Economic Harbingers of Political Modernization:
Peaceful Explosion of Rights in Ottoman Istanbul

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Abstract

Although regime changes that redistribute wealth usually involve violence, peaceful transitions are not unknown. This paper explores the conditions under which fundamental rights expand without major resistance. The empirical context is the modernization drive of the late Ottoman Empire. The momentous Ottoman reforms of the 1800s are typically attributed to visionary officials and pressures they faced from foreign powers. Fundamental roles were played, we show, by prior shifts in wealth toward indigenous Christians and away from conservative groups, including Muslim clerics. These shifts, all under way in the 1700s, motivated Ottoman political leaders to begin, with the Gülhane Edict of 1839, to dismantle traditional institutions grounded in Islamic law and imperial customs of governance. Despite its far-reaching provisions, the edict generated only minor pushback, because it addressed widespread and chronic grievances, legitimated ongoing trends, and offered Muslim political elites, who had been losing ground, opportunities to catch up with rapidly prospering local Christians. The data, which come from Istanbul's Islamic courts, allow the tracking of changes in the sectarian wealth distribution, as measured by the founding of waqfs (Islamic trusts) and ownership of equities known as gediks.

JEL codes: N2, G10, P50, O1, K40

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1. Introduction

Regime changes that redistribute wealth are usually violent affairs. The French Revolution of 1789, the toppling of the Romanov Dynasty in 1917, the fall of mainland China to the Chinese Communist Party in 1949, and the establishment of Iran's theocracy in 1979 examplify tectonic political shifts that involved massive bloodshed. But major political transitions sometimes occur peacefully. South Africa's abrogation of apartheid in 1994 offers an example. The cost of managing apartheid had become prohibitive as the politically dominant white minority shifted capital from agriculture to industry. White industrialists agreed to surrender power in order to protect their wealth, and the African National Congress, the voice of the black majority, agreed to give whites constitutional guarantees to end emigration and prevent economic collapse (Acemoglu and Robinson 2006, pp. 10-14). The Protestant Reformation, launched in 1517, furnishes additional examples. Notoriously violent in some places, the spread of Protestantism was relatively peaceful where merchants stood to gain from a weakening of the Roman Church (Dickens 1966, chaps. 4-5; Rubin 2017, pp. 126-37).

What accounts for the peacefulness of certain regime transitions? The narrative literature suggests that three conditions are usually present in peaceful regime transitions. First, the elites of the old regime expect a net gain from the transition. Second, the new deal is is credible. In particular, old-regime elites have reason to believe that the new regime will enforce the promised rights. Finally, the de jure reforms have been under way de facto. In South Africa, both sides gained from ending apartheid: white elites restored the value of their capital, and black elites—leaders of the anti-apartheid resistance—preserved the country's tax base. The new regime reserved certain key ministries for whites. Requiring a supra-majority to change the constitution gave whites veto power over any future expropriation initiative. Apartheid was already severely strained. The world's major economic powers had imposed sanctions on South Africa, and capital flight had begun. Abolishing apartheid was a precondition for reinstatement of lucrative global economic relations. Various black-white coalitions were already breaking the rules of apartheid. Finally, black unions, though illegal, were demonstrating the infeasibility of maintaining the white monopoly of power (Clark and Worger 2013, chaps. 4-5).

An analogous peaceful regime change took place in the Ottoman Empire through the Gülhane Edict of 1839.[1] This act of Sultan Abdülmecit I granted legal equality to non-Muslims and, more generally, to commoners (*reâyâ*). It also removed tax exemptions of administrative and military officials. Furthermore, it abrogated the Sultan's right to confiscate private property at will. The era that the Gülhane Edict initiated (Tanzimat, literally, Restructuring) saw the establishment of Western-inspired institutions, including European-style ministries, new forms of taxation, municipalities, secular commercial courts, and a centralized stock market. It culminated in the first Ottoman constitution in 1876. The 1839 edict did not start the Ottoman campaign to catch up with the West. In the 1700s, the empire embarked on a campaign to modernize militarily, and the early 1800s saw initiatives to reform economic and political institutions.[2] But until 1839, neither the Ottoman dynasty nor the Muslim elites who dominated government had relinquished rights fundamental to the traditional Ottoman order or Islamic law (Sharia). The edict withdrew Muslim fiscal, legal, and social privileges that dated back to the Ottoman founding in 1299 and characterized Islamic modes of governance since at least 661.

The literature on Ottoman modernization invokes several basic drivers: Western egalitarian ideas, the goading of Western powers, and the wisdom of Europhilic Ottoman statesmen. Such factors convinced Abdülmecit I, it says, that his empire's survival required momentous reforms.[3] The broader Ottoman population is absent from this narrative, except as secondary players who resisted top-down reforms.[4] Treating economic institutions as irrelevant, the narrative also overlooks economic transformations that altered the incentives to maintain the traditional Ottoman order. For these reasons, the received explanations fail to explain a striking aspect of the edict: the peacefulness of the reactions to its withdrawal of privileges from powerful groups. Post-Gülhane disturbances are notable for their confinement to a few secondary towns. Major cities, including Istanbul, the Ottoman capital and commercial center of the Eastern Mediterranean, saw massive celebrations. Tellingly, the festivities united Muslims, Christians,

[1] For an English translation, see Liebesny (1975, pp. 46-49).

