Jewish emancipation and schism: Economic development and religious change

Jean-Paul Carvalho [a], Mark Koyama [b,*]

[a] Department of Economics, University of California, Irvine, 3151 Social Science Plaza, CA 92697, Irvine, United States
[b] Center for Study of Public Choice, Carow Hall, MSN 1D3, 4400 University Drive, George Mason University, VA 22030, United States

ARTICLE INFO

ABSTRACT

Carvalho, Jean-Paul, and Koyama, Mark—Jewish emancipation and schism: Economic development and religious change

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. *Journal of Comparative Economics* **44**(3) (2016) 562–584. Department of Economics, University of California, Irvine, 3151 Social Science Plaza, CA 92697, Irvine, United States; Center for Study of Public Choice, Carow Hall, MSN 1D3, 4400 University Drive, George Mason University, VA 22030, United States.

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

* Corresponding author.
E-mail addresses: jpcarv@uci.edu (J.-P. Carvalho), mkoyama2@gmu.edu (M. Koyama).

– the gradual lifting of formal legal barriers to Jewish participation in mainstream society.[1] 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.[2] 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 focuses on the local personalities and events in different regions that gave rise to Reform or Ultra-Orthodoxy.[3] 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, 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*.[4] 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.[5] Until 1875 in Germany (and 1867 in Austria-Hungary) every Jewish community was only allowed a single recognized religious organization.[6] 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.[7] 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 club goods model of religion to account for these facts.[8] 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

---

[1] For discussion of other Jewish communities see online Appendix E.

[2] Jewish religious identities are extremely persistent over time as Lasker and Lasker (1991) demonstrate. According to the 2000/2001 National Jewish population survey 81 percent of Orthodox Jews were brought up as Orthodox and 96 percent of Orthodox Jews marry other Orthodox Jews (Dat, 2003).

[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).

[4] 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 *Misnagdim* 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.

[5] 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.

[6] 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.

[7] 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.

[8] Berman's first puzzle is related to the birth of Ultra-Orthodoxy in the wake of emancipation, which he describes on pages 932–934.

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 contributions. 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, 2016), 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 members: 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

---

[9] See 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).

[10] The 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.

life held true everywhere'. They were 'a republic apart' who wore distinctive clothes and spoke their own languages (Israel, 1985, 184).[11]

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.[12] Even if they converted to Christianity, they often faced hostility and suspicion.[13] This was the fate of Spinoza who was expelled from his own community and 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.[14] 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).[15] 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).[16]

Emancipation was an exogenous shock to most Jewish communities: few Jews 'anywhere in Europe had anticipated emancipation' (Vital, 1999, 99).[17] 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

---

[11] Finer notes '[i]n 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).

[14] The relationship between emancipation, industrialization, and religious change are the subject of an extensive historiography and considerable controversy. See Baron (1938); Berkovitz (1989); Graetz (1996); Vital (1999). The seminal work on the cultural impact of emancipation on the Jewish communities of central and eastern Europe was Katz (1972); 1974); 1986). This sparked a series of debates about how to conceptualize the process of emancipation and assimilation that are contained in the conference volumes *Towards Modernity* (Katz, 1987), *Assimilation and Community* (Frankel and Zipperstein, 1992), *paths of Emancipation* (Birnbaum and Katznelson, 1995), and *Jewish Emancipation Reconsidered* (Brenner et al., 2003).

[15] Like other reforms, emancipation can be seen as a defensive policy presided over by the political elite: '[w]hen compelled, autocrat and aristocracy initiated social change' (Sorkin, 1987, 12). Liberal bureaucrats, influenced by Enlightenment thought, were willing to grant rights to the Jews in exchange for internal reform, and to achieve reform they agreed to open up educational institutions to Jews.

[16] We provide further details on how the pace of emancipation varied from place to place in Appendix B.

[17] The small but prominent Jewish community of Berlin are a partial exception to this statement.

1815 Jews in territories occupied.
by France lose their rights

1867 Jews emancipated in
Habsburg empire

1791 French Jews
emancipated

1848 Revolutions bring temporary
emancipation across Europe

1782 *Toleranzpatent* issued   1812 Prussian Jews
in Habsburg Empire   gain civil rights

1872 Jews emancipated across Germany

1800   **1825**   **1850**   **1875**

1806 *Sulamith* established.

