Jewish Emancipation and Schism: Economic Development and Religious Change

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Abstract

This paper studies the impact of Jewish Emancipation and economic development on Jewish religious culture in 19th century Europe. In Germany, a liberal Reform movement developed in response to emancipation, while ultra-Orthodox Judaism emerged in eastern Europe. We develop a historical narrative and model of religious organization that accounts for the polarized responses by Jewish communities. Our explanation is based on a tradeoff between time and money contributions. A religious organization chooses between a relatively affluent community that expends little effort on religious participation and a poorer community that devotes a large amount of time and effort to religious activity. Political and economic development shape this tradeoff in unexpected ways, leading to complex forms of behavior such as religious schisms and cycles. When preferences are transmitted intergenerationally, organizations tend to be more conservative. Our historical narrative points to further extensions of extant models of religion, as well as providing broader insights into cultural integration and religious change.

JEL Classification: D23, N33, Z12, J24

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1 Introduction

What determines whether a minority group favors a strategy of cultural integration over cultural resistance? Why do some communities relax prohibitions while other communities strengthen them? How does economic development and the prospect of increased outgroup contact affect the group’s strategy? These are longstanding yet poorly understood issues in the social sciences.

To address these questions, we examine the emergence of Reform and ultra-Orthodox Judaism in nineteenth century Europe. Building on existing work in the economics of religion and culture, we study the consequences of economic development and liberalization for the development of the religious culture of Ashkenazi Jews following Jewish emancipation—the gradual lifting of formal legal barriers to Jewish participation in mainstream society.  

Jewish emancipation constitutes a “quasi-natural experiment” in which communities that ‘displayed substantially similar political, social, and economic features’ (Vital, 1999, 31) were thrust into different economic contexts and chose different religious responses. The consequences were to be long-lasting: the denominational differences within Judaism today stem from a series of nineteenth century schisms. The differing responses of Jewish religious communities can help shed light on how legislation and economic development shape religion, as well as the conditions determining whether minority groups embrace or resist modernization and cultural integration today.

A large body of historical work treats Reform and Ultra-Orthodox Judaism as ideological and sociological movements, and focusses on the local personalities and events in different regions that gave rise to Reform or Ultra-Orthodoxy. We develop a model which, in conjunction with historical evidence, leads to a unified explanation for why emancipation led to the rise of Reform Judaism and a strategy of cultural integration in more developed regions,

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1 For discussion of other Jewish communities see Online Appendix E.
3 The most influential research on the rise of Reform Judaism is heavily informed by sociological theory, see Katz (1972, 1986, 1998); Lowenstein (1994); Silber (1987, 1992).
whereas in parts of central and Eastern Europe it brought about religious schism and the rise of more conservative religious organizations including Ultra-Orthodox groups who pursued strategies of cultural resistance.\footnote{We will refer interchangeably to Haredi and Ultra-Orthodox versions of Judaism. The latter is the term used in the economic and sociological studies of Orthodox Judaism (e.g. Berman, 2000). The former is a Hebrew term current in Israel. Haredi Jews themselves simply use the Yiddish term for Jews (Yidn) or virtuous Jews (erlicher Yidn) (Heilman, 1992, 11–13). Hasidism is a subset of Haredi Judaism. We provide details on the rise of Hasidism in Section 4.3. Hasidism was initially opposed to traditional Judaism—the Minsagdim or opponents—but by the middle of the nineteenth century they had overcome their differences in order to oppose Reform Judaism. Different branches of Ultra-Orthodox Judaism espouse radically different opinions on many political issues such the legitimacy of the state of Israel, but their attitude towards secular society and Reform Judaism is similar.} Our explanation is based not on local peculiarities and cultural differences, but on the economic incentives faced by religious organizations.

From the religious market literature (e.g. Finke and Stark, 1987; Iannaccone, 1995; Iannaccone et al., 1997; Iannaccone, 1998), we expect the onset of religious freedom to bring about a move from a monopoly provider of religious services to a competitive religious market with a range of different denominations which vary in their strictness and in the nature of collective goods that they offer. While this theory has the virtue of simplicity, it is not applicable to this case study. Reform and Orthodox Judaism arose in regulated religious markets, in an environment in which religious competition within Judaism was prohibited by the secular authorities. If one did not like one’s community, one’s only choice was to leave.\footnote{For example, in 1815 the king of Prussia [Frederick William III] ordered all private Jewish religious gatherings in Berlin to be closed, since they necessarily led to separatism. Only in the synagogue would Jewish worship be tolerated (Meyer, 1979, 142). When the reformer Abraham Geiger (1810–1874) obtained the rabbinate of Breslau in 1840, Jews who were opposed to religious reform either had to accept him as rabbi or leave to a more traditional or orthodox community.} Until 1875 in Germany (and 1867 in Austria-Hungary) every Jewish community was only allowed a single recognized religious organization.\footnote{See, for example, Meyer (1979, 1980). It was only in 1876—after the developments we detail in this paper—that the “Secession Bill” (Austrittsgesetz) that enabled Jews to secede from a religious congregation without having to relinquish their religious status was passed in Germany.} That is to say that direct competition between Jewish denominations was not permitted until after the emergence of Reform, Orthodox and Ultra-Orthodox Judaism. Hence it cannot be the only or even original factor behind the schism in Judaism.\footnote{For an analysis of competition among religious clubs, see the companion paper by Carvalho et al. (2016). One of the applications explored in that paper is the long-term effects of competition on Jewish religious culture. See section 5.2 for a discussion.} As such, we take a different approach in this paper.

We build on the seminal work on Jewish communities by Berman (2000). Berman notes
that conventional price theory cannot explain three empirical puzzles: first, increases in real wages have led Ultra-Orthodox Jewish communities to increase the levels of strictness that they impose on members; second, the fertility of Ultra-Orthodox Jews is both high and increasing in real wages; third, labor supply among Ultra-Orthodox Jews has fallen with income. He applies and extends Iannaccone’s (1992) club goods model of religion to account for these facts. We build on Berman’s pioneering analysis in four ways.

First, we explore an alternative, highly complementary mechanism to that employed by Berman, namely the tradeoff between time and money contributions to the community. While this tradeoff features in early consumer-theoretic models of religion (e.g. Azzi and Ehrenberg, 1975), it has not been exploited in the literature on religious clubs. Second, we follow Berman’s suggestion of examining a model of religious prohibitions in which group members have an exit option, something not done in standard club goods models (see Berman, 2000, p. 933). Third, we develop an expanded and detailed historical narrative of Jewish emancipation and schism and apply our theory to explain variation in the support for Reform and Ultra-Orthodox Judaism across central and eastern Europe. Finally, we point to further extensions of the canonical club goods model suggested by our historical narrative. In particular, we explore a dynamic version of the model with intergenerational transmission of values.

In our model, individuals make time and money contributions to the community. A religious organization can impose prohibitions on members which reduce their income-generating capacity outside of the community. In so doing, the organization must choose between a relatively affluent community that expends little effort on religious participation and a poorer community that devotes a large amount of time and effort to religious activity. Our focus is on how political and economic development shape this tradeoff. The results are as follows. First, in a closed community, the equilibrium response to emancipation depends on the prevailing wage level in the economy. Where emancipation is accompanied by economic development, it is optimal for a religious organization to relax prohibitions and enable outside income-generating activities by community members in return for increased financial contrib-

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8Berman’s first puzzle is related to the birth of Ultra-Orthodoxy in the wake of emancipation, which he describes on page 932-934.
butions. Where there is emancipation absent economic development, however, any potential increase in financial contributions from outside activity is not sufficient to compensate for lost contributions of time and effort to the group. Second, a money-intensive form of club good production is preferred by a religious organization to an effort-intensive form when the proportion of members with high attachment to the community is sufficiently high. The reason is that money-intensive contributions are induced by relaxing prohibitions, thereby shifting reliance from extrinsic to intrinsic motivations for religious participation. Third, when individuals have the ability to exit the community a non-monotonicity is introduced. At intermediate levels of development, an increase in real wages can induce a rise in religious strictness. Even though individuals with low attachment to the community exit, this is more than compensated for by increased contributions of time and effort by high-attachment types.

Beyond its connection to Berman (2000) and the economics of religion more broadly (e.g. Iannaccone, 1992, 1998; Platteau and Aldashev, 2014; Iyer, 2015), this paper is related to work on Israeli kibbutzim by Abramitzky (2008, 2009, 2011). Abramitzky develops and tests a model of how egalitarian communities limit shirking and out-migration of high-ability members. His predictions are consistent with the way in which kibbutzim relaxed their egalitarian income-sharing arrangements in response to rising real wages in the outside economy. Unlike the case of kibbutzim, however, some Jewish communities responded to increasing outside opportunities by increasing strictness. Thus, our historical application leads to a new model of cultural polarization, driven by political and economic development.

This paper also contributes to a growing literature on Jewish economic history (see Chiswick, 1999, 2008, 2009; Voigtländer and Voth, 2012; Pascali, 2016; Anderson et al., 2016; Johnson and Koyama, 2016; Becker and Pascali, 2016). In particular, our focus on how economic incentives can generate religious change is related to the work of Botticini and Eckstein (2012) who provide an economic explanation for why Judaism changed from a religion of farmers to a religion of craftsmen and merchants in the early middle ages.

The structure of the paper is as follows. Section 2 describes the historical puzzle that motivates our analysis. That is, why did Jewish emancipation lead to both the emergence
of liberal variants of Judaism, such as Reform, and the birth of Ultra-Orthodox Judaism? To address this question, we develop a model of religious organization in section 3, building on Iannaccone (1992) and Berman (2000). In section 4, we show that the predictions of the model are consistent with historical patterns of religious change observed in the wake of Jewish emancipation. Section 5 develops an dynamic model and explores other extensions. Section 6 concludes.

2 Jewish Emancipation and Schism

2.1 Emancipation

Religion was not a matter of individual choice in pre-modern Europe. Communities imposed rules on their members which governed all aspects of their behavior including religion (Katz, 1974; Israel, 1985; Kaplan, 2007). Prior to Jewish emancipation at the end of the eighteenth century, Jews in Europe lived apart from Christians and faced discriminatory barriers and restrictions. These restrictions included special taxes and limitations on their choice of occupation, residency, marriage, and religious worship.9

We focus on the situation facing Ashkenazi Jews. It is estimated that European Jews, the preponderance of whom were Ashkenazi, made up four-fifths of the total Jewish population of 2.5 million at the end of the eighteenth century (Dubnow, 1971, 447).10 The traditional Judaism that emerged in the middle ages was organized around a local religious community, known as Kehilla, which was led by a rabbi who served as both religious leader and as local magistrate. Traditional Jewish communities provided a number of club goods to their mem-

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9See Langmuir (1990); Cohen (1994); Mundill (1998) and Koyama (2010) for analysis of the condition of Jews in the middle ages and Dubnow (1971) and Katz (1974) for details on the discriminatory barriers facing Jews in the early modern period. The right of a Jewish community to settle in an area was conditional on the goodwill of the local ruler (Goldscheider and Zuckerman, 1984, 13). Exceptions were and persecutions were not infrequent occurrences (Anderson et al., 2016). The Jewish community of Vienna was expelled in 1670. Maria Theresa expelled the Jewish community from Prague in 1744 (Vital, 1999, 1–4). See Dubnow (1971, 192–198) and Katz (1974, 12–13). The so-called Pharaoh-law of 1726 meant that only the eldest son of a Jewish family was permitted to marry and settle in Moravia and Bohemia (Dubnow, 1971, 188–189).

10The Sephardic Jewish communities of London and the Netherlands where Jews had been granted effective civic equality in the seventeenth century, are not our main subject of analysis though we consider them in Online Appendix F.
bers: religious services centered on the synagogue; a rabbinical court which adjudicated civil and criminal cases; collective insurance in the form of a poor house and an infirmary; and religious education through a school (cheder) where Hebrew and the Talmud were taught. A ritual slaughterer and bakery assured that food was uncontaminated and bathhouses were maintained for ritual washing (Rudavsky, 1967). The relative isolation of Jewish communities during this period meant that across central and eastern Europe, Jewish communities resembled one another. As Jonathan Israel notes, ‘by and large the essential similarities in the institutions of Jewish organized life held true everywhere’. They were were ‘a republic apart’ who wore distinctive clothes and spoke their own languages (Israel, 1985, 184).

Traditional Judaism was based on rabbinical laws (halakhah) that had evolved over the course of centuries and reflected the precarious position of the Jews as a unique minority group within Christian society. The halakhah comprised practices that enabled Jews to coexist as a minority group within Christian society while preserving their unique identity. Observant Jews were allowed to interact with gentiles and even visit their houses in order to sell goods to them, but they were not allowed to eat together. This limited social and cultural interaction between Jews and the rest of society.

During the pre-emancipation era, secular authorities permitted only a single synagogue and religious organization per community. Costs of exit were high: violating the laws of the community was extremely costly as ‘deviants could not persevere in their deviation and live both in Jewish society and in the surrounding society’ (Graetz, 1996, 5). For Jews who left Judaism in early modern Europe, there was no secular or religiously neutral arena into which they could enter. Even if they converted to Christianity, they often faced hostility and suspicion. This was the fate of Spinoza who was expelled from his own community and

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11 Finer notes ‘in this period, Jewish life in Europe was intimate, based on communal frameworks, shared lifestyles and self-consciousness and networks of family connections’ (Finer and Naimark-Goldberg, 2011, 31). The extent and details of the restrictions Jews faced varied from place to place. In Italy and Germany they were confined to ghettos, but even where this was not the case (as in Poland), they still lived separately from the Christian population.

12 As Katz writes: ‘Slight though his ideological training may have even, the Jew at least knew that Judaism and Christianity were mutually exclusive and therefore that defection to Christianity meant a complete abandonment of the true faith for a false one’ (Katz, 1974, 25).

13 Jewish converts were often suspected of ‘rejudaizing’ if they maintained contact with Jewish family members or continued Jewish dietary practices. Jews who attempted to integrate found themselves ‘between nations’ to use Adam Sutcliffe’s phrase (Sutcliffe, 2000).
viewed as an atheist by most Christians. Since Jews who left their community continued to face considerable discrimination, Jewish religious authorities did not have to concern themselves with the possibility of large-scale exit from their communities.

This changed with Jewish emancipation. The lifting of formal barriers to Jewish participation in mainstream society that took place across western Europe between 1782 and 1872 was a major shock to the economic and social opportunities available to European Jews. In the words of Jacob Katz: ‘[t]he transformation of Jewish society from its prerevolutionary state represents perhaps the greatest upheaval of any sector of European society at the time’ (Katz, 1974, 4). At the risk of simplifying a gradual and complex process, emancipation can be viewed as a general decline in the formal and informal discrimination Jews faced.

Jewish Emancipation was part of the larger political process whereby the modern state replaced local with central authority and in the process abolished old privileges and restrictions (Baron, 1928, 524-525). The process of emancipation was gradual and the precise details varied from country to country. The earliest acts of emancipation, such as Joseph II’s Toleranzpatent issued in 1782, only constituted partial emancipation (Patai, 1996). The French Revolution led to the emancipation of all Jews in France in 1791 and in the lands occupied by the French between 1791 and 1815 (Berkovitz, 1989, 111–114). Prussia and some other German states gave Jews some citizen rights between 1810 and 1815. Full emancipation, however, only took place in 1867 in the Habsburg monarchy and was only completed in Germany in 1871 (Katz, 1974).

Emancipation was an exogenous shock to most Jewish communities: few Jews ‘anywhere
in Europe had anticipated emancipation’ (Vital, 1999, 99). As it promised an end to the formal discrimination Jews faced, emancipation changed both the incentives and the constraints that traditional Jewish communities faced; it involved both the opening up of society in general to Jews and also the dismantling of ‘the political autonomy of the medieval Jewish community’. Jewish communities moved from being “closed” to being “open” societies and Jewish religious authorities lost their coercive power over community members. As one historian observes: these ‘changes catapulted the Jew from his medieval status into the modern world. Culturally, this meant that the Jew was belatedly experiencing the intellectual exhilaration which the Renaissance had brought to Europe four centuries earlier. Thus, whole centuries of slow transition were telescoped for the Jew into a relatively brief period of transformation’ (Rudavsky, 1967, 17).

2.2 Reform Judaism

Emancipation reduced the formal barriers to Jewish participation in mainstream Christian society. But the comparative isolation of Jewish communities during the early modern period meant that widespread cultural barriers remained which limited interaction between Jews and Christians. Reform Judaism emerged in the wake of emancipation as a less strict form of Judaism that enabled Jews to participate in mainstream society while maintaining their religious identity (Steinberg, 1965). The first Reform movement emerged in Germany at the turn of the nineteenth century. Enlightenment culture had begun to influence some Jewish communities, largely through the writings of Moses Mendelssohn (1729-1786). But this Jewish Enlightenment movement, haskalah did not involve religious change; it was an elite movement.\(^1\)\(^8\) The movement for religious reform had a broader base of support. Initially it was associated with the establishment of the first German-language Jewish periodical, Sulamith, by Israel Jacbson (Meyer, 1988, 28–32). In order to reduce religious tension

\(^1\)\(^7\)The small but prominent Jewish community of Berlin are a partial exception to this statement.

\(^1\)\(^8\)The haskalah drew on European and, more specifically, German Enlightenment thought. It applied the tools of critical reasoning to religion, particularly ‘the mode of thought that subjected virtually all matters of contention to the test of universal quality, content and application and significance’ (Vital, 1999, 137). The haskalah was an elite movement based around a small group of Berlin Jews—the Maskilim or young enlighteners— who applied historical and philological techniques to the study of Hebrew. This developed into a critique of rabbinical Judaism. Representative thinkers include Saul Ascher (1767–1822) author of Leviathan, or On Religion with Respect to Judaism, and David Friedländer (1750–1834).
between Christians and Jews, a new religious building in Dessau, called a Temple rather than a synagogue, was established and in which the service was accompanied by choral songs and prayers and sermons in German (Meyer, 1988, 42–43). A second Reform movement built on this precedent by establishing a Temple in Hamburg in 1818 and creating a new prayer book (Meyer, 1988, 56). Reform gained momentum in the 1830s and 1840s with a third Reform movement. By 1846 the various strands of Reform had been consolidated into a religious program that updated the requirements of Jewish law for the new economic and social environment encountered by German Jews. A simplified timeline of both emancipation and Reform is depicted in Figure 1.