[2] For example, in the early 1800s merchants trading with the West were given legal privileges to overcome their handicaps rooted in Islamic law (Masters 1992).

[3] Influential variants of the conventional interpretation include Karal (1964), Shaw and Shaw (1977), Hanioğlu (2008), and İnalcık (2016).

[4] Relying heavily on official reports and correspondence, Berkes (1964/1999) and İnalcık (1964) provide influential accounts of how Ottoman masses delayed modernization.

and Jews as well as elites and commoners.[5] Pushback from the empire's numerically, politically, and militarily dominant Muslims was amazingly feeble, as was resistance from the bureaucracy. Timing poses another enigma. Although no earlier sultan had attempted anything as ambitious, they had tried to curtail privileges. All succumbed to bloody reactions. One reformist sultan was executed, four others were deposed, and several others managed to keep their throne only by shelving initiatives and executing aides targeted by mutineers.[6]

In 1839 the Ottoman sultan could promise to overturn the social order with broad approval because he gave the losers of privileges superior new rights and also because the reforms legitimated prior shifts of wealth and political power that had created constituencies exasperated by age-old inequities. Over the prior century, Greek- and Armenian-Ottomans had prospered through stronger property rights rooted in international treaties; and they had used these rights to dominate a very profitable equity (gedik) market that exploded around 1750. On account of their growing economic clout, these Christian communities were already exercising broader social freedoms. They were also gaining ground in the empire's administration. They wanted de jure recognition of their de facto advances. Meanwhile, Muslim elites could see that Christians were benefiting from stronger *general* property rights. The tax-exempt investment instrument that traditionally attracted most of their wealth, the Islamic trust known as the waqf, was now relatively unprofitable and less secure. Hoping to emulate the enrichment of Christians, Muslim elites came to sense by 1839 that they had more to gain from general property rights than from special privileges to establish waqfs.

Challenging the conventional narrative, this paper attributes the edict's expansion of rights as well as its warm reception to internal developments spanning many decades. Foreigners played a role, too, but most critically through the protections they gave to Christian minorities. Specifically, cumulatively huge changes in investment patterns and associated shifts in the sectarian wealth distribution created domestic constituencies for fundamental institutional reforms. Its promised expansion of non-Muslim rights were already being exercised; and the

[5] Istanbul remained quiet following the edict. Reactions were most pronounced in two Balkan towns, Niš and Vidin, and three in Anatolia, Yozgat, Denizli, and Tokat. In these places, elite landowners and their allies among clerics rebelled against losses of tax privileges (İnalcık 1964; Uzun 2002; Aytekin 2013, pp. 309-18).

[6] Executed: Osman II (1622). Deposed: Mehmet IV (1687), Mustafa II (1703), Ahmet III (1730), Selim III (1807).

positional losers in Ottoman society—Muslim political elites, military officers, and commoners—could see that preserving the old order would only aggravate their handicaps.

Abdülmecit I had complementary motivations for broadening the rights of his subjects and scrapping his own right to expropriate. Sensing existential threats to his empire, he considered general property rights essential to boosting his chronically low fiscal capacity (Karaman and Pamuk 2010; Ma and Rubin 2019). In enabling his Muslim subjects to emulate Christians, he would expand his tax base. In pleasing newly-rich Christian investors, he hoped, likewise, to expand his fiscal capacity by having them invest even more confidently. Mindful of the Greek secession of 1821-32, he expected also to prevent other secessions (McCarthy 2001, chaps. 2-4; Augustinos 1992, chaps. 3-4). Capital mobility is among the factors that enhance reforms favoring prosperous constituencies (Tilly 1990, chaps. 1-2; Boix 2003).[7] The Sultan's promises were credible because Ottoman capital was becoming increasingly mobile. Growing European communities in major Ottoman cities and the expanding international networks of Greeks and Armenians were facilitating capital transfers between the Ottoman economy and the more advanced economies of the West.[8]

The Gülhane Edict was not expected to overhaul social relations, legal procedures, or political hierarchies instantly. It set no timetable for achieving religious equality. Unavoidable conflicts over interpretation led to more specific commitments. In 1856, through a Reform Edict, Abdülmecit I specified that, regardless of creed, all his subjects would be treated equally in government hiring and judicial procedures.[9] Further clarifications followed. Nothing is unusual here. A half-century after the Civil Rights Act of 1964, Americans remain divided over what racial equality means (Hutchings and Valentino 2004; Bobo 2011; Dattel 2018, chap. 5). Yet, like the Civil Rights Act, the Gülhane Edict set a precedent for broad reforms. It triggered movements that overturned the classical Ottoman order. The Reform Edict was followed by the constitutions of 1876 and 1908, then abolitions of the monarchy and caliphate in 1922 and 1924 (Shaw and Shaw 1977, chaps. 2-6; Kasaba, ed. 2008, chaps. 2-6). The Gülhane Edict also laid

[7] In related work, Dincecco (2009) shows that constraints on sovereigns and political centralization jointly raised the tax capacity of European states between 1650 and 1913; wealth holders benefited both from higher material security and more public goods. Blaydes and Chaney (2013) argue that landed European aristocracies, absent in the Middle East, produced sustainable constraints on sovereign power.