1844–1846 Reform
Conferences held

1876 Prussian Orthodox Jews
permitted to break from Reform

1810 Reform temple built in Seesen.

1850 Modern Orthodox congregation
established in Frankfurt

1819 Hamburg temple founded   1833 Philippson appointed
rabbi in Magdeburg

1869 Ultra-Orthodoxy secede in Hungary
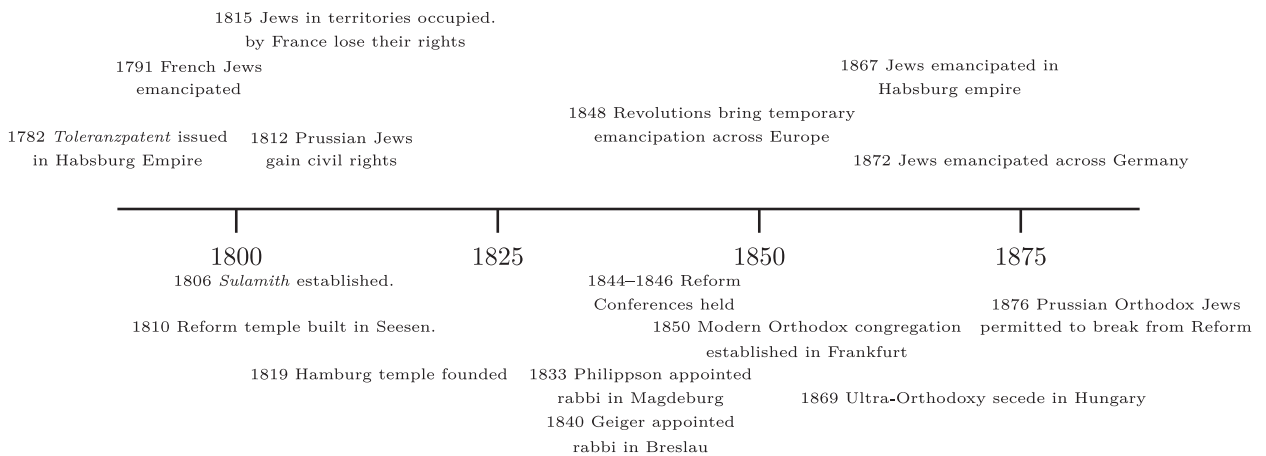
1840 Geiger appointed
rabbi in Breslau

Fig. 1. The timeline of emancipation, Reform and the rise of Ultra-Orthodoxy. Sources: see text.

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.[18] 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 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).[19] 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 Fig. 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 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.[20]

---

[18] The *haskala* 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 *haskala* 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 Friedläender (1750–1834).

[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.

[20] The term Orthodox Jews though familiar is in fact a source of potential confusion. It originates with Saul Ascher, who used to 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.

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.

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. 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 θ, 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]

Date 2. 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 λ is a productivity parameter. It shall become clear that λ is a natural measure of economic development in our model. Strictness τ 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.

Date 3. 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-θ agent who joins the community is given by the following CES form:

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

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]

$$\pi = \alpha \sum_{i \in N} (e_i + g_i). \tag{2}$$

---

[21] In our historical application, the strictness parameter τ reflects how rigorously religious authorities interpreted Jewish law. A high value of τ can thus be thought of as consisting of prohibitions that emphasize a distinctive Jewish identity and were likely to increase the discrimination that Jews faced in Christian or secular society. The religious authority had discretion over how strictly this could be interpreted. A high value of τ corresponds to the rabbinical concept of *Humrah* (stringency), whereas a low value of τ corresponds to the concept of *kullah* (lenience). In Section 4 we discuss how τ acted as a barrier to Jewish integration.

[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.

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 their valuation of this allocation is $\tilde{\beta}_\theta[\alpha(e + g)]^\sigma \equiv \beta_\theta(e + g)^\sigma$, as above.[24]

The budget constraint is:

$$c + g \leq (1 - \tau)\lambda(1 - e), \tag{3}$$

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:

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

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 τ on outside activity. Substituting this into (4) yields a payoff of λ from remaining outside the community, which we shall henceforth refer to as the level of economic development.

The religious authority chooses τ to maximize output of the religious club good π as given by Eq. (2), where in equilibrium e_i and g_i depend on τ.[25]

Equilibrium

The first tradeoff faced by a religious authority in setting the community's level of strictness τ is between contributions of effort and money. A higher τ 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 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 and 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:*

$$\tau^* = 1, \quad e_i^* = 1 \quad \text{and} \quad g_i^* = 0, \tag{5}$$

for all $i \in N$.

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

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

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 τ and thereby increasing monetary contributions g is small compared to the foregone contributions in terms of effort. Thus the optimal level of strictness τ^* is equal to its maximum value at low levels of economic development λ. This is depicted in Fig. 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 $\tau^* = 0$.[26] The best response of community members to the religious authority's choice of τ is depicted in Figs. 3 and 4.

---

[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 Iannacone (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 τ to elicit both observable and unobservable contributions. We thank an anonymous referee for this point.

[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.

[26] In our model, an increase in λ raises the opportunity cost of effort spent on religious activity. If financial contributions were measured in 'real' terms, e.g. g/λ, then a rise in λ would also lower the benefit from a given level of financial contribution, thereby raising the opportunity cost of work. The net effect is ambiguous *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.
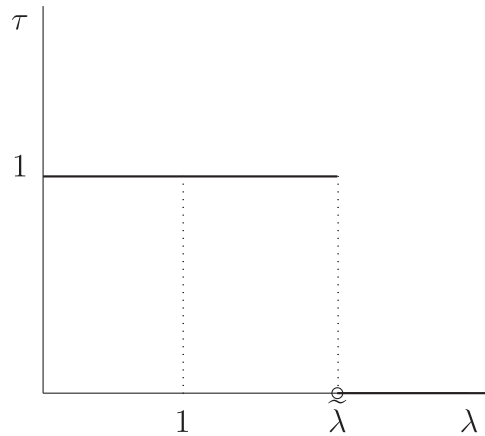
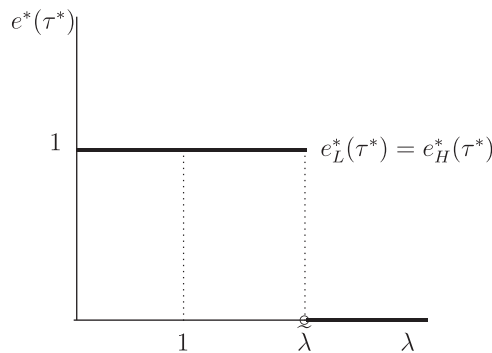**Fig. 2.** Strictness τ as a function of economic development λ.

Fig. 3. Equilibrium effort contributions $e^*(\tau^*)$ as a function of economic development λ.
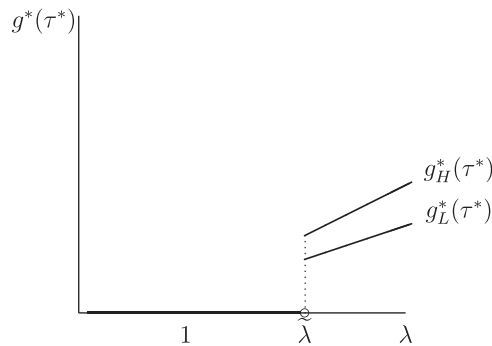

Fig. 4. Equilibrium money contributions $g^*(\tau^*)$ as a function of economic development λ.