### 2.3 Schism

Following emancipation, the common religious culture shared by all Jews in central and eastern Europe fragmented. Reform Judaism enabled many Jews to engage in economic development without leaving their religion, but it also destabilized and polarized Jewish communities across Europe. In particular in parts of Eastern Europe, Ultra-Orthodox Judaism emerged in reaction to Reform Judaism and emancipation. While Reform sought a

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19 The significance of renaming a synagogue a ‘Temple’ was that it implied that the community had come to terms with the loss of the Temple of Jerusalem in A.D. 70 and was giving up on the hope of returning to Israel.
common ground between Judaism and Christianity, Ultra-Orthodox communities emphasized features that distinguished them from outsiders. Reform facilitated relations with non-Jews; Ultra-Orthodoxy imposed new proscriptions and prohibitions on their members. It emphasized strictness (in Hebrew *machmir*) and fixed traditional practices as matters of religious law, blurred biblical and rabbinical injunctions, and elevated the importance of prohibitions restricting contact with outsiders.

Initially traditional rabbis found it difficult to resist the changes that were wrought as a consequence of emancipation. In particular, where Reform rabbis gained control of a community, the only option traditionalists had was to leave and form their own community (Katz, 1974, 154). In the next section we develop a model in which communities respond to emancipation and development in a way that matches the emergence of Reform and Ultra-Orthodoxy out of traditional Judaism.  

3 A Model

We can now introduce a theoretical framework that enables us to link changes in the character of religious communities to variations in economic development. In our model, individuals choose how much effort and money to allocate to secular consumption and how much to contribute to the production of a religious club good. Through religious prohibitions, religious leaders can effectively ‘tax’ opportunities to earn income outside of the group and thereby induce members of the community to redirect effort toward production of the religious club good. This places our model in the religious club goods tradition initiated by Iannaccone (1992). Nevertheless, there are several distinct features of our analytical approach, and it is these features that provide the thrust of our historical narrative.

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20The term Orthodox Jews though familiar is in fact a source of potential confusion. It originates with Saul Ascher, who used it to describe those who opposed any change or reform in the Jewish religion (see Schulte, 2000). We use the term Orthodoxy to distinguish those Jewish communities that opposed Reform in the nineteenth century and Ultra-Orthodoxy to denote those movements that emerged in the 1860s in opposition to both emancipation and Reform. This definition of Ultra-Orthodoxy came to encompass the Hasidic Jews of Eastern Europe from the late nineteenth century onwards. As we discuss below and in Appendix E, German Modern Orthodoxy or Neo-Orthodoxy does not fit this usage of Orthodoxy and is better viewed as liberalizing movement.
First, we exploit the tradeoff between effort and money contributions to the religious club good to link changes in the character of religious communities to variations in economic development. Second, we allow for an exit option for members, which combined with the input tradeoff, yields a non-monotonicity that explains the diverging responses to Jewish emancipation. In Appendix B, we analyze a dynamic extension of the model with overlapping generations and intergenerational transmission of preferences.

The Setup of the Model

Consider a game played by \( n \) individual agents and a religious authority. Agents choose whether to join the religious community (there is only one), and divide effort between income-generating activity outside the community and production of a religious club good within the community. Earned income can be spent on a consumption good or donated to the community. Effort and money contributions to the community are combined to produce the religious club good. To induce agents to redirect effort towards group production, the religious authority can impose prohibitions, e.g. dress, dietary and behavioral restrictions, that stigmatize agents in the broader society. Following Iannaccone (1992), these prohibitions act as a ‘tax’ on outside income-generating activity by its members (see also McBride, 2008, 2010). We shall refer to the severity of prohibitions imposed by the group as its level of strictness.

Let us begin by analyzing the following one-shot game without an option to exit from the group:

**Date 0.** An agent can be one of two types denoted by \( \theta \), where \( \theta = L \) is a type with low attachment to the community and \( \theta = H \) is a type with high attachment to the community. The proportion of type-\( H \) agents in the population is \( p \in (0, 1) \).

**Date 1.** The religious authority announces a level of strictness \( \tau \in [0, 1] \).\(^{21}\)
Agents then choose to devote effort $e \in [0, 1]$ to the production of a religious club good. Effort $1 - e$ is devoted to income-generating activity outside the community. Income equals $(1 - \tau)\lambda(1 - e)$, where $\lambda$ is a productivity parameter. It shall become clear that $\lambda$ is a natural measure of economic development in our model. Strictness $\tau$ acts as a linear tax on income-generating activity outside the community. Income can be divided between consumption of a unique non-storable good with unit price and a financial contribution to the community. Let $c$ be the quantity consumed of the secular good and $g$ be the amount of income donated to the religious community.

Output of the religious club good is produced by a combination of members’ effort and money contributions.

We shall now proceed to specify payoffs. The utility function for each type-$\theta$ agent who joins the community is given by the following CES form:

$$
\left(e^\sigma + \beta_\theta R^\sigma\right)^{\frac{1}{\sigma}},
$$

where $\sigma < 1$. $R$ is the agent’s utility from consuming/contributing to the religious club good and we assume $\beta_H > \beta_L > 0$ so that high-attachment types derive greater enjoyment from the club good. For simplicity, we assume that $R = e + g$, the sum of the agent’s effort and money contributions.\(^{22}\) We view the payoff from contributing to the religious club good as a combination of (i) religious leisure/warm glow and (ii) rewards in terms of allocation of the final club good.

To elaborate on interpretation (ii), suppose that output of the (congestible) club good is a linear function of total contributions:\(^{23}\)

$$
\pi = \alpha \sum_{i \in N} (e_i + g_i).
$$

This club good is divided among members according to their relative contributions so that an agent who contributes $e + g$ receives $\frac{e + g}{\pi/\alpha} \pi$, which equals $\alpha(e + g)$. In addition, suppose

\(^{22}\)The perfect substitutability of effort and money contributions means that in general only one type of contribution is made.

\(^{23}\)We follow Berman (2000) in examining the case of a congestible club good.
their valuation of this allocation is $\tilde{\beta}_\theta[\alpha(e + g)]^\sigma \equiv \beta_\theta(e + g)^\sigma$, as above.\textsuperscript{24}

The budget constraint is:

$$c + g \leq (1 - \tau)\lambda(1 - e), \quad (3)$$

which will bind in equilibrium, because (1) is strictly increasing in $c$. Therefore, $c = (1 - \tau)\lambda(1 - e) - g$.

Substituting the expressions for $c$ and $R$ into (1) we get:

$$\left([(1 - \tau)\lambda(1 - e) - g]^\sigma + \beta_\theta(e + g)^\sigma\right)^{\frac{1}{\sigma}}. \quad (4)$$

We assume that $e = g = \tau = 0$ for individuals who exit the community, i.e. they cannot contribute effort or money to production of the religious club good, and they do not face the tax $\tau$ on outside activity. Substituting this into (4) yields a payoff of $\lambda$ from remaining outside the community, which we shall henceforth refer to as the level of economic development.

The religious authority chooses $\tau$ to maximize output of the religious club good $\pi$ as given by equation (2), where in equilibrium $e_i$ and $g_i$ depend on $\tau$.\textsuperscript{25}

Equilibrium

The first tradeoff faced by a religious authority in setting the community’s level of strictness $\tau$ is between contributions of effort and money. A higher $\tau$ diminishes agents’ income-generating opportunities outside of the community, inducing them to redirect effort to production of the religious club good. However, this also means that they have less income to

\textsuperscript{24}Note that motivation (i) for contributing to the religious club good (described above) does not require contributions to be observable by the religious authority, whereas motivation (ii) requires observable contributions. The way in which strictness is modeled in this paper, in the manner of Iannaccone (1992), is generally considered to be a second-best solution when contributions are unobservable. Suppose, however, that contributions are partially observable. Motivation (i) drives unobservable contributions, while motivation (ii) drives observable contributions. Then the religious authority may use strictness $\tau$ to elicit both observable and unobservable contributions. We thank an anonymous referee for this point.

\textsuperscript{25}In the presence of religious competition, religious authorities have to compete for members and would therefore tend to maximize overall utility. However, until the last quarter of the nineteenth century in central Europe, both secular and religious authorities colluded to prevent religious competition from emerging.
donate to production of the religious club good. Analyzing the version of the game without an exit option from the religious community allows us to focus on this tradeoff.

According to the following proposition, the strategy adopted by a religious authority will depend on the level of economic development faced by members of its community.

**Proposition 1 Development & Religion**: There exists a unique subgame perfect equilibrium (SPE) of the game without exit, characterized by a threshold for development \( \tilde{\lambda} \), such that:

(i) For \( \lambda \leq \tilde{\lambda} \), the SPE implements:

\[
\tau^* = 1, \quad e_i^* = 1 \quad \text{and} \quad g_i^* = 0,
\]

for all \( i \in N \).

(ii) For \( \lambda > \tilde{\lambda} \), the SPE implements:

\[
\tau^* = 0, \quad e_i^* = 0 \quad \text{and} \quad g_i^* = \frac{\beta_i^{1/1-\sigma} \lambda}{1 + \beta_i^{1/1-\sigma}},
\]

for each \( i \in N \).

Proofs of all propositions are provided in the appendix.
Proposition 1 describes how the character of a religious community can shift with an increase in development, from effort-intensive to money-intensive modes of production. The intuition behind this result is as follows. Through religious prohibitions religious leaders can effectively ‘tax’ outside activities and thereby induce the members of the community to redirect effort toward production of the religious club good. When economic development is low, the benefit to the religious authority from lowering $\tau$ and thereby increasing monetary contributions $g$ is small compared to the foregone contributions in terms of effort. Thus the optimal level of strictness $\tau^*$ is equal to its maximum value at low levels of economic development $\lambda$. This is depicted in Figure 2. When economic development is high, the increased financial contributions from a richer congregation more than compensate for the lower levels of effort. Once economic development reaches $\tilde{\lambda}$, the religious authority switches to $\tau^* = 0$.\textsuperscript{26} The best response of community members to the religious authority’s choice of $\tau$ is depicted in Figures 3 and 4.

The following corollary analyzes the determinants of the switching threshold $\tilde{\lambda}$.

\textsuperscript{26}In our model, an increase in $\lambda$ raises the opportunity cost of effort spent on religious activity. If financial contributions were measured in ‘real’ terms, e.g. $g/\lambda$, then a rise in $\lambda$ would also lower the benefit from a given level of financial contribution, thereby raising the opportunity cost of work. The net effect is ambiguous \textit{a priori}. Accounting for this tension would complicate the analysis substantially. Nevertheless, when the religious club good is not produced entirely with labor, it is natural that the net effect of higher wages is to raise the opportunity cost of religious effort. This is the conventional assumption in the literature.
Corollary 1  The threshold for switching to money-intensive contributions, $\tilde{\lambda}$, is:

(i) strictly decreasing in the proportion of high-attachment types, $p$,

(ii) strictly decreasing in the attachment levels for each type, $\beta_L$ and $\beta_H$.

The reasoning behind this result is as follows. When $\tau = 1$, all agents choose the maximal level of effort contribution $e = 1$, regardless of their type. When $\tau = 0$, each agent contributes instead by donating money to the community and their financial contributions are increasing in their attachment to the community. Hence, a money-intensive form of club good production is preferred to an effort-intensive form of production when the proportion of high-attachment types $p$ and the attachment levels of each type are sufficiently high. Intuitively, money-intensive contributions are induced by relaxing prohibitions. In doing so, the organizations shifts its reliance from extrinsic to intrinsic motivations for religious participation.

The Emergence of a Stricter Religious Community

When agents have the option to exit, the religious authority may be constrained in its choice of strictness. In particular, setting a high $\tau$ may induce low-attachment types to leave the community and form a new stricter religious group. Hence, the religious authority faces a new trade-off: relax prohibitions to keep low-attachment types in the community or induce their exit and cater to a smaller, stricter, poorer and more committed community. The following lemma characterizes the exit constraint faced by the religious authority.

Lemma 1 Exit Constraint. The following applies for both types of agents $\theta = L, H$.

(i) For $\lambda \leq \beta_0^{1/\sigma}$, all type-$\theta$ agents remain members of the community, regardless of $\tau \in [0, 1]$.

(ii) For $\beta_0^{1/\sigma} < \lambda < \left(1 + \beta_0^{1-\sigma}\right)^{\frac{1-\sigma}{\sigma}}$, there exists a unique threshold $\tau_\theta \in (0, 1)$, such that all type-$\theta$ agents exit the community if and only if $\tau > \tau_\theta$. 

The threshold $\tau_\theta$ is strictly decreasing in economic development $\lambda$ and strictly increasing in $\beta_\theta$. Hence $\tau_H > \tau_L$.

When economic development is low, all agents will remain in the group, regardless of its level of strictness. However, as economic development reaches an intermediate level, the exit constraint begins to bind. An agent’s ‘tolerance for strictness’, $\tau_\theta$, is then decreasing in economic development and increasing in her attachment to the group.  

We can now analyze the equilibria of the game when agents have the option to exit the community. The following proposition states that if low types have sufficiently low attachment, then high types have an incentive to leave and form their own stricter religious group.

**Proposition 2 Exit and the Formation of a Stricter Religious Community:** Consider the game with exit. For $\beta_L$ sufficiently low, there exists a unique SPE as follows:

27Note that we do not need to characterize the exit constraint for high levels of development, i.e. $\lambda \geq \left(1+\beta_\theta^{\frac{1}{1-\sigma}} \right)^{\frac{1}{1-\sigma}}$. For such high levels of economic development, agents switch to money-intensive contributions and the religious authority has an incentive to set $\tau = 0$. At $\tau = 0$, no agent will exit the community—they can do at least as well by remaining in the community and setting $e^* = g^* = 0$. Hence, the exit constraint will not bind in this case.

Figure 5: Strictness $\tau$ as a function of economic development $\lambda$ when agents have an exit option.
(i) For $\lambda \leq \beta_L^{1/\sigma}$, every agent remains a member of the community and equilibrium actions are as in Proposition 1(i).

(ii) There exist unique thresholds $\underline{\lambda}$ and $\bar{\lambda}$, such that for all $\beta_L^{1/\sigma} < \lambda < \bar{\lambda}$ every agent remains a member of the community and:
\[
\tau^* = \tau_L, \quad e^*_i = \frac{\beta_i^{1/\sigma}}{\beta_i^{1/\sigma} + [(1 - \tau_L)\lambda]^{\sigma}} \quad \text{and} \quad g_i^* = 0 \quad \text{for all } i \in N.
\]

For $\underline{\lambda} \leq \lambda \leq \bar{\lambda}$, low-attachment types exit the community. Only high-attachment types remain members of the community and:
\[
\tau^* = \min\{\tau_H, 1\}, \quad e^*_H = \frac{\beta_H^{1/\sigma}}{\beta_H^{1/\sigma} + [(1 - \min\{\tau_H, 1\})\lambda]^{\sigma}} \quad \text{and} \quad g_i^* = 0.
\]

(iii) For $\lambda > \bar{\lambda}$, all agents remain members of the community and equilibrium actions are as in Proposition 1(ii).

The intuition behind Proposition 2 is as follows. Economic development increases the incentive that individuals, especially low-attachment individuals, have to exit the community and participate in the outside economy (Lemma 1). Therefore, the religious authority lowers $\tau$ as economic development increases in order to retain low-attachment types. This is costly for the religious authority because it means that the amount of effort that is devoted to production of the religious club good declines for both types. At an intermediate level of $\lambda$ it becomes prohibitively costly to retain low-attachment types. It is possible for the religious authority to generate higher aggregate contributions to the religious club good by raising $\tau$, and thereby inducing greater effort from the remaining high-attachment types, even though low-attachment types exit the community. Consequently, there exists an intermediate range of $\lambda$, $(\underline{\lambda}, \bar{\lambda})$, such that the religious authority will increase $\tau$ to maximize religious participation from $H$-types as shown in Figure 5. Increasing development over part of this parameter range leads to greater religious strictness and to the formation of a stricter religious community. As the level of economic development becomes high, however, the religious authority switches to $\tau = 0$. All agents join the group and switch to money-intensive contributions.\footnote{Alternatively, we could conduct the analysis with high and low ability types. The results of the one-shot game when agents differ in their ability are qualitatively similar. When economic development is high, the}
Strictness $\tau$ acts as a screening device, as in Iannaccone (1992) and Berman (2000). Existing work assumes that religious groups always prefer to screen out low-attachment types. The difference here is that screening occurs endogenously. When development is low, a religious leader wants to maintain a cohesive community and does not screen out low types. At higher levels of development, the group endogenously switches to screening.

4 Applying the Model to History

Prior to emancipation Jewish communities across much of Europe had few economic opportunities, i.e. they faced a low level of $\lambda$. Isolated from mainstream society, communities in different parts of central and eastern Europe shared a common religious culture. Emancipation, however, exposed community members to new opportunities which differed markedly depending on the level of economic development of the region. The level of economic development across central and eastern Europe varied considerably: per capita GDP in Germany was approximately twice what it was in what is now Poland.\textsuperscript{29} Exposure to different economic environments produced different cultural reactions.

4.1 Economic Development and Rise of Reform in Germany

Emancipation was a necessary, but not a sufficient condition for Reform to succeed. Reform was successful in Germany largely because emancipation coincided with the onset of sustained growth in the German economy. Emancipation plunged Jewish communities in Germany religious authority induces members to switch to money intensive contributions by relaxing strictness. One difference is the tradeoff faced by the religious authority when exit is an option. High-ability types, like low-attachment types, have an incentive to leave the community when economic development is sufficiently high. High-ability types, however, earn higher incomes and hence may make greater financial contributions to the community, even if they have lower attachment to the community. This means that while schisms can still occur, the religious authority raises strictness and induces the exit of high-ability types for a smaller range of values for $\lambda$.

\textsuperscript{29} According to Angus Maddison’s calculations, per capita GDP in 1990 Geary-Khamis dollars was $1,839 in Germany in 1870, and $946 and $931 in what are now Poland and Ukraine, respectively (Maddison, 2003). In the nineteenth century, the territory of modern Poland belonged to Russia, Prussia and the Habsburg empires. The Habsburg province of Galicia corresponds to western Ukraine, eastern Poland and parts of Romania.
into a high $\lambda$ environment, an environment which provided new economic opportunities for minorities willing to seize them.