[8] North and Weingast (1989) and Cox (2012) discuss constitutional reforms that enhanced the English Crown's credibility. The Gülhane Edict initiated a reform dynamic that had similar effects on Ottoman credibility.

[9] For the English translation, see Liebesny (1975, pp. 49-52).

the groundwork for Turkey's Kemalist Reforms and sundry liberal and republican reforms in Arab successor states (Brown, ed. 1996; Ceylan 2011, chap. 4; Kayalı 1997, pp. 1-24).

A large literature exists on how religion interacts with evolving economic and political trends (Iannaccone 1998; Iyigun 2015; Iyer 2016; McCleary and Barro 2019; Becker, Rubin, and Woessman 2020; Bentzen and Gokmen 2020). Among its findings is that religions adjust to changing circumstances, but generally in ways that keep particularities. Although Islam is often viewed as especially rigid, in fact it has been reinterpreted repeatedly. Key economic institutions of pre-modern Islam were adaptations to emerging needs of elites. As with other religions, they also reflected path dependence; no institutional innovation started from a blank slate (Kuran 2011, chaps. 3, 7, 8, 10). With respect to this broader literature, the paper uncovers a massively consequential economic innovation that got incorporated into the practice of Islamic law, though not its doctrine. For all its benefits to particular groups, especially Christian investors, it also suffered from problems rooted in pre-existing institutions. This innovation, a decentralized equity market, sheds new light on the economic ascent of Middle Eastern Christians and also the Christian-Jewish divergence that accompanied first stage. Both Christians and Jews were second-class subjects (dhimmis) under Islamic law; and until the late 1700s neither group was generally more prosperous than Muslims. The Christian-Jewish divergence is generally attributed to the relatively greater openness of Christians to European ideological currents (Lewis 1984, pp. 175-80; Shaw 1991, pp. 170-75). This paper ascribes a critical role to new economic institutions that benefited Christians disproportionately.

Our empirical analysis of distributional shifts in Istanbul spans 1600 to 1839—a period running from the end of the Ottoman Empire's high period to its most radical reforms. We track the shares of key groups in old and new forms of investment. The former investment instruments included two types of waqfs: classic waqfs, whose assets consisted of real estate, and cash waqfs, which were relatively more liquid. The new investment instruments were gediks, which were shares in productive assets tradable in a rudimentary and decentralized equity market. An example of a gedik might be two shares of a grocery store whose ownership is divided into nine. Enterprises securitized as gediks were typically protected from competition; this raised their expected returns. Unlike the waqf, the gedik was a late addition to the pre-modern Ottoman economy, and it lacked a basis in Islamic law. The latter feature limited the rents it provided to clerics. The pertinent information comes from several original data sets drawn from the records

of Istanbul's major Islamic courts. They pertain to transactions within and among social groups differentiated by religion-based legal rights and also by honorific titles.

In correcting misperceptions of the motives behind late-Ottoman structural reforms, the paper also provides fresh evidence that Middle Eastern social systems based on classical Islamic law delayed economic development and political liberalization by concentrating capital among state-favored groups. The concentration contributed to the European-Middle Eastern economic divergence and eventually also to sectarian economic realignments within the Middle East itself.

2. Historical and Institutional Background

Prior to 1839, tax status was the main distinction between Ottoman state officials and the people they ruled. The chronicler Mustafa Naima (1655-1716) articulated the rationale for the division between tax-exempt elites and tax-paying commoners as the "cycle of equity." Subjects prosper through a strong state, he suggested, and the state stays strong insofar as subjects supply resources.[10] By this logic, tax exemptions compensated for services that secured production.

Every Istanbul resident belonged to one of three organized religions: Islam, Christianity, or Judaism. In the period under consideration, the population was around 58.8% Muslim, 34.8% Christian, and 6.4% Jewish.[11] The state administration was mostly in Muslim hands. Along with tax exemptions, top Muslim officials enjoyed privileges that enabled wealth accumulation far beyond what was achievable on salary alone. Some officials received land grants. Many formed private monopolies and collected bribes. Whatever they amassed, their descendants did not necessarily benefit. Confiscation of estates (*müsadere*) was common. The typical justification for confiscating an official's estate was that it was formed through the exploitation of state authority for personal ends. Another pretext for estate confiscation was that the deceased committed crimes, and still another that he left unpaid debts.[12] The estates of rich commoners, regardless of faith, could also get confiscated, but the probability was much lower.[13] For them, expropriation

[10] Thomas (1972). On origins of the concept, known also as the "circle of justice," see Darling (2013, chaps. 4-5). Naima drew on the philosophy of Persian bureaucrats who served Arab empires.

[11] The estimates belong to Mantran (1962, p. 46). Other estimates suggest that during the period covered here no major changes occurred in Istanbul's religious composition (Behar 1996, tables 4.1, 4.2).

[12] Typically, the deceased official's descendants would be left enough to prevent their slip into destitution. Full confiscation was the exception, not the norm (Arslantaş 2017, especially pp. 93-109).