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

Corollary 1. *The threshold for switching to money-intensive contributions, $\widetilde{\lambda}$, is:*

   (i) *strictly decreasing in the proportion of high-attachment types, p,*
   (ii) *strictly decreasing in the attachment levels for each type, β_L and β_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 τ 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 $\lambda \leq \beta_\theta^{1/\sigma}$, all type-$\theta$ agents remain members of the community, regardless of $\tau \in [0, 1]$.*

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

The threshold τ_θ is strictly decreasing in economic development λ and strictly increasing in β_θ. 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', τ_θ, is then decreasing in economic development and increasing in her attachment to the group.[27]

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 β_L sufficiently low, there exists a unique SPE as follows:*

(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 $\overline{\lambda}$, such that for all $\beta_L^{1/\sigma} < \lambda < \underline{\lambda}$ every agent remains a member of the community and:*

$$\tau^* = \tau_L, \qquad e_i^* = \frac{\beta_i^{\frac{1}{1-\sigma}}}{\beta_i^{\frac{1}{1-\sigma}} + [(1 - \tau_L)\lambda]^{\frac{\sigma}{1-\sigma}}} \quad \text{and} \quad g_i^* = 0 \quad \text{for all } i \in N.$$

For $\underline{\lambda} \leq \lambda \leq \overline{\lambda}$, low-attachment types exit the community. Only high-attachment types remain members of the community and:

$$\tau^* = \min\{\tau_H, 1\}, \qquad e_H^* = \frac{\beta_H^{\frac{1}{1-\sigma}}}{\beta_H^{\frac{1}{1-\sigma}} + [(1 - \min\{\tau_H, 1\})\lambda]^{\frac{\sigma}{1-\sigma}}} \quad \text{and} \quad g_i^* = 0.$$

(iii) *For $\lambda > \overline{\lambda}$, 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 τ 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 λ 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 τ, 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 λ, $(\underline{\lambda}, \overline{\lambda})$, such that the religious authority will increase τ to maximize religious participation from *H*-types as shown in Fig. 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.[28]

Strictness τ 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

---

[27] Note that we do not need to characterize the exit constraint for high levels of development, i.e. $\lambda \geq \left(1 + \beta_\theta^{\frac{1}{1-\sigma}}\right)^{\frac{1-\sigma}{\sigma}}$. 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.

[28] 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 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 λ.
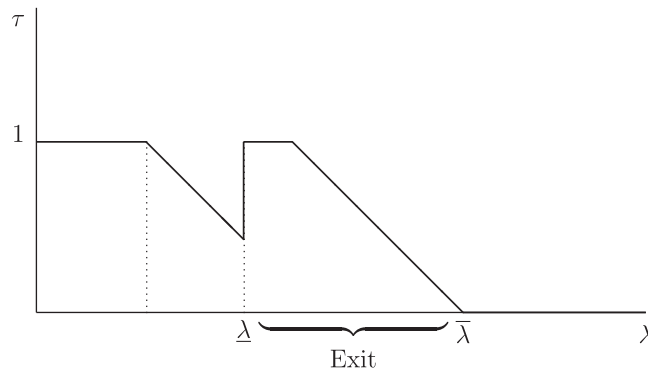
Fig. 5. Strictness τ as a function of economic development λ when agents have an exit option.

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 λ. 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.[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 into a high λ 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, Fig. 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 3000 in 1750 to 20,000 by 1850 (Bairoch, 1988). In contrast, as Fig. 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 2000 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, Dresden, and Breslau grew by

[29] According to Angus Maddison's calculations, per capita GDP in 1990 Geary–Khamis dollars was $1839 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.

[30] We detail how we define emancipation for the purpose of Fig. 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 (Grosfled et al., 2013).
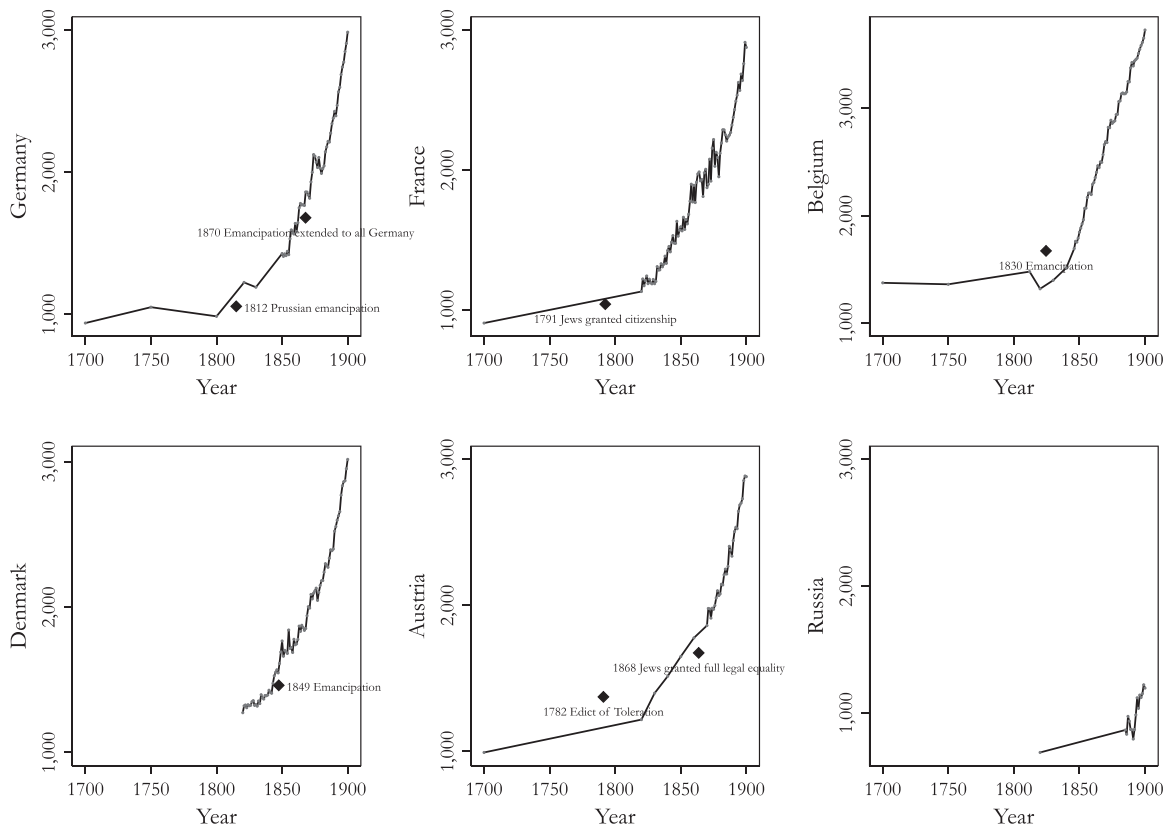
Fig. 6. *Emancipation and economic growth in Europe.* Per capita 1990 GDP is from the Maddison project. For details on the dating of emancipation see Appendix B.

