. With the exception of C3 again, both individual giving and congregational income is highest in markets with all four denominations present, and a statistically

³⁵ Where there is a small number of observations.

significant positive difference in means is reported between this case and those where either the United Presbyterian or Episcopal churches is absent. There is in addition some evidence to suggest that mean congregational income is higher in cases where the United Presbyterian Church is present, thus the significant difference in mean congregational giving for (B1, C1) and (B2, C1) and (C2, D). A similar result is obtained, of course for other combinations, e.g. (C1, D). Pursuing this analysis further, Table 5 reports individual giving and market share (participation) across market structure.

Table 5: Contribution per member and market share of denominations across market structures

Market Structure	Individual Giving				Market Share			
	CoS	FC	UP	Epis	CoS	FC	UP	Epis
D	0.682	1.586	1.862	2.261	0.187	0.111	0.078	0.021
C1	0.417	1.370	1.732		0.190	0.105	0.099	
C2	0.683	1.046		2.113	0.233	0.203		0.047
C3	3.327		3.032	4.427	0.170		0.111	0.023
B1	0.638	1.081			0.203	0.190		
B2	0.515		1.698		0.245		0.139	
B3	0.258			3.143	0.289			0.054
A	0.444				0.306			

Omitting C3, there is evidence for the Free and United Presbyterian Churches of the mean individual contribution increasing with the complexity of market structure. Individual denominational market shares generally decline with increasing complexity as the market becomes more crowded, but, crucially, aggregate share, i.e. total market participation, tends to level off. This latter result is consistent with demand-side theories of participation.

Table 6: *t*-statistics for difference of means in Church of Scotland market share and giving, across market structures.

Structure	Market Share	Individual Giving	Congregational Income
A, B1	-9.259**	2.480*	0.170
A, B2	-4.011**	0.652	2.278*
A, B3	-0.407	-1.956	-0.858
B1, C1	-1.335	-2.547*	4.534**
B1, C2	1.449	0.259	0.986
B2, C1	-3.906**	-0.852	0.701
B2, C3	-1.046	0.878	0.873
B3, C2	-1.225	1.853	1.253
B3, C3	-1.457	0.958	0.997
C1, D	-0.180	1.926	3.098**
C2, D	-2.014*	-0.061	2.004*
C3, D	0.241	-0.826	-0.557

Tests for differences in means in Church of Scotland congregation's market share, individual giving and congregational giving allow some further comment on this. These are reported in Table 6.

Whilst the presence of an additional Free or United Presbyterian Church appears to have a marked negative impact on Church of Scotland market share, results for individual giving and congregational income are again more mixed, in most cases inconclusive. It is certainly not the case, however, that a systematic reduction or increase in individual or congregational liberality evidences itself in markets where other denominations compete with the Church of Scotland for the affiliation of the local population. There is also no consistent evidence to suggest that market share declines steadily with increasing complexity. This may be true in moving from a monopoly to a duopoly position, but it clearly does not always hold for the transitions to more complex market structures. Again, these results favour a demand side over a supply side explanation.

5.1 Econometric Analysis

A drawback of the analysis thus far, is its inability to account for regional variation, potentially a serious problem given the quite marked geographical differences in denominational affiliation at this time. The Free Church, for example, had exceptionally high market share in the rural north west of Scotland, the Episcopal Church was strong in the rural north east, whilst the United Presbyterians were present in large numbers in the relatively prosperous communities of the central lowlands.

To address this issue we undertake econometric analysis of the three main measures of religious activity or affiliation controlling for population, wealth, market structure and geographical location. A linear model is specified in which giving per member (individual giving), giving per congregation (congregational income) and participation or market share (church membership per head of population) are regressed against population, gross rental values for property in each parish, market structure dummies and regional dummies. Data are drawn from the following sources. Population data are the 1881 census population figures by parish reported in the dataset (D&S). The wealth proxy, gross rental values for property in the parish is taken from the Poor Rates &c (Scotland) Return to the House of Commons (1874). Market structure dummies relate to the eight market structures shown in Figure 1, the omitted dummy being market structure A (Church of Scotland only). Regional dummies relate to the synod areas of the Church of Scotland identified in D&S, the omitted dummy being the Aberdeen synod.

Two sets of three equations are estimated by ordinary least squares. In Columns [1], [3] and [5] data relating to all denominations are used. In Columns [2], [4] and [6] Church of Scotland data (only) are employed. The results are reported in Table 7.