[13] State officials had less material security than commoners also because the Sultan expropriated to remove threats to his authority (El-Haj 2005, pp. 48-49). Ordinarily, an official with many high-level connections posed a greater threat than an equally rich commoner. In any case, the Sultan found it easier to expropriate his own officials, because he was better informed of their assets. Commoner wealth, in cities typically derived from commerce, was

usually took the form of non-customary taxation (*avârız*, literally "whatever can be extorted"). Non-customary taxation was a major source of state revenue in the period analyzed here (Darling 1996, chaps. 1, 3).[14] For prospering groups, it created material insecurity.

During the 1700s and 1800s, the property of Christian subjects became increasingly secure as European powers gained rights to protect Ottoman religious minorities, primarily through treaties marking Ottoman military defeats. A milestone is the Russo-Ottoman Küçük Kaynarca Treaty of 1774. Through this accord, Russia obtained custodianship over the Sultan's Eastern Orthodox subjects. These included members of Istanbul's two largest Christian denominations: the Greek Orthodox and Armenian Apostolic churches.[15] Russian tsars treated the 1774 treaty as a vehicle for expanding their empire southward.[16]

Dazzled by Russia's sweeping rights to protect Eastern Christians, other foreign powers claimed protection over Ottoman Catholics and Protestants. The scope of all these sectarian rights were hotly contested until their abolition at the start of World War I (Davison 1990, chap. 2). In the interim, though, they deterred the expropriation of Ottoman Christians. Except for brief periods, Ottoman Jews lacked foreign protection. From an analytical standpoint, this provides useful variation. The Christian-Jewish contrast in property rights will help to validate the economic advantages that foreign protection furnished to Christians.

It was never a Russian goal to secure the personal assets of individual Greeks or Armenians. Russian leaders saw Ottoman Christians as pawns in an extended strategic game between two empires. Because Ottoman officials pushed back against interference in their internal affairs, Russian officials picked battles carefully. Sometimes they deliberately held back,

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particularly costly to appropriate, because it was harder to identify and officials regularly underreported their takings. In its capacity to locate wealth, as with low state capacity generally, the Ottoman Empire resembled other absolutist regimes (Scott 1998, chaps. 1, 9-10; Ma and Rubin 2019).

[14] A non-customary tax could get regularized even as its legal status remained temporary (Demirci 2009).

[15] This treaty was documented in three languages: Turkish, Russian, and Italian. In case of differences of intepretation, the Italian version was to be definitive. The versions differed massively on Russian rights vis-à-vis Ottoman subjects. According to the Russian version, Russia could interfere in Ottoman affairs on behalf of any Christian. Although the Turkish and Italian texts gave Russia the right to protect only members of the Russian Orthodox Church—a tiny share of Ottoman Christians—Russian diplomats managed to make statesmen across Europe accept Russia's broader interpretation. They did so by translating their version into French, which then became the working text in European diplomatic circles, where the common language was French rather than Italian. To this day, even most Turkish historians treat the treaty's Russian version—not the Italian or Turkish—as defining Russia's negotiated privileges. Davison (1976) documents the differences between the treaty's versions; the clauses relevant here are 7 and 14. See Sonyel (1991) on the denominational composition of Ottoman Christians.

[16] Before Russia formed alliances with Egypt and Syria in the 1950s, it was Russia's greatest initiative to obtain Mediterranean beachheads (Davison 1976, pp. 464-68; Vego 2000, pp. 167-72).

saving their diplomatic capital for other contexts.[17] Their overarching goal was to turn Ottoman Christians into Russophiles and potential allies in future Russo-Ottoman wars. To these ends, Russian agents repeatedly conveyed to Eastern-Orthodox Ottomans that Russia had both a sacred duty and a treaty-codified right to protect them from oppression.[18] Most important here, they set up consulates in heavily Christian localities to facilitate Russian custodianship. Orthodox priests and other dignitaries were encouraged to report Ottoman misrule. Orthodox Christians facing Ottoman reprisals would receive relief from Russia, sometimes also asylum. The Russian-protected Christians would have included investors—wealthy Christians who, by investing in lucrative gediks, accounted for tilting the Ottoman wealth distribution in favor of Christians (Prousis 2002, pp. 5-7, 18-29). None of the foregoing patterns made the property of Ottoman Christians inviolable. But they would have made Ottoman officials think twice before expropriating a Christian.

While Christian property was becoming increasingly secure, assets long-favored by Muslim investors became less so. From 1453 onward, Istanbul's residents had benefited from waqf-supplied social services. Under Islamic law, the law of the land, a waqf was founded by a property owner, ordinarily a Muslim individual.[19] A Christian or Jew became eligible only through special permission, rarely granted before the 1800s.[20] Unincorporated, a waqf was required to deliver in perpetuity a service that the founder designated through a court-certified deed. Considered sacred, its assets and earnings were in principle inviolable. Typically, a major portion of its earnings accrued to the founder and his or her descendants (Yediyıldız 1990; Kuran 2001).[21] But this immunity was widely enforced only at the start of the quarter-millennium under analysis. In the 1700s, and more strikingly in the 1800s, waqf immunity weakened, helping to shift wealth to Christians. Between 1600 and 1839, the share of waqf-held assets in Ottoman real estate was at least 25 percent, and in some areas and periods much higher.[22]

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[17] Dmitrii Dashkov (1784-1839), a diplomat based in Istanbul and later Russia's foreign minister, explains how his country exercised its custodianship (Prousis 2002, pp. ix-x). He was Russia's chief tactician with regard to capturing Ottoman territories.