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).[33]

During this period of rapid growth Reform Judaism became the religion of the majority 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).[34]

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

---

[33] 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).

[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).
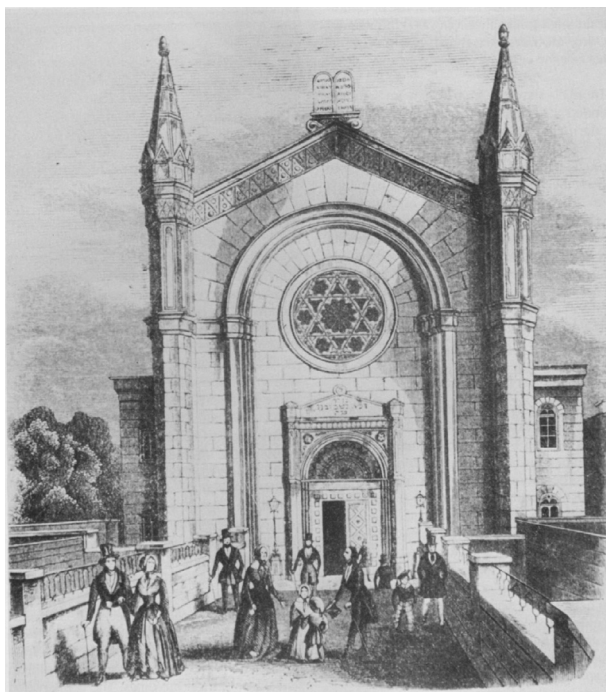
Fig. 7. The Hamburg synagogue built in 1842–1844. Source: Krinskky (1985, 298).

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.[35] Hence, we refer to Reform Judaism as an example of *cultural integration*.[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,

> '[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, 1997, 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 Figs. 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.

---

[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).

[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).

Fig. 8. The Endingen synagogue built in 1850–1852 Source: Krinskky (1985, 284).

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 emancipation, 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.[37] 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 German 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 λ environment: Reform triumphed and the majority of German Jews belonged to Reform Judaism by 1900 (see Lowenstein, 1981; 1997b).

---

[37] We provide details on this exercise in online Appendix C.

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 Orthodoxy 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).[38]

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).[39] 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).

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.[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.[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.[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.[43] Full emancipation was achieved in 1867; it took place in an economy 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 $1830 in Germany in 1870 (1990 Geary–Khamis dollars).[44] Urbanization levels were low. The combined populations of Pest, Buda and Óbuda was only around 100,000 in 1830. However, unlike

---

[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).

[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).

[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).

[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).

[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 granted by a Hungarian Diet in 1849, only for this to be snatched away from them with the victory of the Habsburg monarchy over the revolutionaries of 1848. A decade of repression followed during the period of Habsburg no-absolutism and conditions only began to become liberalized in 1859.

[44] Estimates for Hungarian GDP in 1870 vary slightly. Maddison reports an estimate of $1092 (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).

the rest of eastern Europe and the Balkans, the Hungarian economy did experience growth after 1870. Per capita income reached $1313 in 1890 and $1722 in 1913 (Schulze, 2000, 324).[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 Gyõri, 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 Gyõri, 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 *Haskalah* movement was not initially perceived as a threat to the traditional order until emancipation and some level of economic development occurred. In the 1840s and 1850s, a Hungarian Reform movement, known as Neologism and led by Loeb Schwab, Leopold Lŏw 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 τ in the face of gradually improving outside economic options. Their efforts correspond to the initial downwards-sloping segment of the τ^* function in Fig. 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).[46] 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 center 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 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.[47] 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

---

[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).

[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).

[47] Schick stated that as a matter of principle "[i]t is good to elevate a prohibition" (quoted in Silber, 1992, 48).

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 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 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 *Hasklah*, 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.

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.

---

[48] German-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).

[49] It 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).

5.1. 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 (2016) 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).[50] 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.[51]

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

To focus on the religious authority's (dynamic) incentives when setting τ, we assume that parents do not consider the effect that their actions have on their childs' 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:

$$\sum_{t=0}^{\infty} \sum_{i=1}^{n} \delta^t \left[e_i^*(\tau_t) + g_i^*(\tau_t) \right], \tag{6}$$

where e_i^* and g_i^* are best responses to τ_t.