While emancipation gave Jews the right to work and socialize outside of their community, the industrialization that accompanied emancipation in western Europe ensured that they had an economic incentive to do so, as both wages and the return to acquiring secular human capital increased. To illustrate, Figure 6 plots per capita GDP in 1990 US dollars from the Maddison Project alongside the major dates of emancipation. The process of emancipation was a complex one and gradual.\(^{30}\) Emancipation either preceded or roughly coincided with the first stirring of modern economic growth across western European countries. Growth was particularly marked in Germany. The period between 1815 and 1850 saw the German economy experience commercial expansion and growth along Smithian lines. Much of this growth can be linked to the imposition of market-supporting institutions following French rule during the Napoleonic wars and an associated increase in market integration (Keller and Shiue, 2015).\(^{31}\) It was associated with rapid urbanization. The population of Frankfurt-am-Main increased from 32,000 in 1750 to 62,000 in 1850; Stuttgart more than doubled its population from 17,000 to 50,000, while smaller cities like Schwerin in Mecklenburg increased from 3,000 in 1750 to 20,000 by 1850 (Bairoch, 1988). In contrast, as Figure 6 illustrates, Jews were not emancipated in the territories of Tzarist Russia, which was markedly poorer than Western Europe and saw little per capita GDP growth until the end of the nineteenth century.\(^{32}\)

Economic growth accelerated further after 1850. The period between 1850 and 1870 saw ‘the fastest economic growth rates in Germany in modern times’ (Breuilly, 2003, 206). Urbanization also increased its pace: the proportion of the population living in towns with more than 2,000 inhabitants rose from around 26 percent in 1834 to 35 percent in 1871 and 47 percent in 1890. Berlin roughly doubled in size between 1850 and 1870; Hamburg, Leipzig,

\(^{30}\)We detail how we define emancipation for the purpose of Figure 6 in Appendix B. Note that where the timing of emancipation is difficult to date, as is the Germany, we include multiple dates.

\(^{31}\)The single most important factor driving this Smithian growth was the abolition of tariff barriers between members of the Zollverein in 1834. Keller and Shiue (2014) find that differences in the price of wheat between cities fell by around one third with the implementation of the customs union.

\(^{32}\)Tzarist Russia contained the largest Jewish population in the world at the time, confined within the Pale of Settlement (Grosfeld et al., 2013).
Dresden, and Breslau grew by approximately 75 percent on average during the same period (Guinnane, 2003, 51). Schofer writes: ‘the economic opportunities of the post-1848 boom encouraged large numbers of Jews to leave the small-town economy and to enter the urban, national one’ (Schofer, 1981, 81). Jewish community leaders faced a new set of incentives: ‘[i]nter-action with non-Jews, which had been the exception, often deliberately avoided, now became the inescapable norm’ (Pulzer, 1992, 5).

During this period of rapid growth Reform Judaism became the religion of the majority.

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Rahden observes ‘the more the economy was liberalized, and the more trade and industry grew at the expense of agriculture, all the clearer was the road that beckoned to the hard worker, and the more chances emerged for the advancement of Jews from Central Europe … From the perspective of many German-speaking Jews in Central Europe, the long nineteenth century was a golden age of economic advancement' (van Rahden, 2008, 27). By 1871 more than 60 percent of all German Jews were in middle or higher income brackets (Barkai, 1981). In 1871, 43 percent of inhabitants of Hamburg earned less than 840 marks a year. Among Jews the proportion who belonged to this low income category was only 3.4 percent (Richarz, 1975, 70).
of Jews in Germany. Traditional Judaism became confined to ‘villages and small towns’ (Lowenstein, 1992, 92). Our model offers a mechanism which explains why the attractiveness of these new economic opportunities led religious communities to relax practices which inhibited economic and social interaction such as dietary laws and strict observance of Jewish holidays. In particular, the ‘need to be economically competitive forced many to do business on Saturday, the Jewish Sabbath’ (Lowenstein, 1981, 256).

Many elements of the Reform movement can be interpreted in terms of lowering strictness (Plaut, 1963; Steinberg, 1965; Meyer, 1988). Others can be interpreted as reducing cultural distance and tension between Judaism and Christianity. For example, male circumcision was abandoned among some German Reform communities and the bar mitzvah was replaced by confirmation. Choirs and organ music were introduced into the synagogue (Lowenstein, 1981). An important part of the broader Haskalah movement was the attempt to denationalize Judaism, and, as part of this, Reform Judaism abandoned prayers for the speedy return of the Jewish people to the Holy Land (Breuer, 1992, xi).

These observations are consistent with the fact that Reform Judaism was driven by practical men. Freehof observes that the ‘laity, as business and professional men, came first into contact with the modern age. They were changed by it and therefore they wanted Jewish observances changed to fit their life’ (Freehof, 1955, 354). Religious leaders concerned with maintaining their religious communities and maintaining Jewish identity under new economic conditions sought to meet this demand. Subsequently intellectuals such as Holdeim and Geiger began to rethink and remodel the religious foundations of Judaism in a way that justified the innovations that had taken place. Hence we refer to Reform Judaism as an

\[\text{[34]}\] Lowenstein observes that ‘[t]he causes for the abandonment of Orthodox religious practice were manifold, but they were often as much economic and social as ideological.’ (Lowenstein, 1981, 256). Mosse notes that ‘[b]y mid-century, the use of a separate language (Yiddish) had largely disappeared. So had traditional observances impeding Jewish integration: observance of the sabbath and of the ritual laws, which had, to some extent, promoted the maintenance of a distinct Jewish economic network’ (Mosse, 1987, 168).

\[\text{[35]}\] The intellectual leaders of Reform Judaism, like Zachariah Frankel (1801–1875) and Nachman Krochmal (1785–1840s) and radicals like Geiger, argued that the halakhah was manmade and hence malleable; it could be adapted to meet the needs of modern society. Geiger observed that even ‘when the ceremonial laws were much more highly esteemed and considered much more binding, the ancient sages said that in fact a Jew was everyone who rejected idolatry and who did not place another power next to the one God. But Judaism developed greatly later on, and especially so during the last century. In the historical process it has reached a level of knowledge which lays less stress on external acts and more on those fundamental convictions of the unity of God’ (Geiger, 1858, 1963, 240).
example of cultural integration.\textsuperscript{36}

As our model suggests, religious liberalization was distinct from secularization. Members of Reform communities did not necessarily consume less religion than members of traditional Judaism had done, but they consumed religion in a different form. Specifically, Reform made less strict demands on the time of community members, imposed fewer prohibitions on secular activity and relaxed requirements for stigmatizing forms of behavior. In the words of one advocate of Reform,

\textsuperscript{36}We use the neutral term cultural integration to describe this process of ‘cultural acculturation’. It is not the same as cultural assimilation. The term “assimilation” is controversial in this context because it ‘implies that the vast majority of Jews sought to fuse with other Germans in the desire to give up their religious or cultural distinctiveness. It suggests a kind of submission, an exchange of “Jewishness” for “Germanness,” and perpetuates contemporary negative stereotypes that German Jews felt no Jewish solidarity’ (Kaplan, 1991, 11).
‘[m]any petty regulations such as the prohibition of shaving, the requirement that women wear Scheitels (wigs) the institution of the Mikvah (ritual bath) as an adjunct of the synagogue, and customs like Tashlikh (propitiatory rite based on the literal interpretation of Micah 7:19 b) and Kapparoth Schlagen (substitution of a fowl for a human being as a means of atonement) lost all religious meaning’ (Cohon, 1922, 36).

The mechanism advanced here suggests why the new form of Judaism was less time-intensive than traditional Judaism had been, and can account for the observation that, while ‘[b]y 1871 the great majority of the German Jews were no longer observant of Jewish ritual law in its totality,’ they continued to practice their religion and were generous with financial donations. Urban Jewish communities ‘now boasted lavish new synagogues and attractive liturgical music’ (Meyer, 1997a, 352). Between 1850 and 1900, 91 major new synagogues were built in Germany—more than had been constructed in the previous two hundred years combined (Kober, 1947). Many of these synagogues—particularly those built in the 1840s and 1850s—were built to resemble Protestant churches as the examples shown in Figures 7 and 8 demonstrate. Reform Judaism permitted urban and secularly educated Jews to maintain their religious and cultural identity while also allowing them to profitably participate in social and economic spheres previously reserved for Christians.

Of course, not all Jews were in favor of religious reform. As we describe in greater detail in the section below, across central Europe, traditionalist opposed the Reformers. The Reformers called these opponents Orthodox or Altgläubigen (Old Believers), a catchall label adopted from Christianity. Orthodoxy refers not to belief but to practice. Below we focus on the emergence of Ultra-Orthodoxy, the most radical and successful form of opposition to religious liberalization, a movement that involved ‘the invention of a new, more potent tradition . . . In order to preserve tradition uncompromised, these most conservative of men, paradoxically, employed methods in arriving at halakhic decisions which departed from what had been the accepted norm, not only in traditional Judaism, but also in the more recent past, in post traditional mainstream Orthodoxy’ (Silber, 1992, 26).

Within Germany there was regional variation in early support for Reform. Prior to eman-
cipation, the most culturally advanced Jewish community was that of Berlin, which had been the center of the Jewish Enlightenment movement (Lowenstein, 1994, 1997a). However, the strongest impetus towards religious liberalization came from western and southern Germany—‘the area near the Rhine, Main and Mosel rivers in the West and the area just west of the Saale and Elbe in Central Germany’ (Lowenstein, 1992, 98). Lowenstein (1981) provides information on German-based rabbis who attended at least one of the Reform conferences between 1844 and 1846. These conferences played an important role in cementing and codifying Reform Judaism. For example the Breslau Rabbinical Conference of 1846 permitted Jewish shopkeepers to open their shops on the second day of any Jewish holiday (Lowenstein, 1992, 87). Matching the communities detailed by Lowenstein (1981) with data from the Bairoch (1988) dataset of city populations, we find some evidence that communities that were located in cities that had experienced rapid population growth in the prior century were more likely to send a rabbi to one of the Reform conferences.\footnote{We provide details on this exercise in Online Appendix C.} This is consistent with our theory: population growth was a sign of economic development and commercialization and it was Jews in these rapidly developing parts of Germany that first felt the impetus to undertake religious reform.

Despite emancipation, secular authorities throughout Germany only permitted each Jewish community a single official synagogue (see Meyer, 1979). This meant that across Germany there were fierce doctrinal struggles for control of the major synagogues. Conservatives attempted to oppose Reform, first in Frankfurt and then in Hamburg. A particularly important conflict broken out when the reformer, Geiger was appointed to the rabbinate of Breslau in 1838 and was directly opposed by the traditionalist Solomon Titkin who sought to use the Prussian government to have him deposed. However, in the long-run the traditionalists were unsuccessful. For the reasons suggested by our model, a strict form of Judaism had little appeal in a high $\lambda$ environment: Reform triumphed and the majority of German Jews belonged to Reform Judaism by 1900 (see Lowenstein, 1981, 1997b).

The predictions of our model are also borne out by the comparative success of Modern Orthodox Judaism founded by Samson Raphael Hirsch in Frankfurt-am-Main in 1850 which became the second largest group within German Judaism after Reform. Modern Ortho-
doxy was founded in opposition to Reform Judaism. But, despite the fierce doctrinal and theological differences between Modern Orthodoxy and Reform, it represented a liberalizing movement relative to traditional Judaism. Like Reform it also relaxed many aspects of Jewish law in order to facilitate economic integration; it differed from Reform in that it retained a conservative attitude to core aspects of Jewish identity. As Meyer (1988) notes that ‘[l]ike the Reformers, [Hirsch] sought to make peace with modernity … in the process he too “reformed” Judaism, although his principles were very different from those who identified themselves with the Reform movement’ (Meyer, 1988, 77).

Having established how our model helps to explain the emergence of Reform Judaism in Germany, we can now show how it is also consistent with the rise of Ultra-Orthodoxy Judaism in Hungary and with the persistence of traditional Judaism in Eastern Europe.

4.2 Development and Schism in Hungary

The majority of Hungarian Jews were settlers from Germany who had arrived in Hungary in the eighteenth century. Prior to the end of the eighteenth century, they were not culturally distinct from the majority of German Jews. Although, Hungarian Jews were far removed from the intellectual developments associated with Moses Mendelssohn and the Haskalah movement in Berlin than were some other Jewish communities, they were nonetheless influenced by it as they spoke the same languages and shared a common religious and intellectual culture.

Consistent with this is that observation that the Hungarian rabbinate was initially favorable towards the Jewish Enlightenment movement in the late eighteenth century: ‘the Haskalah was welcomed without abandoning appreciation for traditional rabbinic culture’ (Silber, 1987, 113). Nevertheless, during the nineteenth century, following emancipation, Hungary would become the ‘cradle of Ultra-Orthodoxy, the most un-enlightened, ardently anti-assimilationist Jews in Europe’ (Lupovitch, 2006, 4).

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38 We provide more details substantiating the view that Modern Orthodox Judaism was a liberalizing religious movement in Appendix E.

39 Thus, Silber observes that ‘[o]ne would be hard pressed to come up with a Bohemian, Moravian, or Western Hungarian rabbi at the turn of the century who did not display an intellectual curiosity concerning “external studies,” be it medieval Jewish philosophy, grammar, [or] the sciences’ (Silber, 1987, 113).
Institutionally Hungary in the mid-nineteenth was comparable to the rest of central Europe but its economy was less developed and industrialized than that of either Germany or Austria. Hungary was a region with an intermediate level of economic development, a term that describes an economy that is no longer entirely traditional and in which some level of economic development has taken place, but this development has either not been sustained or has not translated into a noticeable rise in per capita living standards for the majority of the population.\textsuperscript{40} In the context of the second-half of the nineteenth century, the Habsburg empire conforms to our definition of an economy with an intermediate level of λ.\textsuperscript{41} Growth in the Habsburg empire was highly uneven. Heavy industry and textile manufacturing were concentrated in Austria and in Bohemia and the latter region benefited especially from the growth of metallurgy and the chemical industry from 1850 onwards (Good, 1984, 132). Living standards varied considerably within the empire.\textsuperscript{42}

Jewish emancipation in Hungary was a slow process; though the Habsburg empire had been the first central European state to begin the process of emancipation, the process stalled after the death of Joseph II, and political momentum towards civil rights for Jews only got started again in the 1840s, when it became linked to a more general push for liberal and nationalist reforms in the empire.\textsuperscript{43} Full emancipation was achieved in 1867; it took place in an economy

\textsuperscript{40}In a modern context, the term corresponds to countries like Iran or Egypt which have experienced periods of growth, and are not at subsistence levels of income, but have then suffered stagnation or growth reversals (see Hausmann et al., 2005).

\textsuperscript{41}The Habsburg empire saw increases in both population and per capita income in this period but did not experience a prolonged period of catch-up growth or rapid industrialization after 1850 along German lines (Good, 1974). Per capita growth rates of around 1.15 percent per annum between 1870 and 1914 raised living standards in absolute terms but did not generate convergence with the most advanced economies in western Europe (Good, 1984). The per capita GDP of the economic leader Great Britain remained 2.5 times that of the Habsburg empire’s in 1913, the same ratio that had obtained in 1870 (Schulze, 2000; Maddison, 2003). The richest part of the empire, the lands corresponding to Modern Austria, had a similar per capita GDP to Denmark in 1870, but by 1913 Danish per capita GDP was thirty percent greater (see Schulze, 2000, 324).

\textsuperscript{42}As late as 1890, nominal wages in Lemberg (modern Lwów) were half those of Lower Austria (Good, 1984, 122). Men born in the poorest parts of the empire—Hungary, Galicia, Transylvania—in the 1860s were, on average only 161-162.5 cm tall. That was 3.3 cm shorter than men born in Austria proper, 7 cm shorter than those born in Dalmatia, and amongst the shortest men in Europe at the time (Komlos, 2007, 215).

\textsuperscript{43}In Hungary, those advancing the cause of Jewish emancipation were therefore allies of liberal Magyar (Hungarian) reformers, who were pushing for national independence and who opposed the policies of the Habsburg monarchy. This complicated the issue of emancipation. It became ‘a multilateral proposition’ that ‘depended to a large extent on the balance between the Magyar and non-Magyar Christian elements’ in the Hungarian polity (Barnay, 1974, 5). Jews were given the prospect of emancipation when civic rights were
that was still poor, but where some economic development was underway. In 1870, Hungary was one of the poorest regions of Europe; per capita income was around $1000 compared to around $1,830 in Germany in 1870 (1990 Geary-Khamis dollars).\textsuperscript{44} Urbanization levels were low. The combined populations of Pest, Buda and Óbuda was only around 100,000 in 1830. However, unlike the rest of Eastern Europe and the Balkans, the Hungarian economy did experience growth after 1870. Per capita income reached $1,313 in 1890 and $1,722 in 1913 (Schulze, 2000, 324).\textsuperscript{45}

This growth did not resemble Germany’s, however. The Hungarian economy remained rural: 74 percent of the population remained in agriculture according to the 1880 census. Land tenure was highly unequal; the largest 1 percent of farms accounted for 45 percent of the land (Good, 1984, 139). Urban growth lagged behind that of western Europe: only 2 percent of the population lived in Budapest in 1870 (Beluszky and Györi, 2005, 35). Much of the growth recorded after 1850 was based on rising levels of agricultural output and on agricultural biproducts. The largest industry in Hungary was flour milling (0.73 of industrial value added in 1864-1866 according to Good (1984, 132)). The customs union with Austria in 1851 permitted Hungary to specialize in agriculture and in industries related to agriculture, while heavy industry was located in Bohemia, and textile manufacturing was predominantly based in Austria. Hungary also lagged in terms of investment in human capital. Literacy rates remained low. In 1880, only 41.8 percent of the population over the age of 6 could read (Beluszky and Györi, 2005, 37). Hence the kinds of opportunities that were available for German Jews—in finance and manufacturing—were not open to Hungarian Jews, at least, not on the same scale.

As we have noted the \textit{Haskalah} movement was not initially perceived as a threat to the traditional order until emancipation and some level of economic development occurred. In

\textsuperscript{44}Estimates for Hungarian GDP in 1870 vary slightly. Maddison reports an estimate of $1,092 (1990 Geary-Khamis dollars) (Maddison, 2003). But the lower estimate of $978 (1990 Geary-Khamis dollars) due to Schulze is probably more reliable (Schulze, 2000).