[18] They promised them financial, diplomatic, and military aid to deliver them homelands of their own. Moreover, to strengthen religous and cultural bonds, they provided aid to Orthodox churches and schools.

[19] The founder could not be an organization or even a group of individuals.

[20] Prior to 1800, only 0.4% of all waqfs had a Christan or Jewish founder.

[21] The waqf has been used throughout the Islamic world as a wealth shelter. Bazzi, Koehler-Derrick, and Marx (2020) analyze its use in modern Indonesia to avoid state expropriation of land.

[22] Although no estimate exists for Istanbul, estimates for other places are consistently high (Kuran 2016, pp. 422-26).

In sum, in the decades preceding the Gülhane Edict, Istanbul's Muslims owned an overwhelming share of the assets immune to confiscation under Islamic law. But this immunity was weakening just as Christians acquired stronger general property rights. The asymmetry here is critical. Inviolable property rights stemmed in one case from a *characteristic of the asset* and in the other from the *identity of the owner*. A waqf-held asset was traditionally immune to confiscation, not any generally Muslim-owned asset. But, after 1774, any asset gained inviolability when its ownership passed to a Christian subject.

3. Investment Options and Investor Categories

Thus far, we have given several reasons why, prior to 1839, the sectarian wealth distribution would have shifted in favor of Christians. Once quite secure, the main investment instrument of Muslims became increasingly vulnerable to expropriation. A new investment instrument, the gedik, became available to all. Finally, Christian private property became more secure even as Muslim and Jewish private assets remained vulnerable. One expects the resulting distributional trends to have generated responses. In particular, the losers might have demanded rights matching those that benefited the winners. Over and beyond the distributional effects, all groups would have welcomed the edict's abrogation of the Sultan's right to expropriate at will. Muslim elites, victimized disproportionately by expropriation, would have been especially pleased, because they gained a protection that Christians already enjoyed through international treaties.

The substantiation of these interpretations requires identifying the available investment options in finer detail, with attention to variations across time and religious groups. To start with the waqf, influential historians hold that Muslims poured resources into it to fulfil the Islamic dictum to be charitable (Yediyıldız 1990; Singer 2002; Boyar and Fleet 2010, chaps. 4-5). But other motives usually dominated: securing property against confiscation, circumventing Islamic inheritance rules, supporting strategic imperial goals, self-consumption (Kuran 2001, 2016; Cansunar 2020). Here, we add that state-connected elites (civilan, military, and Islamic officials) founded a highly disproportionate share of Istanbul's waqfs and a huge majority of the largest by assets.[23] This pattern reflects the financial incentives of high officials. Because they faced the

[23] State-connected elites were collectively known as *askerî*. But with a population share of at most 10%, they formed 22.8% of all waqfs whose deeds have survived (based on data in Aydın et al. 2015). The figure excludes waqfs founded by their wives and daughters. Of the 3265 waqfs registered by 1600, the 14 largest were charitable complexes (*külliye*s). These were formed exclusively by sultans, their relatives, and high elites (Canatar 2004).

highest expropriation risk, they would have had the greatest motivation to secure wealth by turning assets into a sacred, and thus protected, trust.

Under classical Islamic law, formed centuries before the Ottomans, a waqf's endowment had to consist of real estate. A waqf that satisfies this requirement may be called a classic waqf.[24] In non-Arab Ottoman provinces (now comprising modern Turkey and the Balkans), cash-endowed waqfs gained popularity and legal acceptance by 1570, though in the face of strident opposition from conservative clerics. "Cash waqfs" earned returns by supplying credit at thinly disguised interest.[25] Like classic waqfs, they enjoyed tax-exempt status. The characteristics of the two waqf types are shown in Table 1.

Investment instrument	Period of availability	Eligibility	Security	Regulation	Taxation	Liquidity	Tradability	Divisibility
Classic waqf	Always	Unrestricted for Muslims. Open to non-Muslims by special permission.	Initially secure. Increasingly subject to expropriation after 1700.	Mandatory Islamic registration. Monitored by judge of nearby Islamic court.	Exempt	None	None	No
Cash waqf	From 1570	Unrestricted for Muslims. Open to non-Muslims by special permission.	Immune to official expropriation but subject to theft.	Mandatory Islamic registration. Monitored by judge of nearby Islamic court.	Exempt	High	None	No
Gedik	From 1600	Unrestricted.	For Muslims and Jews, risky. For Christians, increasingly secure by 1700, and fully secure post-1774.	Optional registration in Islamic court. Unregulated.	Dividends taxed	High	Full	Yes

Table 1. Long-term investment options and their properties, with changes over time and variations by religious group, pre-1839.

In the 1750s, a new financial instrument gained popularity as yet another investment vehicle: the gedik (Ağır 2018). A gedik provided partial ownership of the production factors used in some commercial or artisanal activity. As the last row of Table 1 indicates, it was both

[24] A more precise term would be classic Islamic waqf, to distinguish it from the modern waqf, which is a charitable corporation.