To illustrate the dynamic considerations faced by the religious authority, consider its choice of τ_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 τ_t to maximize $e_i^*(\tau_t) + g_i^*(\tau_t)$. By Proposition 1(ii), $\tau^* = 0$ in every period for λ large enough. Under intergenerational transmission of values, however, p_t evolves with the religious authority's choice of τ. 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 λ.

---

[50] See also Lazerwitz (1973) and Cohen (1974).

[51] Our dynamic analysis is most closely related to McBride (2007) who studies how religious capital formation affects donations to a religious community.

[52] 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).

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 λ if and only if:

$$f(0)d(\beta_H) + \big(1 - f(0)\big)d(\beta_L) \geq \delta\big(f(1) - f(0)\big)\big[d(\beta_H) - d(\beta_L)\big]. \tag{7}$$

This condition holds when the future is heavily discounted (δ is low), the distribution of values is not sensitive to choice ($f(1)$ is close to $f(0)$), and low and high types do not differ markedly in their degree of attachment to the community (β_L is close to β_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 λ_1 such that if $\lambda \leq \lambda_1$, then equilibrium actions each period $t > 1$ are as in Proposition 1(i), i.e.*

$$\tau^* = 1, \quad e_i^* = 1 \quad and \quad g_i^* = 0 \quad \text{for all } i \in N.$$

(ii) *If (7) holds, then there exists a threshold λ_2 such that if $\lambda \geq \lambda_2$, then equilibrium actions in every period $t > 1$ are as in Proposition 1(ii), i.e.*

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

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 percent of church members in 1776 to 34 percent 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.[53] As a result Methodism 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,

---

[53] 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).

[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.

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 Λ^* (resp. Λ^{**}) be the set of values of λ 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 λ. In particular, we can prove that when the proportion of high-attachment types is not too high ($p < f(1)$), there are values of λ 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 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 τ 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).[55] 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 λ low) by specializing in sectors of the economy in which their religious practices and cultural isolation are beneficial rather than costly.[56]

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

---

[55] Specifically: '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).

[56] Welfare provision has also played an important role in maintaining Ultra-Orthodox Jewish communities especially in Israel (Berman, 2000).

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 '[d]eparture from the community would reduce a member's consumption of club goods to zero and cause 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 and 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 (2016).[57] As in this paper, Carvalho, Koyama and Sacks (2016) 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.[58] 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 (2016), 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 McCleary and Rachel (2010) and Platteau and Aldashev (2014) for recent surveys of the economics of religion.

Supplementary material

Supplementary material associated with this article can be found, in the online version, at 10.1016/j.jce.2016.06.002.