\textsuperscript{45}Schulze estimates that after 1870, Hungary experienced an annualized rate of growth of 1.32 percent, faster than that recorded in western Austria, Russia, or Southern Europe, but considerably less than the growth rate experienced by Germany, Finland, Denmark or Switzerland (Schulze, 2000, 324).
the 1840s and 1850s, a Hungarian Reform movement, known as Neologism and led by Loeb Schwab, Leopold Löw and Meir Zipser, emerged as a response to economic change as ‘the modernization of Hungary . . . raised religious-halakhic problems which had no precedent under the former conditions’ (Katz, 1998, 43). In terms of the model, the Hungarian Reform movement was an attempt to reduce $\tau$ in the face of gradually improving outside economic options. Their efforts correspond to the initial downwards-sloping segment of the $\tau^*$ function in Figure 5.

Hungary, however, also became a bastion of opponents to Reform. Traditionalists like Moshe Sofer (1762–1839), known as the Hatam Sofer, the most influential figure in Eastern European Orthodoxy, fled from Germany to Hungary where his ideas gained considerable traction. Sofer insisted that the halakha had to be obeyed absolutely and that there was no middle way between their strict observance and abandoning them. All aspects of the religious laws were equal and this meant that no law could be changed by the reformers: ‘the attempt to subject the fundamentals of Judaism to reconsideration was itself damnable’ (Vital, 1999, 116). In particular, Sofer influenced a group of still more radical rabbis who would break away to form Ultra-Orthodoxy as predicted by Proposition 2. The leaders of Hungarian Ultra-Orthodoxy were Maharam Schick (1807–1879), Hillel Lichtenstein (1814–1891) and Akiva Yosef Schlesinger (1837–1922). These disciples ‘carried the idea of cultural asceticism and organizational separation to extremes scarcely contemplated by the master’ (Katz, 1986, 30).

Hungarian Ultra-Orthodoxy began in a meeting held in 1866 that condemned innovations and prohibited entering any synagogue in which there were sermons in the vernacular, choirs, where men and women were not separated, where the prayer platform was not in the centre or where weddings had been held. At this date, only one Jewish religious community was permitted and recognized by the state. The Ultra-Orthodox rabbis could not formally separate themselves from the Reformers and more modern Orthodox Jews such as those influenced by Esriel Hildesheimer (1820–1899), the prominent German Modern Oxford rabbi of Eisenstadt. Only in the aftermath of emancipation did the Ultra-Orthodox formally break

\[46\] ‘...to the deterioration of tradition in Germany, his native country, and to the first signs of dissolution in Hungary, including his own community of Pressburg, his reaction was not one of accommodation and change but rather of preservation by a conscious enhancement of the tradition’ (Katz, 1986, 29).
with the Neologs and Orthodox Jews to form their own separate religious community. Schick, and the other leaders of Hungarian Ultra-Orthodoxy, created a religiously pure community isolated from those they viewed as heretics or ‘evil people’ (Ellenson, 1994, 52).

The Ultra-Orthodox came to view Reform Jews almost as members of a different religion (Katz, 1998, 231). They were equally virulent in their opposition to German Modern Orthodoxy (Satlow, 2006, 269–270). In fact they viewed advocates of moderate religious change as being at least as large a threat as those who advocate radical reforms and their exhortations were directed ‘at the mass of vacillating, middle-of-the-road Orthodox who were increasingly tempted to compromise and were on the way to becoming neo-Orthodox fellow travelers’ (Silber, 1992, 38). In splitting away from both Reform and traditional Judaism, the Ultra-Orthodox elevated the importance of prohibitions to a new level. Schlesinger argued that a Jew who did not wear distinctive clothes or did not speak a different language [to the non-Jewish population] ceased to be Jew (Satlow, 2006, 270). Lichtenstein went further than Schick in issuing categorical prohibitions on preaching in German and in condemning all ‘alien wisdom’. Non-normative traditions, in dress and language were held to be normative and binding. Schism thus occurred in a region which had experienced emancipation but only obtained an intermediate level of economic development. Thus the act of emancipation had produced the most anti-assimilationist Jewish community in Europe.

It is notable that regional variation within Hungary provides further evidence in favor of our theoretical framework. The Reform movement had support in western Hungary, where the ‘majority were materially well situated, having rapidly established themselves in the commercial, financial and to some small degree—industrial life of the Hungarian state, particularly in its centers in Budapest and Pressburg’ (Adler, 1974, 120). Similarly, despite the fact that Hatam Sofer had been based in Pressburg, Lowenstein observes that ‘[t]he West Hungarian—West Slovakian area (Oyberland) did not remain the core of anti-modern Orthodoxy in Hungary. By the late nineteenth century that center shifted to the economically more underdeveloped Northeastern Hungary with a massive Jewish population of recent immigrants’ (Lowenstein, 1997a, 128). This is consistent with our model: ‘[t]he difficulties

\[47\] Schick stated that as a matter of principle “it is good to elevate a prohibition” (quoted in Silber, 1992, 48).
confronting the urban merchant who wished to observe the religious laws were many times greater than those facing the villager’ (Katz, 1998, 43). Ultra-Orthodoxy was successful in northeastern Hungary, in Unterland, which was the most backwards and rural part of the country. Overall literacy rates in 1880 in Unterland were around half that of the rest of country (Silber, 1992, 42). These were areas in which economic opportunities remained limited and the financial gains to the religious organization associated with reducing strictness were meagre. According to Silber: ‘[d]welling in the backwater of Unterland enabled one to take a tougher stance, one of resolute rejection rather than weak-kneed compromise’ whereas ‘a spirit of despondency and cultural despair prevailed among many of the Orthodox in the northwest’ (Silber, 1992, 42).

4.3 The Persistence of Traditional Judaism and the Success of Hasidism in the Russian Empire

Attempts to introduce Reform Judaism into Russia were unsuccessful (see Katz, 1986, 16). If anything, there was a move towards greater orthodoxy or Hasidic rejection of secular learning. However, these developments were nothing like as strong or as sudden as the developments that we have documented taking place in Hungary.

As late as the late 1850s, the ‘mass of Russian Jewry was still remarkably untouched by the Haskalah—to say nothing of the German Reform Movement—or by the myriad phenomenon associated with modernization’ (Klier, 1995, 82).48 As our model would suggest, Reform failed because discrimination remained high, while economic opportunities remained limited (low λ). Even after the regime liberalized following the death of Tsar Nicholas I in 1855, most Jews had scant incentive to change their behavior or beliefs because their economic conditions remained stagnant until the end of the nineteenth century (Gregory, 1994).

A final piece of evidence consistent with our model is the path taken by Hasidism in the

48German-style Reformed services were introduced in Odessa, Warsaw, Riga and Vilna (Meyer, 1988, 197). As Dubnow puts it, the ‘breezes of Western culture had hardly a chance to penetrate this realm, protected as it was by the double wall of Rabbinism and Hasidism. And yet here and there one may discern on the surface of social life the foam of the wave from the far-off West. From Germany the free-minded “Berliner,” the nickname applied to these “new men,” was moving towards the borders of Russia’ (Dubnow, 1975, 384).
nineteenth century. Although Hasidism is now part of the broader Haredi movement, the origins of Hasidism differ from those of other forms of Ultra-Orthodox Judaism. Hasidism was initially a popular movement of religious enthusiasm that emerged in the Russian Empire and in Galicia and was based on the authority of charismatic leaders known as rebbes or tsaddik.49 Though Hasidism criticized the religious establishment: ‘its innovations never actually threatened the normative foundations of Torah and commandments’ (Hundert, 2004, 186).

Once the Reform movement began to make its presence felt in the Habsburg empire it became clear that traditional rabbinism and Hasidism had to make peace in order to oppose a common enemy. As Dubnow put it ‘rabbinism and Hassidism concurred only in one aspect: in their hatred for the new enlightenment, the Haskalah, that was beginning to infiltrate from Germany, from the circle of Moses Mendelssohn and of the “Berliners.”’ (Dubnow, 1971, 407). By the middle of nineteenth century traditional, rabbinical Judaism had joined forces with Hasidism:

‘Hasidism eventually became a conservative force . . . because of its defense of religion and tradition against the attacks of Haskalah. Non-Hasidic orthodoxy discerned in the Haskalah a much greater danger to the Jewish religion and to its own hegemony in Jewish life than in Hasidism, and, therefore, its struggles against Hasidism gradually gave way to the struggle against the modernization of Jewish life’ (Mahler, 1985, 24).

The differences between Hasidism and rabbinical Judaism were minor relative to the gulf that had arisen between both of them and Reform. This is consistent with our model. The economic environments in which rabbinical Judaism and Hasidism flourished were very similar. And indeed, both Hasidism and other forms of Ultra-Orthodoxy emphasized high levels of strictness τ; both represented forms of cultural resistance.

49It emerged in the context of a traditional Judaism that had been weakened by a succession of crises following Khmelnytsky uprisings (1648-1656) and failure of the ‘false messiah’ Shabbetai Tsevi (1626-1676).
5 Extending the Theory of Religious Clubs

We have shown how a model of religious clubs that emphasizes the tradeoff between time and money contributions to the community can add to Berman’s (2000) analysis of Jewish communities, as well as to existing models of religion. We do not claim that this explains all aspects of our historical application. Indeed, the history of Jewish emancipation and schism is rich enough to suggest additional extensions to existing club goods models, which could further illuminate the process of religious and cultural change. We review three possibilities in this section.

5.1 Intergenerational Transmission of Preferences

Standard club goods models generally deal with individuals who have a fixed set of preferences. Yet Iannaccone (1998) suggests that ‘religion would seem to be the ideal testing ground for models of value change and belief formation’ [p. 1491]. Recent work has begun to explore the consequences of intergenerational transmission of preferences. Carvalho (2015) and Carvalho, Koyama and Sacks (2015) study peer-to-peer transmission of cultural traits in clubs that produce congestible and non-congestible goods, respectively. Here we explore the implications of intergenerational transmission of preferences in our model.

The religious affiliation of parents has a large effect on the religiosity of their children. Himmelfarb notes that ‘[o]ne of the most consistent findings in the Jewish identification literature is the positive relationship between an individual’s Jewish identification and that of his parents (Himmelfarb, 1980, 55).\footnote{See also Lazerwitz (1973) and Cohen (1974).} In fact, 81 percent of Orthodox Jews were brought up Orthodox and 96 percent of Orthodox Jews marry other Orthodox Jews (Ament, 2005, 12–19).

This leads us naturally to consider how religious values can be transmitted from one generation to the next and how this intergenerational transmission effects the response to emancipation. To model the intergenerational transmission of values, we extend our model to the infinite horizon case with overlapping generations of agents and an infinitely lived religious
authority. To convey our main points as straightforwardly as possible, we focus here on the version of our model without exit.

The idea behind our dynamic analysis is that the probability that an individual has low attachment to the community is increasing in the effort his parent expends on religious activity. The religious leader faces a dynamic programming problem, setting a sequence of strictness levels to tune the evolution of attachment to the community in order to maximize club good production. For intermediate levels of development there exist endogenous cycles in the strictness of religious communities. When the proportion of high-attachment types is low, religious organizations favor a strategy of cultural resistance which induces all members to exert high effort. This causes the proportion of high-attachment types in the community to increase. At some point it becomes optimal for the religious organization to switch to a strategy of cultural integration as high-attachment types contribute a high proportion of their outside earnings to the community. In turn, as they exert low effort within the community, the proportion of high-attachment types declines until it becomes optimal for the religious organization to switch back to a strategy of cultural resistance. More importantly, liberalization is more costly to religious organizations in this dynamic setting, as it weakens the intergenerational transmission of religious preferences. This concern makes religious organizations more likely to adopt a strategy of cultural resistance.\footnote{Our dynamic analysis is most closely related to McBride (2007) who studies how religious capital formation affects donations to a religious community.}

More formally, at the beginning of every period each agent gives birth to one other agent before choosing their level of effort and money contributions $e$ and $g$. At the end of the period the parent transmits values to its child and dies. The probability that the child of parent $i$ ends up with high attachment to their community is $f(e_i)$ which is strictly increasing in the effort parent $i$ contributes to the religious community $e_i$. Effort represents time devoted to the religious community and it is this time that plays a crucial role in socializing children.\footnote{The religious affiliations of parents have a large effect on the religiosity of their children. Himmelfarb notes that ‘[o]ne of the most consistent findings in the Jewish identification literature is the positive relationship between an individual’s Jewish identification and that of his parents (Himmelfarb, 1980, 55). See Lazerwitz (1973) and Cohen (1974).}

An additional interpretation of $e$ is that it includes investment in religious education. Both interpretations are consistent with Iannaccone’s notion that religious participation builds
religious capital (Iannaccone, 1990).

To focus on the religious authority’s (dynamic) incentives when setting $\tau$, we assume that parents do not consider the effect that their actions have on their child’s values. Each individual’s payoffs are as in the one-shot game and the distribution of religious values evolves as a by-product of religious participation. The religious authority, however, cares about the distribution of values in the population. Facing a sequence of short-lived agents, the long-lived religious authority takes into account not only the current level of religious participation, but also its effect on future levels of attachment to the religious community. Specifically, religious authority chooses a sequence $\{\tau_t\}_{t=0}^{\infty}$ to maximize:

$$\sum_{t=0}^{\infty} \sum_{i=1}^{n} \delta^t [e_i^*(\tau_t) + g_i^*(\tau_t)],$$

where $e_i^*$ and $g_i^*$ are best responses to $\tau_t$.

To illustrate the dynamic considerations faced by the religious authority, consider its choice of $\tau_t$ when the state is $p_t = f(0)$. Without intergenerational transmission of values, the distribution of values is constant, so the religious authority simply chooses $\tau_t$ to maximize $e_i^*(\tau_t) + g_i^*(\tau_t)$. By proposition 1(ii), $\tau^* = 0$ in every period for $\lambda$ large enough. Under intergenerational transmission of values, however, $p_t$ evolves with the religious authority’s choice of $\tau$. If the religious authority chooses $\tau_t = 0$, then $e_i^* = 0$ for all agents and $p_{t+1} = f(0)$, i.e. the same as $p_t$. If the religious authority chooses $\tau_t = 1$, then $e_i^* = 1$ for all agents and $p_{t+1} = f(1)$, which is greater than $p_t$. Hence, the religious authority must choose between liberalizing today in state $p_t = f(0)$ or waiting to liberalize in the next period after building up the proportion of high types in the community to $f(1) > f(0)$. In this way, the religious authority can enjoy greater financial contributions in the next period. This dynamic consideration may mean that choosing $\tau^* = 0$ in every period is not optimal, for any $\lambda$.

Let $d(\beta_\theta) \equiv \beta_\theta^{1/1-\sigma} / (1 + \beta_\theta^{1/1-\sigma})$. We will show that $\tau^* = 0$ in every period for some $\lambda$ if and only if:

$$f(0)d(\beta_H) + (1 - f(0))d(\beta_L) \geq \delta(f(1) - f(0)) [d(\beta_H) - d(\beta_L)].$$

This condition holds when the future is heavily discounted ($\delta$ is low), the distribution of
values is not sensitive to choice \((f(1) \text{ is close to } f(0))\), and low and high types do not differ markedly in their degree of attachment to the community \((\beta_L \text{ is close to } \beta_H)\). It is under these conditions that the religious authority is unwilling to sacrifice a higher current payoff from liberalizing today, for the greater financial contributions that accrue from liberalizing in the future after building up the proportion of high-attachment types in the community.

The implications of intergenerational value transmission can be stated in the following proposition:

**Proposition 3** For any initial state \(p_0\), the infinitely repeated game without exit has a unique SPE as follows:

(i) There exists a threshold \(\lambda_1\) such that if \(\lambda \leq \lambda_1\), then equilibrium actions each period \(t > 1\) are as in Proposition 1(i), i.e.

\[
\tau^*_t = 1, \quad e^*_t = 1 \quad \text{and} \quad g^*_t = 0 \quad \text{for all } i \in N.
\]

(ii) If (7) holds, then there exists a threshold \(\lambda_2\) such that if \(\lambda \geq \lambda_2\), then equilibrium actions in every period \(t > 1\) are as in proposition 1(ii), i.e.

\[
\tau^*_t = 0, \quad e^*_t = 0 \quad \text{and} \quad g^*_t = \frac{\beta^1_{1-\sigma}}{1 + \beta^1_{1-\sigma}\lambda},
\]

for each \(i \in N\).

(iii) If (7) holds and \(\lambda_1 < \lambda < \lambda_2\), or (7) does not hold and \(\lambda > \lambda_1\), then equilibrium actions alternate in each period \(t > 1\) between those specified in part (i) and those specified in part (ii).

If development is sufficiently low the religious authority chooses a strategy of cultural resistance in every period. If condition (7) holds and economic development is sufficiently high then the religious authority adopts a strategy of cultural integration in every period.

If these conditions do not hold or if development is in the intermediate range, religious communities cycle between high and low levels of strictness and between emphasizing effort over money intensive contributions. The reasoning here is that when the proportion of high-attachment types is sufficiently large, the religious authority has an incentive to
relax strictness as a preponderance of the income earned outside of the community, as a consequence, is donated back to the community. However, as agents exert less effort in the community, the proportion of high-attachment types declines. If it declines far enough then the additional financial contributions from relaxing strictness will not be enough to compensate the religious authority for the lost effort. Hence it may be optimal for the religious authority to reintroduce strict prohibitions. These cycles reflect periods of religious flux and the model predicts that cycles will appear in regions characterized by intermediate levels of economic development.

It is difficult to provide evidence for these predictions with reference to European Jewish history due to the massive disruptions Europe’s Jewish communities experienced during the mid-20th century. Nevertheless, scholars have long observed cyclical patterns in the formation of religious groups. To our knowledge, there are no existing formal models of religious cycles. Our results shed light on one possible mechanism driving religious revivals and church-sect cycles. We briefly elaborate here.

Church-like organizations such as Reform Judaism are distinguished from sects such as Ultra-Orthodox Judaism which maintain higher tension with secular society (see Johnson, 1957; Wilson, 1959). According to the existing theory of church-sect cycles, as a religion becomes more church-like, it ‘will become increasingly less able to satisfy members who desire a high-tension version of faith. As discontent grows, these people will begin to complain that the group is abandoning its original positions and practices, as indeed it has’ (Finke and Stark, 2005, 45).