[25] The earliest record of a cash waqf is from the early 1400s. Conservative clerics found it un-Islamic both because it charged interest, considered sinful under a common reading of the Quran, and because its liquidity violated longstanding waqf rules. A pragmatic argument settled the issue. It held that an already popular and "obviously beneficial" practice could not be un-Islamic (Mandaville 1979; Kuran 2001, pp. 873-75).

divisible and tradable. Transactions of gedik shares, whose owners generally carried no liability, took place in a decentralized and unregulated market. Unlike the period's leading European stock exchanges, those of Amsterdam and London, transactions were not registered at a single location.[26] The creation of gediks and subsequent transactions could be registered, by mutual agreement of the concerned parties, at courts of their choice; the venue could change at each transaction, and unregistered transactions were also possible.[27] The judiciary's role in the gedik trade was limited essentially to registration on demand and public access to the resulting document, each for a fee. Unlike both classic and cash waqfs, clerics did not supervise gediks or the enterprises that issued them. Transactions and dividend distributions followed unstandardized rules chosen by the transactors. Gedik-issuing enterprises were under no obligation to record rules for gedik trading; and no pertinent written rules have survived, if any were produced in the first place.[28]

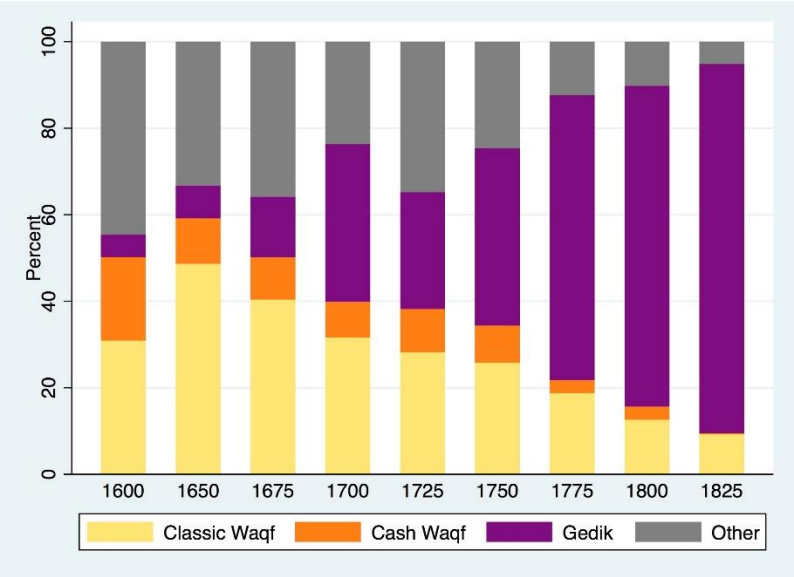

Fig. 1. Shares of cases involving investments in Istanbul's court registers, 1600-1831. The "other" category includes two short-run investments: partnership and credit. Each bar represents a 25-year time span beginning with the started year, except 50 years for the first and 6 for the last. For the list of 44 registers in the sample, see notes 36-38. (A variant of this graph, which includes investments contained in estates, is in Appendix A; it shows the same trends concerning the incidence of gediks and waqfs.)

[26] On the Amsterdam and London exchanges, see Gelderblom (2013, chap. 3) and Michie (1999), respectively.

[27] Unregistered transactions would occur before witnesses presumably prepared to testify in court in case of disagreement among the parties.

[28] Rules may have been left unrecorded deliberately, to minimize information obtainable by the state.

All along, a short-term investment instrument lacking tax advantages was the Islamic commercial partnership. It involved the pooling of labor and capital by two or more individuals to earn a return through production or trade. Membership rights were neither transferable nor divisible at will. Capital holders could also supply personal loans in Istanbul's credit market, competing with cash waqfs for borrowers. But it is the reallocation of resources among long-run investments that is our focus here. By law, both forms of the waqf were supposed to exist in perpetuity. Though gedik shares could be resold quickly, they were often held for periods much longer than even the longest-lasting commercial partnerships.[29]

So in the 1600-1839 period, an Ottoman investor for the long-term could choose between three instruments: two types of waqf plus the gedik.[30] The trajectories of their shares in court records are shown in Fig. 1.[31] The explosive growth of the gedik market after around 1750 is remarkable. As we shall see, it is intertwined with sectarian distributional shifts that preceded the Gülhane Edict.

After Istanbul became the Ottoman capital in 1453, for a century the classic waqf was the only long-term investment instrument available to Muslim elites. Other options then emerged, the cash waqf around 1550 and eventually the gedik. Depending on relative returns and risks as well as personal preferences, the beneficiaries of classic waqfs may have wanted to shift assets into alternative instruments. Alas, the law banned such reallocations; in principle, a waqf was established in perpetuity to serve whatever function its founder had chosen. Nevertheless, with the connivance of cooperative judges, waqf caretakers (*mütevelli*s) found ways to circumvent the restrictions. Hence, as cash waqfs and then gediks gained significance, caretakers started to convert assets of existing classic waqfs into private property through a legal yet brazenly corrupt procedure known as the "double sale" (*icâreteyn*).[32] Functionally, this procedure resembles the privatization of Russian state enterprises after the fall of the Soviet Union in 1991; although Russian privatizers ostensibly maximized returns to the public, in fact they transferred the most valuable assets to themselves (Black, Kraakman, and Tarassova 2000). With the Ottoman double

[29] Commercial partnerships lasting longer than a few months were rare. For evidence and the underlying reasons, see Kuran (2011, chaps. 3-5).