References

Abramitzky, R., 2008. The limits of equality: Insights from the Israeli Kibbutz. Q. J. Econ. 123 (3), 1111–1159.
Abramitzky, R., 2009. The effect of redistribution on migration: Evidence from the Israeli Kibbutz. J. Public Econ. 93 (3–4), 498–511.
Abramitzky, R., 2011. On the (lack of) stability of communes: an economic perspective. In: McCleary, R. (Ed.), The Hanbook of the Economics of Religion. Oxford University Press, Oxford, pp. 169–189.
Adler, P.J., 1974. The introduction of public schooling for the Jews of Hungary (1849–1860). Jew. Soc. Stud. 36 (2), 118–133.
Ament, J. 2005 American Jewish Denominations, United Jewish Communities Report Series on the National Jewish Population Survey 2000–01. Report 10. (NJPS, New York, NY.).
Anderson, R.W., Johnson, N.D., Koyama, M., 2016. Jewish persecutions and weather shocks, 1100–1800. Econ. J., (forthcoming)
Azzi, C., Ehrenberg, R.G., 1975. Household allocation of time and church attendance. J. Polit. Econ. 83 (1), 27–56.
Bairoch, P., 1988. Cites and Economic Development, from the dawn of history to the present. University of Chicago Press, Chicago. Translated by Christopher Braider
Barkai, A., 1981. The German Jews at the start of industrialisation – structural change and mobility 1835–1860. In: Mosse, W.E., Paucker, A., Rürup, R. (Eds.), Revolution and Evolution in German-Jewish History. J.C.B Mohr, Tübingen, pp. 123–151.
Barnay, G., 1974. "Magyar Jew or: Jewish Magyar"? To the Question of Jewish Assimilation in Hungary. Canadian-American Slavic Studies 8 (1). v–44
Baron, S.W., 1928. Ghetto and emancipation: Shall we revise the traditional view? Menorah J. XIV (6), 515–526.
Baron, S.W., 1938. The Jewish question in the nineteenth century. J. Mod. Hist. 10 (1), 51–65.
Barros, P.P., Garoupa, N., 2002. An economic theory of church strictness. Econ. J. 112 (481), 559–576.
Becker, S.O., Pascali, L., 2016. Religion, Division of Labor and Conflict: Anti-Semiticsm in German Regions over 600 Years. Technical Report 288. Centre for Competitive Advantage in the Global Economy.
Beluszky, P., Győri, R., 2005. The Hungarian Urban Network in the Beginning of the 20th Century. Discussion Paper 46. Centre for Regional Studies of Hungarian Academy of Sciences.
Berger, P., 1970. A Rumor of Angels: Modern Society and the Rediscovery of the Supernatural. Anchor Books, New York.
Berkovitz, J.A., 1989. The Shaping of Jewish Identity in Nineteenth-century France. Wayne State University Press, Detroit.
Berman, E., 2000. Sect, subsidy, and sacrifice: An economist's view of Ultra-Orthodox Jews. Q. J. Econ. 115 (3), 905–953.
Berman, E., 2009. Radical, Religious, and Violent. MIT Press, Cambridge, MA..
Bernstein, L., 1992. Opting out of the legal system: Extralegal contractual relations in the diamond industry. J. Legal Stud. 21 (1), 115–157.
Binzel, C., Carvalho, J.-P., 2015. Education, Social Mobility and Religious Movements: The Islamic Revival in Egypt. University of California, Irvine. Working Paper
Birnbaum, P., Katznelson, I. (Eds.), 1995, Paths of Emancipation, Jews, States, and Citizenship. Princeton University Press, Princeton, New Jersey.
Bisin, A., Verdier, T., 2011. The economics of cultural transmission and socialization. In: Benhabib, J., Bisin, A., Jackson, M.O. (Eds.), Handbook of Social Economics. Elsevier, The Netherlands, North-Holland, pp. 339–414.
Botticini, M., Eckstein, Z., 2012. The Chosen Few. Princeton University Press, Princeton, New Jersey.
Brenner, M., Caron, V., Kaufmann, U.R. (Eds.), 2003, Jewish Emancipation Reconsidered. Leo-Baeck Institute, London.
Breuer, M., 1992. Modernity Within Tradition. Columbia University Press, New York. Translated by Elizabeth Petuchowski
Breuilly, J., 2003. Urbanization and social transformation, 1800–1914. In: Ogilvie, S., Overy, R. (Eds.), Germany: A New Social and Economic History. Hodder Arnold, London, pp. 192–227.
Carvalho, J.-P., 2015. Identity-based Organizations. University of California, Irvine. Working Paper
Carvalho, J.-P., Koyama, M., Sachs, M., 2016. Community Fragmentation and Fragility. Mimeo.
Chiswick, C., 2009. The economic determinants of ethnic assimilation. Journal of Population Economics, Springer;European Society for Population Economics 22 (4), 859–880.
Chiswick, C.U., 1999. The economics of Jewish continuity. Contemp. Jew. 20 (1), 30–56.
Chiswick, C.U., 2008. The Economics of American Judaism. Routledge, London.
Cohen, M., 1994. Under Cresent and Cross. Princeton University Press, Princeton, New Jersey.
Cohen, S.M., 1974. The impact of Jewish education on religious identification and practice. Jewish Soc. Stud. 36 (3-4), 316–326.
Cohon, S.S., 1922. The misson of Reform Judaism. J. Relig. 2 (1), 27–43.
Dubnow, S., 1971. History of the Jews: From Cromwell's Commonwealth to the Napoleonic Era, South Brunswick. Thomas Yoseloff, N.J.
Dubnow, S.M., 1975. History of the Jews in Russia and Poland, Vol. I. Ktav Publishing House. Translated by I. Friedlaender
Durkheim, E., 1912, 1915. The Elementary Forms of the Religious Life. Macmillan, London.
Ellenson, D., 1994. Between Tradition and Culture. Scholars Press, Atlanta, Georgia.
Finer, S., Naimark-Goldberg, N., 2011. Cultural Revolution in Berlin: Jews in the age of Enlightenment. The Bodleian Library, Oxford.
Finke, R., Stark, R., 1985. The Future of Religion: Secularization, Revival, and Cult Formation. University of California Press, Berkeley.
Finke, R., Stark, R., 1987. A Theory of Religion. Peter Lang, Toronto.
Finke, R., Stark, R., 2005. The Churching of American, 1776–2005. Rutgers University Press, New Brunswick.
Frankel, J., Zipperstein, S.J. (Eds.), 1992, Assimilation and Community, The Jews in Nineteenth-century Europe. Cambridge University Press, Cambridge, UK.
Freehof, S.B., 1955. Reform Judaism in America. Jew. Q. Rev. 45 (4), pp.350–362.
Geiger, A., 1858, 1963. Letters on leaving Judaism. In: Plaut, W.G. (Ed.), The Rise of Reform Judaism. World Union For Progressive Judaism, LTD, New York, pp. 238–244.
Goldscheider, C., Zuckerman, A.S., 1984. The Transformation of the Jews. University of Chicago Press, Chicago.
Good, D.F., 1974. Stagnation and "take-off" in Austria, 1873–1913. Econ. Hist. Rev. 27 (1), 72–87.
Good, D.F., 1984. The Economic Rise of the Habsburg Empire, 1750–1914. University of California Press, Berkeley, Los Angeles.
Graetz, M., 1996. The Jews in Nineteenth-Century France. Stanford University Press, Stanford, California.
Gregory, P., 1994. Before Command: The Russian Economy From Emancipation to Stalin. Princeton University Press, Princeton.
Grosfled, I., Rodnyansky, A., Zhuravskaya, E., 2013. Persistent anti-market culture: A legacy of the Pale of Settlement after the Holocaust. Am. Econ. J. Econ. Policy 5 (3), 189–226.
Guinnane, T., 2003. Population and the economy in Germany, 1800–1900. In: Ogilvie, S., Overy, R. (Eds.), Germany: A New Social and Economic History. Hodder Arnold, London, pp. 35–70.
Hausmann, R., Pritchett, L., Rodrik, D., 2005. Growth accelerations. J. Econ. Growth 10 (4), 303–329.
Heilman, S., 1992. Defenders of the Faith. University of California Press, Berkeley.
Himmelfarb, H.S., 1980. The study of American Jewish identification: How it is defined, measured, obtained, sustained and lost. J. Sci. Study Relig. 19 (1), 48–60.
Hundert, G.D., 2004. Jews in Poland–Lithuania in the Eighteenth Century: A Genealogy of Modernity. University of California Press, Berkeley/ Los Angeles.
Iannaccone, L.R., 1990. Religious practice: A human capital approach. J. Sci. Study Relig. 29 (3), 297–314.