This pattern is clearly evident in US religious history. After the gradual disestablishment of state churches in America during the early nineteenth century, membership of the established Anglican and Presbyterian churches declined rapidly as individuals joined rising and comparatively strict sects such as the Methodists and Baptists. The Methodists went from 3% of church members in 1776 to 34% in 1850 (Finke and Stark, 2005). In so doing, however, Methodism evolved from a sect to a church. It became laxer in the requirements it imposed on its members and it reduced its tension with the rest of society. As a result Methodism

\footnote{A similar process occurred with the northern Baptists in the second part of the nineteenth century (the southern Baptists remained much stricter and more sect-like) (see Finke and Stark, 2005, 186).}
too began to lose members—particularly among those who desired a more intense religious experience. In the twentieth century new sects emerged such as Pentecostals in order to meet this need. And this process repeated itself in the 1970s and 1980s as Mormons, Adventists, and Jehovah’s witnesses became the fastest growing religious movements in the United States.\(^{54}\)

The liberalization of religious rules that leads to sect formation is generally attributed to the clergy seeking social status and respectability Stark and Bainbridge (1979, 123). Our model is not a dedicated model of church-sect cycles. Nevertheless, Proposition 3 suggests that such cycles may be driven by the tradeoff religious leaders face between contributions of effort and money coupled with the endogenous evolution of the congregation’s religious commitment.

Additionally, it also follows from this analysis that the inclusion of dynamic, inter-generational consideration, makes it less likely that the religious authority will respond to emancipation with cultural integration and more likely that they will respond with a strategy of cultural resistance.

**Proposition 4** Consider the game without exit. Fix a state \(p_t\). Let \(\Lambda^*\) (resp. \(\Lambda^{**}\)) be the set of values of \(\lambda\) for which \(\tau^* = 1\) in period \(t\) in the unique SPE without (resp. with) intergenerational transmission of values. Then:

(i) For all \(p_t\), \(\Lambda^* \subseteq \Lambda^{**}\),

(ii) For \(p_t < f(1)\), \(\Lambda^* \subset \Lambda^{**}\).

Therefore, concerns about the intergenerational transmission of values sustain cultural resistance for a larger set of \(\lambda\). In particular, we can prove that when the proportion of high-attachment types is not too high \((p < f(1))\), there are values of \(\lambda\) for which cultural integration takes place in the model without intergenerational transmission of values, but for which cultural resistance is adopted in the model with intergenerational transmission of values. This proposition captures the fears felt by Orthodox rabbis who believed that

\(^{54}\)Of course not all sects become churches. Stark and Bainbridge (1981); Finke and Stark (1985) found that the majority of sects they studied never lowered their tension. However, it is the case that the most largest and most successful sects have a tendency to become church-like.
Reform would lead to a decline in religious attachment.

This dynamic analysis shows why tensions between Reform, Orthodox and ultra-Orthodox in Hungary were exacerbated by concerns over the intergenerational transmission of religious values. Schick referred to the Reformers as “the enemies of God” and accused them of uprooting the Torah and the religious law (Ellenson, 1994, 45). He argued that Reform Jews had effectively ceased to be Jews and that contact between them and Orthodox Jews had to be prevented. In particular he emphasized that their ‘their sons and daughters are forbidden to us’ because ‘they are akin to complete gentiles’ and they ‘will certainly lead away your son’ (quoted in Ellenson, 1994, 45–46). Schlesinger was similarly concerned with what would happen to the children of those Jews who embraced Reform. He saw Reformers as ‘an evil family’ who lead the children of sainted ancestors away from the heritage of their fathers toward sectarianism and heresy,’ lamenting the fact that children no longer knew how to say kaddish over the dead and have to read the blessings of the Torah in ‘foreign characters’ (Schlesinger, 1864, 1995, 204).

5.2 Niche construction

The schism between Reform and Orthodox Judaism in the nineteenth century has had a lasting affect on religious affiliation. The religious identities formed at the time have persisted to this day.

In our model when $\tau$ rises high enough the strict religious group dies out. This stark prediction of our framework appears inconsistent with the fact that ultra-Orthodox Judaism has thrived in recent decades. One reason for the survival of ultra-Orthodox communities is their high level fertility, a feature studied by Berman (2000). Another factor which is potentially important in explaining their success and has not been explored is the notion of niche construction.

It was once believed that cultural and religious traditions adapted to the preindustrial period would disappear in the modern world (Durkheim, 1912, 1915; Berger, 1970). Yet today strict religious groups continue to flourish. Does the persistence of such groups indicate a broader failure of the theory? How can we account for the rise of still stricter religious groups?
The theory of niche construction was developed in evolutionary biology to describe how some organisms not only respond to evolutionary pressure from their environment, but also shape their environment, thereby affecting the evolutionary selection pressures that they face (Odling-Smee, 1995; Odling-Smee et al., 1996, 2003). We argue here that ultra-Orthodox Jewish communities have been able to survive and flourish into the twenty-first century because they have constructed economic and social niches. These niches insulate them from the cultural forces that have led others to abandon traditional beliefs as well as economic pressures (effectively keeping $\lambda$ low) by specializing in sectors of the economy in which their religious practices and cultural isolation are beneficial rather than costly.

Most traditional religions developed in societies in which the majority of individuals were subsistence farmers. This limited division of labor circumscribed the ability of minority religious groups to shape their own environment via niche construction. In contrast, the modern world, with its sophisticated division of labor and specialization, offers vastly greater scope for the construction of evolutionary niches. As a result, we see a proliferation of different minority ‘lifestyles’ and religions, of which strict religious groups such as the Amish and ultra-Orthodox Jews are the most venerable, successful, and longest-lived.

For example, the growth of international trade, while threatening traditional Jewish communities in general, offered those Jews involved in the diamond trade new economic opportunities that they were able to exploit precisely because they were a tightly-knit, high trust, religious group (see Bernstein, 1992; Richman, 2006). In New York, ultra-Orthodox Jews dominate the diamond trade. Richman (2006) notes that 85-90 percent of the members of the New York Diamond Dealers Club—the private order organization that monitors actions of diamond traders—are Jewish, and that of these a majority are ultra-Orthodox. He observes that ultra-Orthodox Jews are viewed as particularly trustworthy because ‘departure from the community would reduce a member’s consumption of club goods to zero and cause

---

55Specifically: ‘Niche construction occurs when an organism modifies the feature-factor relationship between itself and its environment by actively changing one or more of the factors in its environment, either by physically perturbing factors at its current location in space and time, or by relocating to a different space-time address, thereby exposing itself to different factors’ (Odling-Smee et al., 2003, 41). Note that this usage differs from the way some sociologists of religion have recently used the concept of organizational niches which is taken from organization theory (see Scheitle, 2007).

56Welfare provision has also played an important role in maintaining ultra-Orthodox Jewish communities especially in Israel (Berman, 2000).
a loss in utility that is not overcome by the riches from a stolen cache of diamonds. Consequently, ultra-Orthodox brokers and cutters are able to credibly commit to safeguarding a merchant’s diamonds’ (Richman, 2006, 406). Thus minority religious groups can survive and indeed thrive despite economic growth, if they are able to carve out a niche in which their in-group trust and exclusion of outsiders is leveraged.

The diamond traders of New York are just one example. Other ultra-Orthodox groups may survive despite improving outside options, because education in these communities is primarily religious in nature. In developed countries such as the United States, rising wages in the outside economy have been concentrated among high-skilled occupations. The escalating human capital requirements for these occupations have become harder to fulfill without high quality secular education from an early age. Thus a focus on religious education creates an ecological niche for ultra-Orthodox communities, shielding them from the competitive pressure created by rising wages in the broader economy. This form of niche construction, like that of the diamond traders, could provide part of the explanation for the long-term success of ultra-Orthodox Judaism in the modern world. We believe the concept of niche construction is worthy of attention in future work.

5.3 Competition & Schism

In this paper, we link religious schisms to the tradeoff between time and money contributions faced by a religious organization. We have argued in the introduction that the advent of religious competition could not have, by itself, produced the series of schisms that followed Jewish emancipation. While emancipation did eventually lead to religious competition, in places such as Germany genuine competition came after the development of Reform and modern Orthodoxy. Nevertheless, we would like to know how competition may have influenced religious schisms elsewhere and over time.

Prior work by Montgomery (1996, 2003), Barros and Garoupa (2002) and McBride (2008, 2010) has studied denominational choice in a Hotelling framework. Individuals in these models have preferences directly over strictness, which is a reduced-form version of religious clubs producing congestible club goods. Competition among clubs producing non-congestible
club goods is analyzed in a paper by Carvalho, Koyama and Sacks (2015). As in this paper, Carvalho, Koyama and Sacks (2015) show that if the proportion of high-attachment types is sufficiently large a single community splits into two groups. Schism is more likely to occur under religious competition than monopoly.

6 Conclusion

A substantial body of literature has demonstrated that economic models hold important insights for how we think about culture and religion. In this paper we have developed a historical account of Jewish emancipation and schism, in conjunction with a theory of religious organization based on a tradeoff between time and money contributions to the community. Our analytic narrative provides one explanation for the emergence of Reform and Ultra-Orthodox Judaism in response to emancipation and economic development in nineteenth century Europe.

More generally, the model contains broader lessons for cultural integration by minority communities. Surges in religious strictness are a common feature of the religious landscape (Berman, 2009; Lewis and Lewis, 2009). While they are often attributed to ideological developments, we point to the critical role of economic factors. In particular, we show how spikes in religious extremism can occur in the course of political and economic development. This may provide a possible explanation for many current and past religious movements, including the contemporary Islamic revival (e.g. Binzel and Carvalho, 2015) and the Anabaptists (Hutteries, Mennoites, Old and New Order Amish). Our model suggests that opportunities for cultural integration may be foregone or even resisted, unless accompanied by parallel economic opportunities. The analysis we develop points to further extensions of existing models of religion that we hope to develop in future research.

57 Note that in the model by Carvalho, Koyama and Sacks (2015), contributions to the group are limited to time/effort. Hence there is no tradeoff between time and money contributions, unlike in this paper.

58 See Bisin and Verdier (2011) and Nunn and Puga (2012) for recent surveys of the economics of culture and M.McCleary (2010) and Platteau and Aldashev (2014) for recent surveys of the economics of religion.
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A. Mathematical Proofs

Proof of Proposition 1. We solve for an SPE via backward induction. Let us begin by fixing \( \tau \in [0, 1] \) and analyzing optimal effort and money contributions for each player at date 2. A type-\( \theta \) agent solves the following problem:

\[
\max_{(e,g)} \left( (1 - \tau)\lambda(1 - e) - g \right)^{\sigma} + \beta(\epsilon + g)^{\sigma} \right)^{\frac{1}{\sigma}} \tag{8}
\]

\[
\text{s.t. } 0 \leq e \leq 1 \tag{9}
\]

\[
0 \leq g \leq (1 - \tau)\lambda(1 - e) \tag{10}
\]

Define \( H \equiv ((1 - \tau)\lambda(1 - e) - g)^{\sigma} + \beta(\epsilon + g)^{\sigma} \). The partial derivatives of the objective function with respect to \( e \) and \( g \) can then be written as

\[
H^{\frac{1}{\sigma} - 1}[ - (1 - \tau)\lambda((1 - \tau)\lambda(1 - e) - g)^{\sigma - 1} + \beta(\epsilon + g)^{\sigma - 1}] \tag{11}
\]

and

\[
H^{\frac{1}{\sigma} - 1}[ - ((1 - \tau)\lambda(1 - e) - g)^{\sigma - 1} + \beta(\epsilon + g)^{\sigma - 1}] \tag{12}
\]

respectively.

We proceed by partitioning the parameter space as follows.

Case 1: \( (1 - \tau)\lambda < 1 \). Suppose \( g^* > 0 \). Then \( e^* < 1 \) by (10). Consider an alternative pair \((e', g') = (e^* + a, g^* - a)\) for some small \( a > 0 \). For \((e^*, g^*)\) to indeed be a best response:

\[
\left[ ((1 - \tau)\lambda(1 - e^*) - g^*)^{\sigma} + \beta(\epsilon^* + g^*)^{\sigma} \right]^{\frac{1}{\sigma}} \geq \left[ ((1 - \tau)\lambda(1 - e') - g')^{\sigma} + \beta(\epsilon' + g')^{\sigma} \right]^{\frac{1}{\sigma}},
\]

where the right-hand-side is equal to

\[
\left( ((1 - \tau)\lambda(1 - e^*) - g^* + a[1 - (1 - \tau)\lambda])^{\sigma} + \beta(\epsilon^* + g^*)^{\sigma} \right)^{\frac{1}{\sigma}},
\]

which is a contradiction, because \( (1 - \tau)\lambda < 1 \) by hypothesis. Therefore \( g^* = 0 \).

Substituting \( g^* = 0 \) into (11), we find that the partial derivative of the objective function with respect to \( e \) is \( \infty \) at \( e = 0 \) and \( -\infty \) at \( e = 1 \). Together with the continuity of (11), this implies that the objective function is maximized at an interior \( e \), which sets (11) equal to
zero. That is:

\[
\begin{align*}
\beta_0 e^{\sigma-1} &= (1 - \tau) \lambda (1 - \tau) \lambda (1 - e^*) \sigma^{-1}, \\
(1 - \tau) \lambda (1 - e^*) &= \left[ \frac{(1 - \tau) \lambda}{\beta_0} \right]^{1/\sigma} e^*, \\
(1 - \tau) \lambda &= e^* \left( (1 - \tau) \lambda + \left[ \frac{(1 - \tau) \lambda}{\beta_0} \right]^{1/\sigma} \right), \\
e^* &= \frac{(1 - \tau) \lambda}{(1 - \tau) \lambda + ((1 - \tau) \lambda)^{1/1-\sigma}}, \\
e^* &= \frac{\beta_0^{1/\sigma}}{\beta_0^{1/\sigma} + ((1 - \tau) \lambda)^{1/1-\sigma}} \in (0, 1).
\end{align*}
\]

(13)

**Case 2**: \((1 - \tau) \lambda = 1\). By inspection, (11) and (12) coincide and are equal to:

\[
H_{-\frac{1}{\sigma} - 1} \left[ - (1 - (e + g))^{\sigma-1} + \beta_0 (e + g)^{\sigma-1} \right].
\]

(14)

Therefore, an agent chooses \(e + g\) to maximize their objective function. The minimum feasible \(e + g\) is zero and the maximum is one (i.e. when the agent donates their entire income \(1 - e\) so that \(e + g = e + (1 - e) = 1\)). The partial derivative of the objective function with respect to \(e + g\), (14), is \(\infty\) at \(e + g = 0\) and \(-\infty\) at \(e + g = 1\). Together with the continuity of (14), this implies that the objective function is maximized at an interior \(e + g\), which sets (14) equal to zero. That is:

\[
\beta_0 (e + g)^{\sigma-1} = (1 - (e + g))^{\sigma-1},
\]

(15)

which implies that:

\[
e^* + g^* = \frac{\beta_0^{1/1-\sigma}}{1 + \beta_0^{1-\sigma}}.
\]

(16)

**Case 3**: \((1 - \tau) \lambda > 1\). Suppose \(e^* > 0\). Consider an alternative pair \((e'', g'') = (e^* - a, g^* + a)\) for some small \(a > 0\) (this is feasible because the agent earns an additional \(a(1 - \tau) \lambda\) units and donates an additional \(a < a(1 - \tau) \lambda\) units). For \((e', g')\) to indeed be a best response:

\[
\left[ ((1 - \tau) \lambda (1 - e^*) - g^*)^{\sigma} + \beta_0 (e^* + g^*)^{\sigma} \right]^{\frac{1}{\sigma}} \geq \left[ ((1 - \tau) \lambda (1 - e'') - g'')^{\sigma} + \beta_0 (e'' + g'')^{\sigma} \right]^{\frac{1}{\sigma}},
\]

where the right-hand-side is equal to

\[
\left( ((1 - \tau) \lambda (1 - e^*) - g^* + a[(1 - \tau) \lambda - 1])^{\sigma} + \beta_0 (e^* + g^*)^{\sigma} \right)^{\frac{1}{\sigma}},
\]

which is a contradiction, because \((1 - \tau) \lambda > 1\) by hypothesis. Therefore \(e^* = 0\).
Substituting $e^* = 0$ into (12), we find that the partial derivative of the objective function with respect to $g$ is $\infty$ at $g = 0$ and $-\infty$ at $g = 1$. Together with the continuity of (11), this implies that the objective function is maximized at an interior $g$, which sets (12) equal to zero. That is:

$$
[(1 - \tau)\lambda - g]^{\sigma-1} = \beta_\theta(g)^{\sigma-1}
$$

$$
g^* = \frac{\beta_\theta^{1/1-\sigma}}{1 + \beta_\theta^{1/1-\sigma}(1 - \tau)\lambda}.
$$

(17)

Now let us turn to the religious authority’s choice of $\tau$ at date 1. Recall that the religious authority solves:

$$
\max_{\tau \in [0,1]} \alpha \sum_{i \in N} \left[ e_i^*(\tau) + g_i^*(\tau) \right]
$$

We can set $\alpha = 1$ henceforth, without loss of generality.

Consider the case $\lambda < 1$. Then $(1 - \tau)\lambda < 1$ for all $\tau \in [0,1]$. In this case, we have established that $g^* = 0$ and $e^* = \beta_\theta^{1/1-\sigma}/(\beta_\theta^{1/1-\sigma} + [(1 - \tau)\lambda]^\sigma)$. Hence, the religious authority sets $\tau = 1$ for $\lambda < 1$.