Table 7: Econometric results

	[1] Individual Giving (Average Contribution per Member)		[3] Congregational Income (Average Contribution per Church)		[5] Market Share (Participation) (Church Membership / Population)	
	All	Church of Scotland	All	Church of Scotland	All	Church of Scotland
Constant	0.1759 [0.1307]	0.1832 [0.1452]	-5.4178 [25.3885]	-10.1357 [31.9750]	0.4159 [0.0106]**	0.4202 [0.0110]**
Population	-0.0238 [0.0324]	0.0285 [0.0507]	27.7486 [6.1741]**	28.0035 [8.8591]**	-0.0478 [0.0053]**	-0.0276 [0.0030]**
Gross Rental	0.0075 [0.0049]	0.0023 [0.0034]	2.8259 [0.9716]**	2.9748 [1.0912]**	-0.0019 [0.0006]**	-0.0015 [0.0004]**
D. B1	0.4181 [0.0785]**	0.0093 [0.0851]	45.4611 [12.1556]**	6.904 [14.3947]	0.1252 [0.0107]**	-0.0435 [0.0093]**
D. B2	0.5121 [0.0879]**	0.0374 [0.0866]	58.1348 [16.5760]**	33.561 [23.6612]	0.1121 [0.0215]**	-0.0475 [0.0130]**
D. B3	1.1669 [0.4286]**	0.0119 [0.1260]	77.1384 [53.7155]	43.2767 [38.2880]	0.0864 [0.0367]*	0.0056 [0.0366]
D. C1	0.6919 [0.1371]**	-0.0904 [0.0637]	82.9763 [17.7734]**	-14.1931 [15.1737]	0.1912 [0.0180]**	-0.0593 [0.0115]**
D. C2	0.9845 [0.2146]**	0.1364 [0.2953]	73.5876 [47.4275]	91.9953 [110.2034]	0.2269 [0.0270]**	-0.0087 [0.0122]
D. C3	1.7839 [0.1014]**	-0.1352 [0.1028]	94.9645 [20.6839]**	-1.2967 [25.7005]	0.0667 [0.0196]**	-0.0931 [0.0149]**
D. D	1.2066 [0.1581]**	-0.0045 [0.1780]	165.051 [29.1849]**	170.423 [74.0731]*	0.2584 [0.0247]**	-0.0104 [0.0184]
D. Argyll	0.099 [0.1205]	0.3121 [0.1129]**	-4.4325 [19.4113]	-7.9188 [20.5547]	-0.1669 [0.0247]**	-0.2244 [0.0203]**
D. Dumfries	0.0915 [0.0937]	0.165 [0.1191]	40.7521 [24.1756]	55.3787 [28.9585]	-0.0728 [0.0192]**	-0.0931 [0.0189]**
D. Fife	0.0949 [0.0945]	0.0147 [0.1001]	25.3281 [19.6589]	12.9426 [23.7748]	-0.014 [0.0174]	-0.0264 [0.0142]
D. Galloway	0.1607 [0.1157]	0.0763 [0.1009]	1.6623 [17.4023]	25.0828 [23.6414]	-0.0885 [0.0197]**	-0.0736 [0.0138]**
D. Glasgow & Ayr	0.5673 [0.1564]**	0.1911 [0.1257]	75.1621 [24.4602]**	56.4226 [30.1317]	-0.0391 [0.0159]*	-0.0434 [0.0149]**
D. Glenelg	0.4214 [0.3255]	1.2071 [0.4880]*	-37.9538 [20.6385]	-33.8279 [26.4681]	-0.0709 [0.0437]	-0.2848 [0.0179]**
D. Lothian and Tweeddale	0.2361 [0.1001]*	0.1769 [0.1252]	63.4166 [25.5594]*	81.1779 [39.7722]*	-0.0327 [0.0175]	-0.0518 [0.0118]**
D. Merse and Teviotdale	-0.0636 [0.0916]	0.0226 [0.1055]	13.914 [19.3034]	4.4515 [23.4795]	0.0136 [0.0133]	-0.0429 [0.0131]**
D. Moray	0.2608 [0.1648]	0.6221 [0.3895]	27.1666 [28.1621]	5.3831 [21.7354]	-0.1065 [0.0176]**	-0.1814 [0.0385]**
D. Orkney	-0.1536 [0.1122]	-0.0375 [0.1022]	24.0966 [24.7393]	-32.6027 [32.7435]	-0.1102 [0.0481]*	-0.2066 [0.0338]**
D. Perth and Stirling	0.2305	0.221	43.2972	65.257	-0.0208	-0.0579

	[0.2135]	[0.1855]	[48.1555]	[68.3639]	[0.0180]	[0.0160]**
D. Ross	0.4694	1.2824	26.8971	-36.0003	-0.0764	-0.3012
	[0.1122]**	[0.2018]**	[11.9552]*	[13.7610]*	[0.0328]*	[0.0116]**
D. Shetland	-0.5842	-0.1914	-113.6411	-59.9854	-0.0358	-0.0324
	[0.1712]**	[0.1065]	[34.6576]**	[35.7988]	[0.0583]	[0.0282]
D. Sutherland and Caithness	0.3098	0.9683	-14.7913	-40.5807	-0.1109	-0.2973
	[0.0833]**	[0.1196]**	[16.5407]	[24.3961]	[0.0367]**	[0.0142]**
Observations	1453	716	1460	716	716	716
R-Squared	0.1088	0.1244	0.207	0.1754	0.4059	0.6396