Iannaccone, L.R., 1992. Sacrifice and stigma: Reducing free-riding in cults, communes, and other collectives. J. Polit. Econ. 100 (2), 271–291.
Iannaccone, L.R., 1995. Voodoo economics? Reviewing the rational choice approach to religion. J. Sci. Study Relig. 34 (1), 76–88.
Iannaccone, L.R., 1998. Introduction to the economics of religion. J. Econ. Lit. 36 (3), 1465–1495.
Iannaccone, L.R., Finke, R., Stark, R., 1997. Deregulating religion: The economics of church and state. Econ. Inq. 35 (2), 350–364.
Israel, J., 1985. European Jewry in the Age of Mercantilism, 1550–1750. Oxford University Press, Oxford.
Iyer, S., 2016. The new economics of religion. J. Econ. Lit. 54 (2), 395–441. (forthcoming)
Johnson, B., 1957. A critical appraisal of the church-sect typology. Am. Sociol. Rev. 22 (1), 88–92.
Johnson, N. D., Koyama, M., 2016. Jewish Communities and City Growth in Preindustrial Europe. Memo.
Kaplan, B., 2007. Divided by Faith. Harvard University Press, Cambridge, M.A..
Kaplan, M.A., 1991. The Making of the Jewish Middle Class. Oxford University Press, Oxford.
Katz, J. (Ed.), 1972. Emancipation and Assimilation. Gregg International Publishers Limited, Richmond, Surrey.
Katz, J., 1974. Out of the Ghetto. Harvard University Press, Cambridge, MA..
Katz, J., 1986. Jewish Emancipation and Self-Emancipation. The Jewish Publication Society, Philadephia.
Katz, J. (Ed.), 1987, Toward Modernity: The European Jewish Model. Transaction Books, New Brunswick.
Katz, J., 1998. A House Divided, Orthodoxy and Schism in Nineteenth-Century Central European Jewry. Brandeis University Press, Hanover.
Keller, W., Shiue, C.H., 2014. Endogenous formation of free trade agreements: Evidence from the Zollverein's impact on market integration. J. Econ. Hist. 74, 1168–1204.
Keller, W., Shiue, C. H., 2015. Market Integration as a Mechanism of Growth. Memo.
Klier, J.D., 1995. Imperial Russia's Jewish Question, 1855–1881. Cambridge University Press, Cambridge.
Kober, A., 1947. Jewish communties in Germany from the age of Enlightenment to their destruction by the Nazis. Jew. Soc. Stud. 9 (3), 195–238.
Komlos, J., 2007. Anthropometric evidence on economic growth, biological well-being and regional convergence in the Habsburg Monarchy, c. 1850–1910. Cliometrica 1 (3), 211–237.
Koyama, M., 2010. The political economy of expulsion: the regulation of Jewish money lending in medieval England. Const. Polit. Econ. 21 (4), 374–406.
Krinskky, C.H., 1985. Synagogues of Europe. MIT Press, Cambridge, MA.
Langmuir, G.I., 1990. Toward a Definition of Antisemitism. University of California Press, Berkeley.
Lasker, A., Lasker, J., 1991. Do they want their children to be like them?: Parental heritage and Jewish identity. Contemp. Jew. 12 (1), 109–126.
Lazerwitz, B., 1973. Religious identification and its ethnic correlates: A multivariate model. Soc. Forces 52 (2), pp.204–220.
Lewis, J.R., Lewis, S.M. (Eds.), 2009, Sacred Schisms: How Religions Divide. Cambridge University Press, Cambridge.
Lowenstein, S.M., 1981. The 1840s and the creation of the German–Jewish religious reform movement. In: Mosse, W.E., Paucker, A., Rürup, R. (Eds.), Revolution and Evolution in German-Jewish History. J.C.B Mohr, Töbingen, pp. 255–298.
Lowenstein, S.M., 1992. The Mechanics of Change, vol. 246. The University of Michigan Press, Ann Arbor.
Lowenstein, S.M., 1994. The Berlin Jewish Community: Enlightenment, Family, and Crisis, 1770–1830. Oxford University Press, Oxford.
Lowenstein, S.M., 1997a. Joseph Ben-David's hungary and Mendelssohn's Berlin. Jew. Hist. 11 (1), 125–129. URL http://www.jstor.org/stable/20101292.
Lowenstein, S.M., 1997b. The shifting boundary between eastern and western Jewry. Jew. Soc. Stud. 4 (1), 60–78.
Lupovitch, H.N., 2006. Jews at the Crossroads: Tradition and Accommodation during the Golden Age of the Hungarian Nobility. Central European University Press, Budapest.
Maddison, A., 2003. The World Economy: Historical Statistics. OECD, Paris, France.
Mahler, R., 1985. Hasidism and the Jewish Enlightenment. The Jewish Publication Society of America, Philadelphia. Translated from Yddish by Eugene Orenstein, translated from Hebrew by Aaron Klein and Jenny Machlowitz Klein
McBride, M., 2007. Why Churches Need Free-riders: Religious Capital Formation and Religious Group Survival. Working Papers 060722. University of California-Irvine, Department of Economics.
McBride, M., 2008. Religious pluralism and religious participation: A game theoretic analysis. Am. J. Sociol. 114 (1), 77–108.
McBride, M., 2010. Religious market competition in a richer world. Economica 77 (305), 148–171.
Meyer, M.A., 1979. The religious reform controversy in the Berlin Jewish community, 1814–1823. Leo Baeck Inst. Yearb. 24 (1), 139–155.
Meyer, M.A., 1980. The orthodox and the enlightened: An unpublished contemporary analysis of Berlin Jewry's spiritual condition in the early nineteenth century. Leo Baeck Inst. Yearb. 25 (1), 101–130.
Meyer, M.A., 1988. Response to Modernity: A History of the Reform Movement in Judaism. Oxford University Press, Oxford.
Meyer, M.A., 1997. Jewish identifty in the decades after 1848. In: Meyer, M.A. (Ed.), German-Jewish History in Modern Times. Columbia University Press, New York, pp. 319–348.
McCleary, M., Rachel (Eds.), 2010, The Economics of Religion. Oxford University Press, Oxford.
Montgomery, J.D., 1996. Dynamics of the religious economy: Exit, voice and denominational secularization. Ration. Soc. 8 (1), 81–110.
Montgomery, J.D., 2003. A formalization and test of the religious economies model. Am. Sociol. Rev. 68 (5), 782–809.
Mosse, W.E., 1987. Jews in the German Economy, The German-Jewish Economic Elite 1820–1935. Clarendon Press, Oxford.
Mundill, R.R., 1998. England's Jewish Solution: Experiment and Expulsion, 1262–1290. CUP, Cambridge, U.K..
National Jewish, 2003. Population Survey 2000–01. Strength, Challenge and Diversity in the American Jewish Population.
Nunn, N., Puga, D., 2012. Ruggedness: The blessing of bad geography in Africa. Rev. Econ. Stat. 94 (1), 20–36.
Odling-Smee, F., 1995. Niche construction, genetic evolution and cultural change. Behav. Process. 35 (1003), 195–205. Cognition and Evolution http://dx.doi.org/10.1016/0376-6357(95)00055-0.
Odling-Smee, F., Laland, K.N., Feldman, M.W., 2003. Niche Construction: The Neglected Process in Evolution. Princeton University Press, Princeton.
Odling-Smee, F.J., Laland, K.N., Feldman, M.W., 1996. Niche construction. Am. Nat. 147 (4), 641–648.
Pascali, L., 2016. Banks and development: Jewish communities in the Italian Renaissance and current economic performance. Rev. Econ. Stat. 98 (1), 140–158.
Patai, R., 1996. The Jews of Hungary. Wayne State University Press, Detroit.
Platteau, J.-P., Aldashev, G., 2014. Religion, culture, and development. In: Ginsburgh, V.A., Throsby, D. (Eds.), Handbook of the Economics of Art and Culture. Elsevier, Amsterdam, pp. 587–631.
Plaut, W.G. (Ed.), 1963, The Rise of Reform Judaism. World Union For Progressive Judaism, LTD, New York.
Pulzer, P., 1992. Jews and the German State. Blackwell, Oxford.
van Rahden, T., 2008. Jews and other Germans: Civil Society, Religious Diversity, and Urban Politics in Breslau, 1860–1925. University of Wisconsin Press, Wisconsin.
Richarz, M., 1975. Jewish social mobility in Germany during the time of emancipation (1790–1871). Leo Baeck Inst. Yearb. 20 (1), 69–77.
Richman, B.D., 2006. How communities create economic advantage: Jewish diamond merchants in New York. Law Soc. Inq. 31 (2), 383–420.
Rudavsky, D., 1967. Emancipation and Adjustment. Diplomatic Press, INC., New York.
Satlow, M.L., 2006. Creating Judaism. Cambridge University Press, Cambridge.
Scheitle, C.P., 2007. Organizational niches and religious markets: Uniting two literatures. Interdiscip. J. Res. Relig. 3, 1–29.
Schlesinger, A.J., 1864, 1995. An ultra-orthodox position. In: Mendes-Flohr, P., Reinharz, J. (Eds.), The Jew in the Modern World: A Documentary History. Oxford University Press, Oxford, pp. 202–205.
Schofer, L., 1981. Emancipation and population change. In: Mosse, W.E., Paucker, A., RÔøÎ©rup, R. (Eds.), Revolution and Evolution 1848 in German–Jewish History. J.C.B. Mohr (Paul Siebeck), Tübingen.
Schulte, C., 2000. Saul Ascher's Leviathan, or the invention of Jewish Orthodoxy in 1792. Leo Baeck Inst. Yearb. 45 (1), 25–34.
Schulze, M.-S., 2000. Patterns of growth and stagnation in the late nineteenth century Habsburg economy. Eur. Rev. Econ. Hist. 4 (03), 311–340.