Now consider the case where $\lambda \geq 1$. We have established that the most the religious authority can get by setting $\tau$ such that $(1 - \tau)\lambda < 1$ is $n$ (i.e. by setting $\tau = 1$, so that $e_i = 1$ and $g_i = 0$ for all $i \in N$). By setting $\tau$ such that $(1 - \tau)\lambda = 1$, the religious authority gets (from case 2 above)

$$
\sum_{i \in N} \left[ e_i^*(\tau) + g_i^*(\tau) \right] = \sum_{i \in N} \frac{\beta_i^{1/1-\sigma}}{1 + \beta_i^{1/1-\sigma}},
$$

which is less than $\sum_{i \in N} 1 = n$. By setting $\tau$ such that $(1 - \tau)\lambda > 1$, we know $(e_i^*, g_i^*) = (0, \frac{\beta_i^{1/1-\sigma}}{1 + \beta_i^{1/1-\sigma}(1 - \tau)\lambda})$ for each $i \in N$. Therefore $\sum_{i \in N}(e_i^*(\tau) + g_i^*(\tau))$ is maximized, for $\tau$ in this range, by setting $\tau = 0$. In this case the religious authority receives:

$$
\sum_{i \in N} \frac{\beta_i^{1/1-\sigma}}{1 + \beta_i^{1/1-\sigma}\lambda}.
$$
For this to be a better response than \( \tau = 1 \), we require:

\[
    n < \left( \sum_{i \in N} \frac{\beta_i^{1/\sigma}}{1 + \beta_i^{1/\sigma}} \lambda \right)
\]

\[
    n < \lambda \sum_{i \in N} \frac{\beta_i^{1/\sigma}}{1 + \beta_i^{1/\sigma}}
\]

\[
    n < \lambda n \left( \frac{p \beta_H^{1/\sigma}}{1 + \beta_H^{1/\sigma}} + (1 - p) \frac{\beta_L^{1/\sigma}}{1 + \beta_L^{1/\sigma}} \right)
\]

\[
    \lambda > \frac{1}{p \beta_H^{1/\sigma} + (1 - p) \beta_L^{1/\sigma}} \equiv \bar{\lambda}.
\]

Therefore the religious authority’s best response is \( \tau = 0 \) for all \( \lambda > \bar{\lambda} \) and \( \tau = 1 \) for all \( \lambda \in (1, \bar{\lambda}] \). Consequently, \( e^*(\tau^*) = 1 \) for all \( \lambda \in (1, \bar{\lambda}] \) and \( e^*(\tau^*) = 0 \) for all \( \lambda > \bar{\lambda} \). \( \square \)

**Proof of Lemma 1.** Let \( \beta_\theta^{1/\sigma} < \lambda < (1 + \beta_\theta^{1/\sigma})^{1-\sigma} \). We are going to show that all type-\( \theta \) agents exit the community if and only if \( \tau > \tau_\theta = 1 - (\lambda^{1-\sigma} - \beta_\theta^{1-\sigma})^{1/\sigma} / \lambda \). Note that \( \lambda < (1 + \beta_\theta^{1/\sigma})^{1-\sigma} \) implies \( (1 - \tau_\theta)\lambda < 1 \). We have established in the proof of proposition 1 that, in this case, type-\( \theta \) agents choose \( e^* > 0 \) and \( g^* = 0 \), yielding a payoff from remaining in the group at strictness level \( \tau_\theta \) of:

\[
    \left( [(1 - \tau_\theta)\lambda (1 - e^*)]^{\sigma} + \beta_\theta (e^*)^\sigma \right)^{1/\sigma},
\]

where \( e^* = \frac{\beta_\theta^{1/\sigma}}{\beta_\theta^{1-\sigma} + [(1-\tau)\lambda]^{1-\sigma}} \). The payoff from exiting the community is \( \lambda \). Therefore, \( \tau_\theta \)
Lemma 1 and Proposition 1(i). To establish part (ii), let \( \beta \)

Finally, partially differentiating \( \tau \)

Proof of Proposition 2. Henceforth set \( \beta_l < 1 \). Part (i) then follows immediately from Lemma 1 and Proposition 1(i). To establish part (ii), let \( \beta^{1/\sigma}_L < \lambda < \min\{\beta^{1/\sigma}_H, 1\} \). As \( \lambda < 1 \) by hypothesis, we have established in the proof of proposition 1 (case 1) that every type-\( \theta \)
agent chooses:

\[ e^* = \frac{\beta_1^{1/\sigma}}{\beta_0^{1/\sigma} + [(1 - \tau)\lambda]^{\sigma/\sigma}} \quad \text{and} \quad g^*_0 = 0. \]

Therefore, without an exit constraint, the religious authority will maximize aggregate contributions by setting \( \tau \) at its maximum. As \( \lambda > \beta_L^{1/\sigma} \) by hypothesis, the religious authority can only set \( \tau \) as high as \( \tau_L < 1 \), while retaining both \( H \) and \( L \) types (by Lemma 1). This yields an aggregate contribution of:

\[ np \frac{\beta_H^{1/\sigma}}{\beta_H^{1/\sigma} + [(1 - \tau_L)\lambda]^{\sigma/\sigma}} + n(1 - p) \frac{\beta_L^{1/\sigma}}{\beta_L^{1/\sigma} + [(1 - \tau_L)\lambda]^{\sigma/\sigma}}. \]

Alternatively, as \( \lambda < \beta_H^{1/\sigma} \), the religious authority could set \( \tau = 1 \) and retain only \( H \) types, yielding an aggregate contribution of \( np \).

The latter is preferred when:

\[ p \geq \frac{np}{\beta_H^{1/\sigma} + [(1 - \tau_L)\lambda]^{\sigma/\sigma}} + n(1 - p) \frac{\beta_L^{1/\sigma}}{\beta_L^{1/\sigma} + [(1 - \tau_L)\lambda]^{\sigma/\sigma}} \]

\[ p \frac{[(1 - \tau_L)\lambda]^{\sigma/\sigma}}{\beta_H^{1/\sigma} + ((1 - \tau_L)\lambda)^{\sigma/\sigma}} \geq (1 - p) \frac{\beta_L^{1/\sigma}}{\beta_L^{1/\sigma} + [(1 - \tau_L)\lambda]^{\sigma/\sigma}}. \]  

(18)

Note that \( \tau_L = 1 - (\lambda^{\sigma/\sigma} - \beta_L^{1/\sigma})^{1/\sigma}/\lambda \) by Lemma 1. This implies that \( (1 - \tau_L)\lambda = (\lambda^{\sigma/\sigma} - \beta_L^{1/\sigma})^{1/\sigma}/\lambda \). Substituting this expression into (18) yields:

\[ p \frac{\lambda^{\sigma/\sigma} - \beta_L^{1/\sigma}}{\beta_H^{1/\sigma} + \lambda^{\sigma/\sigma} - \beta_L^{1/\sigma}} \geq (1 - p) \frac{\beta_L^{1/\sigma}}{\lambda^{\sigma/\sigma}}. \]

We claim that this inequality holds for \( \beta_L \) close enough to zero. First, by inspection, the LHS is strictly decreasing in \( \beta_L \). It is also positive, because \( \lambda > \beta_L^{1/\sigma} \) by hypothesis, which implies \( \lambda^{\sigma/\sigma} > \beta_L^{1/\sigma} \). Second, the RHS is strictly increasing in \( \beta_L \) and goes to zero as \( \beta_L \to 0 \). This establishes the claim.

Hence at \( \lambda = \min\{\beta_H^{1/\sigma}, 1\} \), the LHS of (18) is greater than the RHS, for \( \beta_L \) sufficiently close to zero. At \( \lambda = \beta_L^{1/\sigma} \), the LHS of (18) is zero and the RHS is \((1 - p) > 0 \). Hence, the RHS is greater than the LHS. In addition, the LHS of (18) is strictly increasing in \( \lambda \) and the RHS is strictly decreasing in \( \lambda \).
Taken together, this suggests that for $\beta_L$ sufficiently small, there exists a threshold $\lambda \in (\beta_L^{1/\sigma}, \min\{\beta_H^{1/\sigma}, 1\})$ such that for $\lambda < \lambda$, $\tau^* = \tau_L$ and all agents remain members of the group; and for $\lambda \in [\lambda, \min\{\beta_H^{1/\sigma}, 1\}]$, $\tau^* = 1$ and schism occurs.

Now consider $\lambda \geq \min\{\beta_H^{1/\sigma}, 1\}$. We shall show that there exists a threshold $\lambda$ such that for $\lambda \leq \lambda \leq \lambda$, $\tau^* = \min\{\tau_H, 1\}$ and there is a schism; for $\lambda > \lambda$, $\tau^* = 0$ and all agents remain members of the community.

**Case 1**: $\beta_H^{1/\sigma} \leq 1$.

(a) Consider $\lambda \in [\beta_H^{1/\sigma}, 1]$.

Because $\lambda \leq 1$, $(1 - \tau)\lambda \leq 1$ for all $\tau \in [0, 1]$, so the best responses for group members are given by Proposition 1 (case 1). For each member $i$, $e_i^A(\tau) + g_i^R(\tau)$ is strictly increasing in $\tau$. As $\lambda = \beta_H^{1/\sigma}$, however, setting $\tau = 1$ would induce exit by both types. Therefore, the religious authority will choose either $\tau_L$, the maximum $\tau$ such that it attracts both types, or $\tau_H$, the maximum $\tau$ such that it attracts high types (only).

The payoff from choosing $\tau_H$ is:

$$u(\tau_H) = np \frac{\beta_H^{1/\sigma}}{\beta_H^{1/\sigma} + [(1 - \tau_H)\lambda]^{1/\sigma}} = np \frac{\beta_H^{1/\sigma}}{\lambda^{1/\sigma}},$$

because $(1 - \tau)\lambda = (\lambda^{1/\sigma} - \beta_H^{1/\sigma})^{1/\sigma}$.

The payoff from choosing $\tau_L$ is once again:

$$u(\tau_L) = np \frac{\beta_H^{1/\sigma}}{\beta_H^{1/\sigma} + [(1 - \tau_L)\lambda]^{1/\sigma}} + n(1 - p) \frac{\beta_L^{1/\sigma}}{\beta_L^{1/\sigma} + [(1 - \tau_L)\lambda]^{1/\sigma}}$$

$$= np \frac{\beta_H^{1/\sigma}}{\beta_H^{1/\sigma} + \lambda^{1/\sigma} - \beta_L^{1/\sigma}} + n(1 - p) \frac{\beta_L^{1/\sigma}}{\lambda^{1/\sigma}}.$$ (20)

As $\beta_L \to 0$, $u(\tau_L)$ goes to:

$$np \frac{\beta_H^{1/\sigma}}{\beta_H^{1/\sigma} + \lambda^{1/\sigma}},$$

which is less than $u(\tau_H)$ for all $\lambda$. Hence, for $\beta_L$ sufficiently small, the religious authority chooses $\tau_H$ and induces schism for $\lambda \in [\beta_H^{1/\sigma}, 1]$.

(b) Consider $\lambda > 1$. For $\tau < 1 - \frac{1}{\lambda}$, i.e. $(1 - \tau)\lambda > 1$, we have established that the religious authority’s payoff is strictly decreasing in $\tau$. For $\tau \geq 1 - \frac{1}{\lambda}$, $(1 - \tau)\lambda \leq 1$, we have established that the total contribution per agent is strictly increasing in $\tau$. Therefore, we are left with three candidates for $\tau^*$, namely 0, $\tau_L$, and $\tau_H$.  

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First, we claim that for $\beta_L$ small enough $\tau^* \neq \tau_L$. Suppose $\tau_L > 1 - \frac{1}{\lambda}$. We have established in case 1(a) that the religious authority chooses $\tau_H$ in this case, for $\beta_L$ sufficiently small. Suppose alternatively that $\tau_L < 1 - \frac{1}{\lambda}$. Recall that all agents join the community for $\tau \leq \tau_L$. The payoff from choosing $\tau_L$ is then:

$$
\tilde{u}(\tau_L) = np \frac{\beta^{1/\sigma}_H}{1 + \beta^{1/\sigma}_H}(1 - \tau_L)\lambda + n(1 - p) \frac{\beta^{1/\sigma}_L}{1 + \beta^{1/\sigma}_L}(1 - \tau_L)\lambda, \tag{21}
$$

which is clearly less than $\tilde{u}(0)$. Therefore, the religious authority never chooses $\tau_L$ when $\beta_L$ is sufficiently small.

Now we claim that there exists a threshold $\lambda$ such that $\tau^* = 0$ rather than $\tau_H$ if and only if $\lambda > \lambda$. To establish the claim, observe that $\tilde{u}(0) > u(\tau_H)$ if and only if:

$$
np \frac{\beta^{1/\sigma}_H}{1 + \beta^{1/\sigma}_H}\lambda + n(1 - p) \frac{\beta^{1/\sigma}_L}{1 + \beta^{1/\sigma}_L}\lambda > np \frac{\beta^{1/\sigma}_H}{\lambda^{1/\sigma}}, \tag{22}
$$

which implies that:

$$
\lambda > \frac{p^{1-\sigma}\beta_H}{\left(p^{\beta^{1/\sigma}_H/1-\sigma} + (1 - p)^{\beta^{1/\sigma}_L/1-\sigma}\right)1-\sigma} \equiv \bar{\lambda}. \tag{23}
$$

This establishes part (ii)–(iii) of the proposition in case 1.

**Case 2**: $\beta^{1/\sigma}_H > 1$.

(a) Consider $\lambda \in [1, \beta^{1/\sigma}_H]$.

Since $\lambda \leq \beta^{1/\sigma}_H$, the religious authority can set $\tau = 1$ without inducing the exit of high types. When high types are members, we have already established that $u(1) > u(\tau_L)$ for $\lambda > \bar{\lambda}$, where $\bar{\lambda} < 1$. By hypothesis, $\lambda \geq 1$. Hence, $\tau^* \neq \tau_L$ in the case under consideration.

Turning to the remaining candidates, the best responses of group members to $\tau = 0$ are given by Proposition 1(ii) (because $\lambda \geq 1$) and the best responses to $\tau = 1$ are given by Proposition 1(i). Hence the religious authority chooses $\tau = 0$ rather than $\tau = 1$ if and only if:

$$
np \frac{\beta^{1/\sigma}_H}{1 + \beta^{1/\sigma}_H}\lambda + n(1 - p) \frac{\beta^{1/\sigma}_L}{1 + \beta^{1/\sigma}_L}\lambda > n \tag{24}
$$

which implies that:

$$
\lambda > \frac{1}{p^{\beta^{1/\sigma}_H/1-\sigma} + (1 - p)^{\beta^{1/\sigma}_L/1-\sigma}} \equiv \bar{\lambda}. \tag{25}
$$
Consider \( \lambda > \beta^{1/\sigma}_H \).

We have already established that when \( \lambda > \max\{\beta^{1/\sigma}_H, 1\} \), then the religious authority chooses \( \tau = 0 \) if (22), and equivalently (23), holds and \( \tau = \tau_H \) otherwise.

Because \( \lambda > \beta^{1/\sigma}_H \), an upper bound on the RHS of (22) is \( np \). This implies that if (24) holds for \( \lambda \in (\bar{\lambda}, \beta^{1/\sigma}_H] \), then (22) holds for all \( \lambda > \beta^{1/\sigma}_H \) and hence \( \tau^* = 0 \) over this parameter range.

If (24) does not hold for some \( \lambda \in [1, \beta^{1/\sigma}_H] \), then \( \tau^* = 0 \) if and only if (22) holds, so that \( \lambda > \bar{\lambda} \), \( \tau^* = \tau_H \) otherwise. This completes the proof. \( \square \)

**Proof of Proposition 3.** By assumption, members of the religious group live for one period and are self-regarding. Hence, in each period members choose the same best responses to \( \tau \) as they do in the one-shot game (given by Proposition 1). In particular, in any given period, if \( (1 - \tau)\lambda < 1 \) then \( g^{*}_\theta = 0 \) and:

\[
e^{*}_\theta = \frac{\beta^{1/\sigma}_\theta}{\beta^{1/\sigma}_\theta + \left((1 - \tau)\lambda\right)^{\sigma}}.
\]

(26)

If \( (1 - \tau)\lambda = 1 \), then:

\[
e^{*}_\theta + g^{*}_\theta = \frac{\beta^{1/\sigma}_\theta}{1 + \beta^{1/\sigma}_\theta}.
\]

(27)

If \( (1 - \tau)\lambda > 1 \), then \( e^{*}_\theta = 0 \) and:

\[
g^{*}_\theta = \frac{\beta^{1/\sigma}_\theta}{1 + \beta^{1/\sigma}_\theta} (1 - \tau)\lambda.
\]

(28)

Given these responses, recall that the religious organization chooses a sequence \( \tau_{t=0}^\infty \) to maximize:

\[
\sum_{t=0}^{\infty} \sum_{i=1}^{n} \delta^t [e^{*}_i(\tau) + g^{*}_i(\tau)].
\]

(29)

Note that \( \sum_{i=1}^{n} [e^{*}_i(\tau) + g^{*}_i(\tau)] \) is a function of the religious organization’s choice variable \( \tau \) and the state variable, \( p \), which is the proportion of high-attachment types in the current period, \( p \). Hence we can write the religious organization’s current period payoff as \( u(\tau, p) \).

Let us denote the proportion of high-attachment types in the next period by \( p' \). Recall that the probability that agent \( i \)’s child inherits high-attachment to the group equals \( f(e_i) \). Hence \( p' \) depends on the profile of effort choices by members in the current period. In particular:

\[
p' = \frac{1}{n} \sum_{i \in N} f(e_i).
\]
In equilibrium:
\[ p' = pf(e_H^*(\tau)) + (1 - p)f(e_L^*(\tau)) \equiv F(\tau, p). \]

We can define the value of being in state \( p \) as \( v(p) \). Then the Bellman equation for the religious organization’s problem is:
\[
v(p) = \max_{\tau \in [0, 1]} \{ u(\tau, p) + \delta v(F(\tau, p)) \},
\]
where \( v \) is (weakly) increasing in \( p \) because \( e_H^*(\tau) + g_H(\tau) \geq e_L^*(\tau) + g_L(\tau) \) for all \( \tau \).

Suppose \( \lambda < 1 \). Then in every period \((1 - \tau)\lambda < 1\) regardless of \( \tau \in [0, 1] \). Hence, each type chooses \( g^*_\theta = 0 \) and \( e^*_\theta(\tau) \) as in (26) in every period. Therefore, the religious organization maximizes the discounted sum of contributions by setting \( \tau^* = 1 \) in every period.

Henceforth, consider the case in which \( \lambda \geq 1 \). This implies that \((1 - \tau)\lambda \geq 1\) for \( \tau \leq 1 - \frac{1}{\lambda} \). First, we claim that the religious organization never chooses \( \tau = 1 - \frac{1}{\lambda} \) in equilibrium. To see this, note that by (26) and (27):
\[
e_H^*(\tau) + g_H(\tau) = \frac{\beta_{\theta}^{1-\sigma}}{1 + \beta_{\theta}^{1-\sigma}} < e_H^*(1) = 1,
\]
for \( \tau = 1 - \frac{1}{\lambda} \). This holds for both types. Hence, \( u(1, p) > u(1 - \frac{1}{\lambda}, p) \), which establishes the claim.