[30] The investor could also hold an asset with appreciation potential (for instance, gold bracelets) or do commerce as a sole proprietor.

[31] On data sources, see sect. 5 below.

[32] The "double sale" enabled cash-strapped waqfs to fund repairs through a large downpayment from a renter in return for a long-term rental contract. Pantık (2017) considers it an efficiency-promoting innovation. But by his own account (pp. 96-98), after the 1750s the procedure generally fostered privatization of the rented assets.

sale, illicit privatizations were achieved through long-term leases; valuable assets remained in the lessee's hands when, as anticipated, the deliberately stripped waqf went bankrupt (Barnes 1987, chap. 3).[33]

4. Investment Decisions

In deciding how to deploy their assets, Istanbul's investors would have taken account of relative returns. They would have allowed also for differences in investment costs, confiscation probabilities, and expected taxes. These variables all depended on the investor's religion and/or the investment instrument. They varied over time, and not necessarily identically across religious groups. To develop insights into the key tradeoffs, we shall conceptualize the choice process as a game that the state plays against each investor individually. A formal representation and proofs of theoretical claims are in Appendix B.

Imagine that an investor with a given wealth and pre-determined private property rights plays a one-shot game against the state. Let β_i, a parameter between 0 and 1, represent the level of these rights for investor i. If $\beta_i = 0$, the investor has no material security at all; at the other extreme, if $\beta_i = 1$, the investor's private property is fully secure. The tax that the state imposes on taxable wealth depends on its ability to locate wealth; since its fiscal capacity cannot be improved quickly (Besley and McLaren 1993; Scott 1998; Ma and Rubin 2019), it is exogenous to this analysis. As a practical matter, the Ottoman state was neither fiscally powerless nor fiscally unconstrained. Hence, the tax rate it imposed on tax-paying subjects was positive, yet well under 100 percent because of fiscal capacity alone.

In investing for the long term, Ottoman subjects had a trinary choice. For reasons completed below, in the gedik market returns were high but taxable; classic waqfs had relatively low but untaxed returns; and cash waqfs provided moderate returns, also untaxed. Remember that whereas Muslims were free to establish waqfs, non-Muslims needed special permission. The permission required a quid pro quo; high dignitaries had to be rewarded, possibly even the sultan himself. Thus, the cost of registering a waqf depended on the founder's faith. Another relevant cost was in expropriating a waqf the state risked alienating the clerics on whom it depended for legitimation. Clerics earned returns from monitoring waqfs; and they were capable of fomenting unrest. Anything that discouraged the founding of waqfs threatened their livelihood. Our investor

[33] Along with inflation, purposefully low lease fees facilitated the waqf's demise.

had to also consider the relative probabilities of expropriation. For waqfs, this was close to nil at the start of our period; then it became significant for classic waqfs while remaining negligible for cash waqfs, largely because of their relatively much lower value. For cash waqfs, though, theft was a steady danger; cash could be stolen more easily than real estate. In making decisions, investors also had the consider the asset composition of their portfolios. An investor's exogenous portfolio, z_i, is divided between real estate and liquid assets, in shares α_i and 1-α_i, respectively. Turning real estate into cash, or vice versa, entails a small cost, $k > 0$.

The investor and the state both observe all costs, returns, and probabilities. Suppose that the investor moves first, deciding whether to endow a classic waqf, found a cash waqf, or invest in gediks. The state moves next. If the investor has endowed a waqf of either kind, in the next stage the state can either acquiesce or expropriate. If the investor opts instead for gediks, the state can either tax or confiscate. The state incurs the cost c_i if it expropriates investor i's gediks. This cost increases with the individual's property rights, β_i.

This conceptualization captures the key differences in the tradeoffs facing, on the one hand, Muslims and non-Muslims, and, on the other hand, Christians and non-Christians. In allowing parameters to change over time, it also accommodates the disadvantages Muslim investors faced as waqfs became less secure and Christians property rights strengthened.

A subgame perfect Nash equilibrium of this game is one where gedik returns and gedik expropriation costs are both sufficiently high that the government prefers to tax gedik investments to bearing the cost of expropriation, and at least some investors prefer to invest in gediks rather than some kind of waqf. Three testable implications, formalized in Appendix B, are of special interest:

Hypothesis 1. Holding all else constant, the higher is the state's cost of expropriating the gedik of individual i (the larger is c_i), the more likely i is to invest in gediks.

Hypothesis 2. Holding all else constant, the stronger are individual i's private property rights (the higher is β_i), the more likely i is to invest in gediks.

Hypothesis 3. Holding all else constant, the more an investor's portfolio is weighted in favor of real estate (the higher is α_i), the less likely i is to invest in gediks over a classic waqf.