Silber, M., 1987. The historical experience of German Jewry and its impact on the Haskalah and reform in Hungary. In: Katz, J. (Ed.), Toward Modernity: The European Jewish Model. Transaction Books, New Brunswick, pp. 107–159.

Silber, M.K., 1992. The emergence of ultra-orthodoxy: The invention of a tradition. In: Wertheimer, J. (Ed.), The Uses of Tradition. The Jewish Theological Seminary of America, New York, pp. 23–84.

Sorkin, D., 1987. The genesis of the ideology of emancipation: 1806–1840. Leo Baeck Inst. Yearb. 32 (1), 11–40.

Stark, R., Bainbridge, W.S., 1979. Of churches, sects, and cults: Preliminary concepts for a theory of religious movements. J. Sci. Study Relig. 18 (2), 117–131.

Stark, R., Bainbridge, W.S., 1981. American-born sects: Initial findings. J. Sci. Study Relig. 20 (2), pp.130–149.

Steinberg, S., 1965. Reform Judaism: The origin and evolution of a "church movement". J. Sci. Study Relig. 5 (1), 117–129.

Sutcliffe, A., 2000. Can a Jew be a Philosophe? Isaac de Pinot, Voltaire, and Jewish participation in the Enlightenment. Jew. Soc. Stud. 6 (3), 31–51.

Vital, D., 1999. A People Apart, The Jews in Europe 1789–1939. Oxford University Press, Oxford.

Voigtländer, N., Voth, H.-J., 2012. Persecution perpetuated: The medieval origins of anti-semitic violence in Nazi Germany. Q. J. Econ. 127 (3), 1–54.

Wilson, B.R., 1959. An analysis of sect development. Am. Sociol. Rev. 24 (1), 3–15.