In addition, because (1) \( e_H^*(1 - \frac{1}{\lambda}) < e_H^*(1) \) for both types, and (2) \( p' \) is increasing in \( e_H^* \) for both types and (3) \( v(p') \) is (weakly) increasing in \( p' \), we have \( v(F(1, p)) \geq v(F(1 - \frac{1}{\lambda}, p)) \). Therefore, both the current period payoff and the continuation payoff are higher when setting \( \tau = 1 \), thus establishing the claim.

Second, consider the domain \( \tau > 1 - \frac{1}{\lambda} \), i.e. \((1 - \tau)\lambda < 1\). The religious organization’s discounted payoff is:
\[
u(\tau, p) + \delta v(F(\tau, p))
= np \frac{\beta_H^{1-\sigma}}{\beta_H^{1-\sigma} + [(1 - \tau)\lambda]^{1-\sigma}} + n(1 - p) \frac{\beta_L^{1-\sigma}}{\beta_L^{1-\sigma} + [(1 - \tau)\lambda]^{1-\sigma}} + \delta v(F(\tau, p)).
\]

The unique maximizer of the first two terms is \( \tau = 1 \). Since \( e_H^*(\tau) \) is maximized at \( \tau = 1 \) for both types, \( F(\tau, p) \) is maximized at \( \tau = 1 \). In addition, recall that \( v \) is weakly increasing. Hence \( \tau = 1 \) is also a maximizer of the third term. This implies that the unique maximum of the religious organization’s discounted payoff on the domain \( \tau > 1 - \frac{1}{\lambda} \) is attained when \( \tau = 1 \).
Third, consider the domain \( \tau < 1 - \frac{1}{\lambda} \), so that \((1 - \tau)\lambda > 1\). The religious organization’s discounted payoff is:

\[
\begin{align*}
\text{max} & \quad u(\tau, p) + \delta v(F(\tau, p)) \\
&= np \frac{\beta_H^{\frac{1}{1-\sigma}}}{1 + \beta_H^{\frac{1}{1-\sigma}}} (1 - \tau)\lambda + n(1 - p) \frac{\beta_L^{\frac{1}{1-\sigma}}}{1 + \beta_L^{\frac{1}{1-\sigma}}} (1 - \tau)\lambda + \delta v(F(\tau, p)).
\end{align*}
\]

The unique maximizer of the first two terms is \( \tau = 0 \). Since \( e_\theta^*(\tau) = 0 \) for all \( \tau \) on the domain being considered, \( v(F(\tau, p)) \) is the same for all \( \tau \). Hence, the unique maximum of the religious organization’s discounted payoff on the domain \( \tau < 1 - \frac{1}{\lambda} \) is attained when \( \tau = 0 \).

Therefore, we only need to compare the payoff streams under the two remaining candidates for best responses by the religious organization, \( \tau = 0 \) and \( \tau = 1 \).

Consider the subgame beginning in any period \( t > 1 \). We have established that in period \( t - 1 \) either \( \tau^* = 0 \) or \( \tau^* = 1 \). Hence in period \( t \) the proportion of high attachment types is either

\[
p = p f\left(e_H^*(0)\right) + (1-p)f\left(e_L^*(0)\right) = p f(0) + (1-p)f(0) = f(0)
\]

or

\[
\bar{p} \equiv p f\left(e_H^*(1)\right) + (1-p)f\left(e_L^*(1)\right) = p f(1) + (1-p)f(1) = f(1),
\]

where \( \bar{p} > p \) because \( f \) is strictly increasing. The same applies for all \( t > 1 \).

Moreover, the repeated game has a Markov structure. For each \( \tau \), community members choose the same best response in every period. Hence, the decision of the religious organization depends only on the state \( p \) and not on \( t \). Thus, an SPE will attach an action \( \tau \) to each state \( p \) and we have established that either \( \tau^* = 0 \) or \( \tau^* = 1 \).

Suppose the religious organization always chooses \( \tau = 0 \) when \( p = \underline{p} \). This occurs if and only if:

\[
\begin{align*}
\text{max} & \quad u(0, \underline{p}) + \delta v(\underline{p}) \geq u(1, \underline{p}) + \delta v(\overline{p}),
\end{align*}
\]

where \( v(\underline{p}) = \frac{u(0, \underline{p})}{1-\delta} \) because the religious organization chooses \( \tau = 0 \) whenever \( p = \underline{p} \). This in turn implies that:

\[
\begin{align*}
\text{max} & \quad u(0, \underline{p}) + \delta v(\underline{p}) > u(1, \underline{p}) + \delta v(\overline{p}),
\end{align*}
\]

because \( u(0, \overline{p}) > u(0, \underline{p}) \) and \( u(1, \underline{p}) = u(1, \overline{p}) = n \). Therefore, if the religious organization always chooses \( \tau = 0 \) when \( p = \underline{p} \), then it always chooses \( \tau = 0 \) when \( p = \overline{p} \). This in turn implies that \( v(\overline{p}) = u(0, \overline{p}) + \delta v(\overline{p}) \). Substituting this into (30) yields:

\[
\begin{align*}
\begin{align*}
\text{max} & \quad u(0, \underline{p}) + \delta u(0, \underline{p}) \geq \delta u(0, \overline{p}) + \delta^2 u(0, \underline{p}) \\
&\quad u(1, \underline{p}) \leq u(0, \underline{p}) - \delta \left[ u(0, \overline{p}) - u(0, \underline{p}) \right]
\end{align*}
\end{align*}
\]
Define \( \tilde{b} \equiv \bar{p} \frac{\beta_{L}^{1/1-\sigma}}{1+\beta_{H}^{1/1-\sigma}} + (1 - \bar{p}) \frac{\beta_{L}^{1/1-\sigma}}{1+\beta_{L}^{1/1-\sigma}} \) and \( b \equiv \bar{p} \frac{\beta_{H}^{1/1-\sigma}}{1+\beta_{H}^{1/1-\sigma}} + (1 - \bar{p}) \frac{\beta_{L}^{1/1-\sigma}}{1+\beta_{L}^{1/1-\sigma}} \), where \( \tilde{b} > b \). Inequality (32) can then be written:

\[
 n \leq \lambda nb - \delta (\lambda nb - \lambda n\tilde{b}).
\] (33)

As \( n > 0 \), this can only hold if:

\[
 b - \delta (\tilde{b} - b) > 0,
\] (34)

which is simply condition (7). Therefore, if (7) does not hold, there is no value of \( \lambda \) for which \( \tau^* = 0 \) in every period \( t > 1 \).

Now consider the case in which (7) holds. Then \( \tau^* = 0 \) in every period \( t > 1 \) if and only if:

\[
 \lambda \geq \frac{1}{b - \delta (\tilde{b} - b)} \equiv \lambda_2.
\] (35)

This establishes part (ii) of the proposition.

To establish part (i) suppose alternatively that the religious organization always chooses \( \tau = 1 \) when \( p = \bar{p} \). This occurs if and only if:

\[
 u(1, \bar{p}) + \delta v(\bar{p}) \geq u(0, \bar{p}) + \delta v(\bar{p}),
\] (36)

where \( v(\bar{p}) = \frac{u(1, \bar{p})}{1-\sigma} \). This in turn implies that:

\[
 u(1, \bar{p}) + \delta v(\bar{p}) > u(0, \bar{p}) + \delta v(\bar{p}),
\] (37)

because \( u(0, \bar{p}) > u(0, p) \) and \( u(1, p) = u(1, \bar{p}) = n \). Therefore, if the religious organization chooses \( \tau = 1 \) when \( p = \bar{p} \), then it chooses \( \tau = 1 \) when \( p = \underline{p} \). This in turn implies that \( v(\bar{p}) = u(1, \bar{p}) + \delta v(\bar{p}) \). Substituting this into (36) yields:

\[
 u(1, \bar{p}) + \delta \frac{u(1, \bar{p})}{1-\delta} \geq u(0, \bar{p}) + \delta u(1, \bar{p}) + \delta^2 \frac{u(1, \bar{p})}{1-\delta}
\] (38)

\[
 u(1, \bar{p}) \geq u(0, \bar{p}),
\]

where we have used the fact that \( u(1, \bar{p}) = u(1, \bar{p}) \). Inequality (38) in turn holds if and only if:

\[
 n \geq \lambda n\tilde{b} \lambda \leq \frac{1}{\tilde{b}} \equiv \lambda_1.
\] (39)

Notice that \( \lambda_1 < \lambda_2 \). This establishes part (ii) of the proposition.

Let us turn to part (iii). Suppose the religious organization chooses \( \tau = 1 \) when \( p = \bar{p} \) and \( \tau = 0 \) when \( p = \underline{p} \). This occurs if and only if:

\[
 u(1, \bar{p}) + \delta v(\bar{p}) > u(0, \bar{p}) + \delta v(\bar{p})
\] (40)

and

\[
 u(1, \bar{p}) + \delta v(\bar{p}) < u(0, \bar{p}) + \delta v(\bar{p}),
\]

where the value equation associated with a large proportion of high types is:

\[
 v(\bar{p}) = u(0, \bar{p}) + \delta v(\bar{p}) = u(0, \bar{p}) + \delta \frac{u(1, \bar{p})}{1-\delta^2},
\] (41)
because $\tau$ alternates each period between zero and one. Substituting (41) into the first line of (40) yields:

$$u(1, p) + \delta u(0, \overline{p}) + \delta^2 v(\overline{p}) > u(0, p) + \delta v(p).$$

Substituting (41) into the second line of (40) yields:

$$u(1, p) > (1 + \delta)u(0, p) - \delta u(0, \overline{p})$$

which holds if and only if ((7) does not hold or $\lambda < \lambda_2$.

Substituting (41) into the second line of (40) yields:

$$u(1, p) < u(0, \overline{p})$$

This completes the proof. □

**Proof of Proposition 4.** Fix an arbitrary state $p$. Let $\Lambda^*$ (resp. $\Lambda^{**}$) be the set of values of $\lambda$ for which $\tau^* = 1$ in the current period in the unique SPE without (resp. with) intergenerational transmission of values. Without intergenerational transmission of values, $\tau^* = 0$ if and only if:

$$u(0, p) + \delta v(p) \geq u(1, p) + \delta v(p) .$$

This implies that $u(0, p) \geq u(1, p)$, which in turn occurs if and only if:

$$\lambda \geq \frac{1}{p^{\beta_L^{1-\sigma}} - (1-p)^{\beta_L^{1-\sigma}} / (1+p^{\beta_L^{1-\sigma}}) + (1-p^{\beta_L^{1-\sigma}})} \equiv \tilde{\lambda}(p)$$

by the proof of Proposition 1.

When there is intergenerational transmission of values, $\tau^* = 0$ if and only if:

$$u(0, p) + \delta v(p) \geq u(1, p) + \delta v(p) .$$

This implies $u(0, p) \geq u(1, p) + \delta v(\overline{p})$. We have established that $v(\overline{p}) = v(p)$ if $\lambda \leq \lambda_1 = \tilde{\lambda}(\overline{p})$ and $v(\overline{p}) > v(p)$ if $\lambda > \lambda_1 = \tilde{\lambda}(\overline{p})$. Therefore whenever the religious
organization chooses $\tau = 0$ under intergenerational transmission it will also choose $\tau = 0$ without intergenerational transmission, i.e. $\Lambda^* \subseteq \Lambda^{**}$ for all $p$. This establishes part (i) of the proposition.

We shall now show that for $p < \bar{p}$, $\Lambda^* \subset \Lambda^{**}$. Suppose $\lambda = \tilde{\lambda}(p)$. Then the religious organization is indifferent between $\tau = 0$ and $\tau = 1$ when there is no intergenerational transmission. Under intergenerational transmission, the religious organization will strictly prefer $\tau = 1$ at $\lambda = \tilde{\lambda}(p)$ if and only if $v(\bar{p}) > v(p)$ which occurs if and only if $\tilde{\lambda}(p) > \lambda_1 = \tilde{\lambda}(\bar{p})$. By inspection of (45), $\tilde{\lambda}(p)$ is strictly decreasing in $p$. This implies that $\tilde{\lambda}(p) > \tilde{\lambda}(\bar{p})$ if and only if $p < \bar{p}$. Hence for $p < \bar{p}$, there exist values of $\lambda$ such that the religious organization chooses $\tau = 0$ without intergenerational transmission and $\tau = 1$ with intergenerational transmission. This establishes part (ii) and indeed the proposition. □

B. Dating Emancipation

Figure 6 plots the dates of emancipation for a selected number of European countries. We choose dates agreed upon by historians as marking important acts of emancipation. However, in all countries emancipation was a process. For example Jews were first allowed to settle in England in 1655 and their position became secured after the Glorious Revolution of 1688 (Katz, 1994; Kaplan, 2007). Nevertheless, Jews only obtained full civic equality and the right to sit as members of Parliament in 1858.

For Germany in Figure 6 we highlight the Prussian Edict of Emancipation of 1812 and the extension of emancipation to all Jews within the German Empire in 1870. The Prussian emancipation was limited and other German states had preceded Prussia in offering emancipation. The Margrave of Baden, Karl Friedrich had issued an edict of toleration granting Jews some rights but not citizenship in 1781 (Goldstein, 1984, 47) while the Duchies of Anhalt-Berburg and Anhalt-Köthen granted the Jews ‘[e]mancipation virtually without qualifications’ in 1810 (Rurup, 1969, 75). Jews in Prussia were still prevented from working in government and Judaism was not recognized as a religion. Nevertheless, the partial emancipation of Prussian Jews was significant because Prussia as the greatest German power after the Habsburg empire and Prussian Jews were viewed as ‘the culturally most advanced community of Jews in Western Europe’ and because it was not subsequently revoked (Katz, 1974, 170). Mecklenburg followed Prussia in 1813 (Sorkin, 1987, 29).

Elsewhere in Germany there were many reverses to emancipation following 1815. Many traditional restrictions on Jewish settlement were reimposed in those states that had been
conquered by France, and in some instances new, more severe, laws were introduced.\footnote{For example Jews were expelled from Bremen and Lübeck in 1816. Frankfurt, Hamburg, Hanover, Nassau and other territories reinstated settlement regulations in the aftermath of the defeat of Napoleon (Jersch-Wenzel, 1997, 29).}

Renewed movement towards emancipation only followed gradually. The constitution of Baden granted Jews citizen in 1818. However, this citizenship did not extend to full civic equality and Jewish settlement remained restricted in many districts. Jews were only granted full civic equality in 1862. In Saxon-Weimer ‘Jews were given equal rights’ in 1823 “to the extent that no present or subsequent law acknowledges or justifies an exception’ (Meyer, 1997\textit{b}, 38). Jews were similarly granted partial but not full civic rights in Frankfurt and Hamberg in 1824 (Adler, 1960). Emancipation was obtained in Cologne in 1848. Numerous German states, such as Württemberg, retained restrictions on Jewish settlement until the late 1860s, and the process of emancipation was only completed with the unification of Germany in 1870. In fact the last state to extend rights to Jews was Bavaria which did so when it ratified the new German constitution in 1872.

In the case of Austria we focus on Joseph II’s Edict of Toleration of 1782 (\textit{Toleranzpatent}). This was the first act of emancipation by a large continental European state and has therefore received a lot of scholarly attention.\footnote{It was not the first Edit of Toleration, the Margrave of Baden, Karl Friedrich had issued a similar document, granting Jews some rights but not citizenship in 1781 (Goldstein, 1984, 47).} In fact, it did not result in the complete emancipation of the Jews population of the Habsburg empire. It was an act of partial emancipation which granted certain civic rights to Jews provided that they attended secular schools and learn German (Low, 1979, 15-23). Hebrew settlement, in Vienna for example, remained restricted and no public synagogues were allowed to be built. Furthermore during the reign of Francis I a number of additional impositions, and taxes were imposed upon the Jews and in the major towns of Galicia Jews were confined to Ghettos for the first time.\footnote{Katz (1974, 163–164) and Mahler (1985, 3–10).}

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In Belgium Jews were emancipated as a consequence of the French invasion. Permanent emancipation came with the establishment of the Kingdom of Belgium in 1830 (Bates, 1945). In Denmark Jews were emancipated in 1849 (\textit{Encyclopedia Judaica}, 2007). In Russia Jews
did not obtain emancipation until 1917. In the first half of the nineteenth century additional restrictions were imposed on Jewish communities and, from 1804 onwards, Jews were confined to the Pale of Settlement (Greenberg, 1976). We do not list dates of emancipation for other European countries in Figure 6. Sweden had lifted many restrictions on Jews by 1870, however, some political restrictions continued to obtain until 1950. Jews were emancipated in Switzerland in 1874, Serbia and Bulgaria in 1878, Norway in 1890 and Spain in 1910. In Russia Jews were only emancipated in 1917.

C. Within Germany Variation in Support for Reform

Lowenstein (1981) provides information on 72 German-based rabbis from 70 cities who attended at least one of the Reform conferences between 1844 and 1846. These conferences played an important role in cementing and codifying Reform Judaism. For example the Breslau Rabbinical Conference of 1846 permitted Jewish shopkeepers to open their shops on the second day of any Jewish holiday (Lowenstein, 1992, 87). There were three Reform Conferences between 1844 and 1846 and attendance at at least one of these provides us with our dependent variable. He also provides information on the communities from which these rabbis came. In addition, Lowenstein provides information on communities who sent rabbis to an Orthodox Conference that opposed Reform.

We geocoded these data and matched these communities to cities in the Bairoch (1988) database of city populations. This enables us to see if there was a relationship between economic growth—as measured by an increase in city population—and the likelihood of a community sending a rabbi to one of the major Reform Conferences. Note that one shortcoming of this data is that it does not contain information on all Jewish communities, only on those who sent a rabbi to at least one conference; in this respect it is censored.