*Significant at 5% level; ** significant at 1% level, robust standard errors in parentheses

The results relating to individual and congregational giving for all denominations and the Church of Scotland separately (columns [1] to [4]) may be explained straightforwardly in terms of denominational funding structures. The Church of Scotland, with access to teinds and heritors' obligations had no need to seek increased voluntary giving from its members or from congregations as a whole in order to preserve its position in the presence of rival denominations. Thus none of the coefficients on the market structure dummies in column [2] is significantly different from zero. In column [4] only the 'all denominations' market structure dummy (D.D) passes this test at the 5% level. Significant positively signed coefficients on the market structure dummies in columns [1] and [3] are explained, therefore, by the reliance of the Free Church the United Presbyterian Church and the Episcopal Church on voluntary contributions. The Free Church, for example, faced a hard budget constraint and relied on voluntary giving to its Sustentation Fund in order to permit cross subsidies to flow from more to less prosperous congregations, thereby allowing it to pursue its strategy of national presence. In the United Presbyterian Church, while there was an element of cross subsidy, there was also a general expectation that congregations would themselves break even, and only where there was a reasonable chance of that occurring would congregations be admitted to the church. The Episcopal Church also relied on voluntary giving, although in contrast to the others it could rely for much of its financial strength on a relatively small number of wealthy landowners. Regional effects are muted although coefficients are positive and significant at the 1% level in areas such as Glasgow and the highlands, where the United Presbyterian and Free Churches respectively enjoyed particular strength. The results for Shetland reflect the extreme poverty of these islands when compared to the omitted category (Aberdeen).

The results in columns [5] and [6] suggest that wealth (proxied by the gross rental value of property) and population both have a depressing effect on overall participation (church membership as a proportion of population). Although widely spread in terms of geography, the losses in market share sustained by the Church of Scotland appear to be generally compensated, sometimes more than compensated for, by the gains of the other denominations. The overall picture painted by these results is therefore one of declining individual denominational participation but rising overall participation. Although this is consistent, prima facie, with a supply side explanation of the effects of competition, without rejecting this conclusion, there are two reasons to be cautious. Firstly, the effect of competition appears to be most strong when there

is a single competitor to the Church of Scotland. Adding a second or third competitor does not seem to have an effect of similar magnitude. This is consistent with the suggestion that there was some fraction of the population with a preference for using the services of a disestablished Presbyterian, or an Episcopal, church, and that divergence of tastes in the provision of religious services was generally met by one or two entrants. This conclusion remains congruent with a demand-side explanation of participation. Secondly, the analysis takes no account of differences in settlement patterns between parishes. The most rural parishes would only have had small, scattered populations, so that participation rates in these may have been depressed by the transport costs of travel to the local church. Further, more disaggregated, analysis of the various local markets is necessary in order to reach more firm conclusions on these points.

6. Conclusion

During the nineteenth century, Scotland experienced very rapid political, social and economic change, moving from being an agrarian society in which the rural parish was the main unit of social organisation to an urbanised industrialised country in which the state, rather than the church, became the principal provider of social services. The Disruption and the subsequent period of rivalry between rival church denominations has never before been the subject of economic analysis.

Forty years after the Disruption the disestablishment campaigners of the 1880s claimed that the Church of Scotland was able to rely on over-generous state subsidies, local taxes, to ensure that it continued to operate in areas where it would otherwise not be viable, and that the incidence of these taxes diverted resources away from the more vigorous voluntary churches. Yet, the founders of the main rival Free Church clearly understood that their objective of creating a national church network could only be realised if there was extensive cross-subsidy of rural churches by rich, urban congregations. Statutory obligations and church policy combined therefore to ensure that during this period typically at least two, and often more, denominations were present in all but the smallest parishes in Scotland, changing quite radically the spatial pattern of provision of religious services across the country in less than a generation.

The evidence presented here is consistent first, with the claims that larger religious markets, measured in terms of population, supported more complex, or competitive, market structures i.e. larger numbers of churches of one or more denominations. Doubt, however, is cast on the assertion that a causal link runs between increased competitiveness and higher levels of religious activity, for example higher giving or levels of participation. In contrast to many of the studies in the growing economics of religious literature, the weight of our evidence lends support to demand side rather than supply side explanations of the link between competition (or complexity) and religious activity in late nineteenth century Scotland. In interpreting the results the importance of a rich understanding of institutional arrangements – particularly governance and financing – combined with an understanding of market structure – in this case oligopoly - is underlined.

The present research is not merely a historical curiosity, but has, we believe, the potential to inform contemporary policy discussions. Assuming that there are

positive (societal) externalities arising from religious participation then government may wish to encourage engagement with the church³⁶, as it did in nineteenth century Scotland. Research in this field will give purchase therefore on the question of how market structure may affect participation, and if so, how the market might be appropriately regulated given the particular institutional arrangements of market participants.

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³⁶ Or other faith communities. The work of Hungerman (2005) and Gruber and Hungerman (2006) is salient in the context of this policy debate.

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