Table 1 presents descriptive statistics for this data. A simple comparison of means suggest that Reform communities were on average large and unsurprisingly led by rabbis who were younger and more likely to have a PhD. In a simple linear regression framework the factor that is consistently predicts the likelihood that a community would send a rabbi to a Reform conference is the increase in the absolute size of the population between 1750 and 1850. Ideally we would use population growth rather than the absolute increase in population size. However, many communities resided in cities which are not in the Bairoch database in 1750 or 1800 (they only enter the database in 1850 as their population came to exceed 1,000 individuals) or they are not in the Bairoch database at all but their 1850 population is provided by Lowenstein. For this reason, our preferred measure of population growth is
Table 1: Descriptive Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Latitude</td>
<td>36</td>
<td>50.95</td>
<td>1.58</td>
<td>48.01</td>
<td>54.45</td>
</tr>
<tr>
<td>Longitude</td>
<td>36</td>
<td>10.32</td>
<td>3.02</td>
<td>6.12</td>
<td>18.93</td>
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<tr>
<td>Population</td>
<td>36</td>
<td>22,799</td>
<td>33934</td>
<td>807</td>
<td>15,500</td>
</tr>
<tr>
<td>Rabbi PhD</td>
<td>36</td>
<td>0.58</td>
<td>0.5</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Age of Rabbi</td>
<td>31</td>
<td>35.94</td>
<td>7.04</td>
<td>25</td>
<td>64</td>
</tr>
<tr>
<td>Distance to Hamburg</td>
<td>36</td>
<td>389.64</td>
<td>169.12</td>
<td>0</td>
<td>747</td>
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<tr>
<td>Emancipation</td>
<td>36</td>
<td>0.47</td>
<td>0.51</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Population Increase 1750-1850</td>
<td>36</td>
<td>12,466</td>
<td>151,41</td>
<td>807</td>
<td>65000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Variables</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Latitude</td>
<td>36</td>
<td>50.33</td>
<td>1.87</td>
<td>47.70</td>
<td>54.72</td>
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<tr>
<td>Longitude</td>
<td>36</td>
<td>10.34</td>
<td>2.95</td>
<td>6.62</td>
<td>20.52</td>
</tr>
<tr>
<td>Population</td>
<td>37</td>
<td>14,562</td>
<td>19,638</td>
<td>548</td>
<td>75,234</td>
</tr>
<tr>
<td>Rabbi PhD</td>
<td>37</td>
<td>0.027</td>
<td>0.16</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Age of Rabbi</td>
<td>21</td>
<td>55.43</td>
<td>17.65</td>
<td>31</td>
<td>90</td>
</tr>
<tr>
<td>Distance to Hamburg</td>
<td>36</td>
<td>471.47</td>
<td>168.38</td>
<td>168.38</td>
<td>751</td>
</tr>
<tr>
<td>Emancipation</td>
<td>37</td>
<td>0.28</td>
<td>0.45</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Population Increase 1750-1850</td>
<td>37</td>
<td>6,670</td>
<td>7,148</td>
<td>548</td>
<td>26,440</td>
</tr>
</tbody>
</table>

Notes: There are 73 communities in our dataset in total. We are unable to locate one community that sent a rabbi to the Orthodox conference.

the absolute increase in population at a city level. This involves assigning cities for which we have no data in 1750, their entire 1850 population as their ‘Population Increase’.\footnote{We are aware that this approach is highly imperfect. On the one hand this should bias us against finding a relationship between Reform and population increase. On the other hand, by using population increase rather than population growth we are putting greater weight on the larger cities. The results are unchanged if we assign a population of 500—half the threshold required in order to be recorded in the Bairoch dataset to cities for which we do not have their 1750 population.}

We assign a value of 1 to a community if they send a rabbi to a Reform Conference and a value of 0 if they send a rabbi to an Orthodox Conference organized to oppose Reform. Note that we are unable to locate (and hence geo-code) one community, Binwanger, that sent a
Table 2: Within Germany Evidence: Reform and City Growth

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dependent Variable</strong> = Sending a Rabbi to a Reform Conference</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emancipation</td>
<td>0.207*</td>
<td>0.168</td>
<td>0.148</td>
<td>0.148</td>
</tr>
<tr>
<td></td>
<td>(0.089)</td>
<td>(0.170)</td>
<td>(0.288)</td>
<td>(0.229)</td>
</tr>
<tr>
<td>Population Increase</td>
<td>0.00850***</td>
<td>0.0340**</td>
<td>0.0340**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.007)</td>
<td>(0.017)</td>
<td>(0.012)</td>
<td></td>
</tr>
<tr>
<td>Latitude</td>
<td>-0.0107</td>
<td>-0.0107</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.889)</td>
<td>(0.919)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Longitude</td>
<td>0.00619</td>
<td>0.00619</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.825)</td>
<td>(0.870)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Population</td>
<td>-0.0125**</td>
<td>-0.0125**</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.044)</td>
<td>(0.014)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distance to Hamburg</td>
<td>-0.000577</td>
<td>-0.000577</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.367)</td>
<td>(0.422)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Standard Errors Robust Robust Robust Clustered**

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>N</strong></td>
<td>72</td>
<td>72</td>
<td>72</td>
<td>72</td>
</tr>
<tr>
<td>adj. $R^2$</td>
<td>0.027</td>
<td>0.054</td>
<td>0.085</td>
<td>0.085</td>
</tr>
<tr>
<td>F</td>
<td>2.975</td>
<td>5.549</td>
<td>3.451</td>
<td>9.471</td>
</tr>
</tbody>
</table>

*p-values in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

In Column (4), we cluster our standard errors at the 1815 state level. There are 19 clusters.

rabi to the Orthodox conference. This explains the variation in the number of observations. We run the following regression:

$$R_{1844–1847} = \alpha + \text{Pop Increase}_{i1750–1850} + X' + \epsilon_i,$$ (47)

where $R_{1847}$ is an indicator variable that takes the value of 1 if a community sent a rabbi to the Reform Conferences of 1845-1847 and zero otherwise and our explanatory variable is the increase in population between 1750 and 1850 at the city level. Our vector of controls $X$ includes distance to Hamburg, population in 1850, emancipation, latitude, and longitude. We control for distance to Hamburg because Hamburg was the first city to establish a Reform
The results of this exercise are shown in Table 2. Column (1) depicts the relationship between sending a rabbi to a Reform conference and population growth in the prior century. In Column (2) we show that this relationship remains once we include all of our control variables. In Column (3) we cluster our standard errors at the level of 1815 states. There are twenty clusters. Note that the sign of the absolute size of a city is actually negative. This is consistent with the observations of Lowenstein who noted that ‘even more surprising is the fact that there was little difference between the size of the towns represented by the Orthodox and by the Reformers’ (Lowenstein, 1992, 97). Our analysis suggest that it was not the case that larger cities were more likely to see Reform Judaism emerge but that faster growing cities were. An increase in population of 1000 between 1750 and 1850 is associated with a 3% increase in the likelihood of sending a rabbi to a Reform Congress.

Needless to say, we hesitate to place a causal interpretation on this data. The likelihood of a community sending a rabbi to a Reform conference may reflect underlying differences between Jewish communities which may be correlated with prior population growth. Nevertheless, they are consistent with there being a relationship between prior economic development and Reform Judaism.

D. Modern Orthodoxy

Here we provide more details about Modern Orthodoxy. We substantiate the main claim in the text that Modern Orthodoxy was a liberalizing religious movement. We provide evidence that (1) Modern Orthodoxy was a liberalizing movement; (2) Modern Orthodoxy supported secular education; and (3) Ultra-Orthodox Jews viewed Modern Orthodox Jews as their opponents.

MODERN ORTHODOXY WAS A LIBERALIZING MOVEMENT Modern Orthodoxy accepted many of the changes that had taken place in German Judaism during the first half of the nineteenth century. They agreed that secularly trained rabbis were required. Leaders like Hirsch wore modern clothes and spoke German. Hirsch argued that there was no conflict between progress properly understood and religion:

‘Judaism has never remained aloof from true civilisation and progress; in almost every era its adherents were fully abreast of contemporary learning and very often excelled their contemporaries. If in recent centuries German Jews remained more or less aloof from European civilisation the fault lay not in their religion but in the tyranny which confined by them by force within the walls of their ghettos
and denied them intercourse with the outside world. And, thank goodness, even now our sons and daughters can compare favourably in cultural and moral worth with the children of families who have forsaken the religion of their forefathers for the sake of imagined progress' (Hirsch, 1854, 1980, 179).

Here Hirsch is making the point that secular learning and adherence to the ideals of Judaism are fully compatible. This is evidently very different to the attitude of the Hungarian founders of Ultra-Orthodox Judaism.

**ATTITUDES TO EDUCATION** The difference between Modern Orthodoxy and Ultra-Orthodoxy is starker still if we consider the attitude of the modern Orthodox to schooling:

“Create schools! Improve the schools you already have!” This is the call we would pass from hamlet and hamlet, from village to village, from city to city; it is an appeal to the hearts, the minds and the conscience of our Jewish brethren, pleading with them to champion that most sacred of causes—the cause of thousands of unhappy Jewish souls who are in need of schools, of better Jewish schools, for their rebirth as Jews’ (Elliott and Bechhofer, 1992, 3).

Hirsch wanted Jewish schools because he didn’t want Jews receiving information solely from non-Jewish sources. He was worried about secularization and about conversions to Christianity. Equally, he was opposed to those who wished to insulate their children from secular education:

“Equally serious problems can arise when your children grow up with a one-sided Jewish education that either ignores secular studies and culture altogether or, out of sheer ignorance, views them with suspicion or contempt. They have never learned to assess and properly appreciate general studies from the truly Jewish point of view’ (Elliott and Bechhofer, 1992, 22).

On the subject of secular education, the disagreement of the Modern Orthodox with their Reform colleagues was one of emphasis. The modern Orthodox saw secular education as of secondary importance to the study of the Talmud. However, they did not see secular education as a source of danger or corruption. Historians make it quite clear that Modern

---

63 We have focused on the writings of Hirsch for convenience. However, his position is representative of other Modern Orthodox thinkers. Ellenson notes that ‘German Orthodox Jewish thinkers such as Wohlgemuth, Nobel, and Breuer, were as eager as their Liberal colleagues to articulate a philosophy of Judaism in modern philosophical terms. They were themselves acculturated members of German society . . . Because of this background, there was nothing alien or artificial to them about explaining and defending Judaism in contemporary philosophical — in this case Kantian — language’ (Ellenson, 1994, 26).
Orthodoxy transformed German Orthodoxy and that German Orthodoxy should not be confused with either traditional Judaism—as late as 1840, Rabbi Solomon Tiktin of Breslau held that anyone who had studied at a university was not fit to become a rabbi’ (Meyer, 1988, 77)—or with the various variants of Eastern European Ultra-Orthodoxy.

**Ultra-Orthodox viewed Modern Orthodoxy as their opponents** One further piece of evidence supports our interpretation of modern Orthodoxy; this is the attitude to Hungarian Ultra-Orthodox rabbis to those Jewish leaders who were influenced by Germany Modern Orthodoxy. The most important rabbi in Hungary in the 1850s was Esriel Hildesheimer (1820–1899). Hildesheimer opposed the spread of Reform into Hungary from the position of German Modern Orthodoxy. Hidesheimer’s moderate position provoked an attack from the conservative traditionalists. In 1865, a number of Orthodox rabbis openly attacked Hildesheimer’s program: most prominent among them was Hillel Lichtenstein (1814–1891) and Akiva Yosef Schlesinger (1837–1922). The Ultra-Orthodox did not attack Reform Judaism because by this stage the reformers ‘were considered hopelessly beyond the pale’ (Silber, 1992, 38). Whereas Sofer had, in the previous generation, worked with other traditionalists to oppose Reform, the Ultra-Orthodox now employed his rhetoric against less rigorous forms of Orthodoxy (Satlow, 2006, 269–270). For the Ultra-Orthodox Hidesheimer was ‘a far more dangerous threat than Reform since his very Orthodoxy lent a legitimacy to innovation which had been unhesitatingly denied to the reformers. The exhortations of the Ultra-Orthodox were aimed mainly at the mass of vacillating, middle-of-the-road Orthodox who were increasingly tempted to compromise and were on the way to becoming neo-Orthodox fellow travelers’ (i.e. modern Orthodox)(Silber, 1992, 38).

**E. Other Jewish Communities**

We have focused on the Ashkenazi Jewish communities of central and eastern Europe as they formed a single, coherent, and culturally unified religious community prior to the Jewish emancipation. Our analysis is less applicable to the Sephardic or mixed-Sephardic-Ashkenazi communities of France, Britain and other parts of western Europe. Here we briefly consider the applicability and limitations of our theory in explaining religious developments among these communities.

First, let us consider the Jewish communities of France. French Jewry comprised two separate and distinct communities: Sephardic or ‘Portuguese’ Jews who mostly resided in western

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64 There are many sources that we could quote to make this point, e.g. ‘For while the Reformers and Neo-Orthodox in Germany chose to adopt a posture of accommodation with the larger world, Sofer and his group maintained only the minimal relations necessary for economic and political survival’ (Ellenson, 1990, 19). See Blau (1966, 64-79) for further discussion.
France and a community of Ashkenazi Jews based in Alsace and Lorraine. The former community originated in Portuguese ‘new Christians’ who had fled the Inquisition in the seventeenth century and received permission to settle in French cities such as Bordeaux (Israel, 1985). Having already partially assimilated as Christians prior to returning to the Jewish faith, they were culturally and economically very different to the Yiddish speaking Ashkenazi community that the French monarchy inherited when it acquired Alsace and Lorraine (see Hyman, 1991; Graetz, 1996; Goldfarb, 2009). The Sephardic community had prospered as a result of their connections in international trade; even prior to emancipation, they lived side-by-side with Christians and spoke French. In contrast, the much larger Alsace community were subject to numerous restrictions. They were allowed to trade in Strasbourg, Colmar and Mulhouse but expelled at nightfall. Alsatian Jews worked as peddlers, small-scale traders and moneylenders. Prior to emancipation: ‘They could own no property, including their houses, and could not run public shops’ (Hyman, 1991, 13).

Given such different preconditions, it is unsurprising that the two communities responded differently to emancipation in 1791. Movements towards liberalizing traditional Judaism took off in Paris which became the center of a large Jewish population, many of whom had migrated from Alsace and Lorraine in the 1830s. This religious reform movement in France was known as the régénérateur movement. It was not as successful as the Reform movement in Germany. Historians attribute its comparative failure to both the divide between Ashkenazi and Sephardic communities and the conservative force exerted by the Jews of Alsace and Lorraine (Berkovitz, 1989; Hyman, 1991). As Hyman notes ‘[t]he concentration of the Jewish population of Alsace in a rural and conservative social context prevented radical assimilation. As the major source of opposition to the reformist tendencies of the leadership of the Central Consistory, Alsatian Jews acted as a brake upon ideological religious reform’ (Hyman, 1991, 160).

The experience of Jewish communities in Britain is similar in some respects. The British community was predominantly Sephardic in origin but from the early nineteenth century onwards there was also an Ashkenazi community. From the late eighteenth century, London synagogues experienced changes which in some respects parallel Reform Judaism in Germany, and which were undertaken for the same reasons though they lacked the theological justification that was provided by intellectuals like Abraham Geiger in Germany. For exam-

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65 As we have noted, Reform Judaism originated among Ashkenazi Jews. Interestingly, many more Sephardic Jews converted to Christianity than did Ashkenazi. They did so largely for reasons of social advancement. Smith notes ‘though a large number of Sephardim converted during this period, few (if any) did so out of religious conviction, and they made no pretense of having done so’ (Smith, 1981, 285). He observes that ‘[i]t is very possible that had the Reform synagogue been in existence in these years, many of these Sephardim, especially those left Bevis Marks for reasons of distance, discipline, and personality conflict, would have joined it rather than converting or allowing their children to convert to Christianity’ (Smith, 1981, 286).
ple, during the 18th century the Great Synagogue of London ordered its hazzan to wear long black gowns with white ribbons which resembled the dress of Protestant ministers. Increased order and decorum was enforced during worship (Endelman, 2002, 110). To move further in a liberal direction, the first Reform synagogue was founded in 1840.

Reform Judaism in Britain was not as successful as the German Reform movement in part because the leaders of the Orthodox community were able to maintain control of the political office of chief Rabbi. However, the Orthodox community also followed a path of gradual liberalization: religious services were made shorter; dignified music was introduced. In describing the policies of Nathan Adler, chief Rabbi from 1845-1890, Endelman writes of ‘an accommodationist Orthodoxy compatible with their everyday needs. Like other modern Orthodox rabbis in nineteenth-century Europe, Adler embraced cultural assimilation, secular education, and participation in public life’. Endelman notes that this was a ‘brand of traditional Judaism’ that ‘well suited the needs of occulted British Jews’ (Endelman, 2002, 117). In this case, the overall path of religious development was in the direction of liberalization as predicted by our theory.

Both the British and French case studies lend cautious support to our theory. They also point to some inevitable limitations that a formal model confronts when used to explain a complex and rich social and cultural movement. For example, in Germany an important motivation to further Reform in the period between 1820 and 1860 was the aim of gaining full emancipation and political rights but in France and Britain this motive was largely absent. In relation to this claim, Berkovitz argues that while ‘[i]n Germany, where the political struggle for civic rights was frustrated by repeated setbacks, liberal Jewish thinkers concluded that a reformed religion, divested of its particularistic features, would ultimately strengthen the case for emancipation. French Jews felt no such urgency to introduce religious reforms, though certain modifications were considered essential’ (Berkovitz, 1989, 209). We view this argument as an additional factor that is relevant but of second-order importance in explaining the success or failure of Reform Judaism across Europe.

Finally, we should emphasize that we do not intend our model as a comprehensive theory of religious change. Tremendous intellectual developments took place during the period under consideration and undoubtedly shaped the development of Reform (and also modern Orthodoxy). Factors of particular importance include the rise of modern biblical textual criticism and history as well as the modern natural sciences, the growth of a secular sphere

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66The British political system lent support to the centralization of religious authority. The office of chief rabbi provided the Orthodox leadership with considerable authority and institutional hegemony and as a result it was able to retain its predominance.

67There is a parallel debate in the literature about the extent to which the British Reform movement was driven by the desire of winning full political emancipation for Jews in Britain as was the case in Germany (Liberles, 1976; Endelman, 2002).
in which Jews and non-Jews could interact, and the emergence of non-religious ideologies such as liberalism, socialism and nationalism. These factors played an important role in shaping Jewish attitudes to religious reform. Thinkers like Samuel Holdheim, Abraham Greiger and Ludwig Philippson were influenced by Enlightenment thinkers such as Herder and indirectly Adam Smith and the Scottish Enlightenment in viewing Jewish law as the product of a historical process of evolution that had changed and developed as circumstances had evolved (see Wiener, 1962).

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68 Katz argued that it was not coincidental that Reform Judaism emerged during the ‘age of liberalism (1830–1880)’ (Katz, 1986, 16).

69 This is also true of Hirsch—the founder of Modern Orthodoxy who studied in Bonn where he acquired ‘a strong interest in natural science which comes to the fore even in his late publications . . . he never attempted to evade coming to grips with enlightened ideologies based on natural science’ (Heinemann, 1951, 32-33).