Fig. 2 illustrates the logic underlying these three hypotheses. It shows that from the standpoint of individual investors, material security, portfolio liquidity, and obstacles to state expropriation of gediks presented tradeoffs. Each could compensate for the other; and jointly

they determined what was optimal. For Muslim political elites, α_i was high and both β_i and c_i were low; in terms of Fig. 2, they were located near $i1$. We thus expect them to invest disproportionately in classic waqfs. For Christians, β_i and c_i were both high; and α_i could be anywhere within the 0 to 1 range. Like the individual $i2$, they had strong incentives to invest in gediks. A Muslim with weak property rights (low β_i) and high liquidity (low α_i) might be situated at $i3$ and find it optimal to invest in a cash waqf.

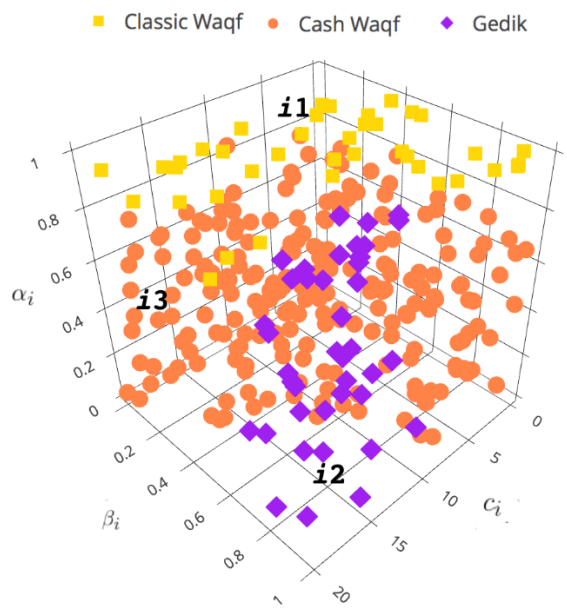

Fig. 2. Optimal investment choices in equilibrium, as a function of private property rights (β_i), the state's cost of gedik expropriation (c_i), and the weight a real estate in the investor's portfolio (α_i). Parameters used in the illustrations of 300 hypothetical investors: $f = 0.3$, $r_w = 0.3$, $r_m = 0.4$, $r_g = 0.8$, $z_i = 20$, $c_w = 10$, $k = 0.1$.

These hypotheses will guide the historical narrative on successive institutional transformations that reshaped incentives of the state and various social groups. But first we shall review our data sources. The foregoing hypotheses are tested in sect. 10.

5. Data

The paper required the construction of several original data sets, all but one from primary documents. For waqfs founded in Istanbul between 1600 and 1839, we started from a catalog of 9867 waqf deeds filed after 1600 (Aydın et al. 2015). This catalog was produced by browsing the 9872 surviving registers of the 27 Islamic courts in operation during the period, some of them intermittently. Under the law, every waqf deed had to be approved and recorded by one of these

courts. The team browsing the registers found about 65% of the waqf deeds from the period in question. This massive sample appears representative.[34]

For each entry, the deed catalog gives the waqf's founding date as well as the name, religion, and title (if any) of the founder. It also states whether the endowment consisted of real estate or cash. Beyond that, the information is fragmentary. For our needs here, the most critical omission is the returns from endowed real estate. Fortunately, our formally-coded court registers include abundant cases involving real estate sales. We shall use these to document that in the housing market capital gains were low.

Along with waqf deeds, records of transactions involving credit, partnerships, gediks, and waqfs provide information on economic activities. Such information comes from 44 registers belonging to three specific courts, each in a neighborhood pivotal to Istanbul's financial life: Central Istanbul, Galata, and Bab.[35] The registers, which we have digitized, are spread across a quarter-millennium, 1600-1839. Fifteen are from the 1600s,[36] 21 from the 1700s,[37] and 8 from 1800-39.[38]

These 44 registers contain three types of cases: contracts and settlements recorded before a judge (collectively, registrations), records of adjudicated disputes, and communications from the Palace. Of interest here are the registrations and trials.[39] Every such case provides

[34] The estimate is derived from two sub-estimates, one of the Aydın et al. (2015) catalog's comprehensiveness and the other of the non-surviving registers. Of the deeds recorded in 44 registers that we ourselves have digitized and 40 others that have been transliterated in full, the team surveying the 9872 surviving Istanbul registers missed about 10% of the waqf deeds; the omissions appear random. And the catalog itself suggests (p. 14) that 3,000 to 4,000 registers belonging to the 27 courts perished in natural disasters or otherwise disappeared before the formation of a centralized archive. Jointly, these sub-estimates yield a comprehensiveness measure of around 65%.

[35] The Central Istanbul court (known also as the "Istanbul" court) was located near the Grand Bazaar. Galata was Istanbul's main port, and, in time, also its financial center. Located near Topkapı Palace, the Bab court handled many prominent cases involving price controls. The sampling aimed to obtain uniform coverage between 1600 and 1839. Gaps exist in the Central Istanbul series, due to fires that consumed most Central Istanbul registers of the 1600s. They are covered through Bab registers.

[36] Galata 24 (1602-3), Galata 25 (1604), Galata 27 (1604-5), Istanbul 1 (1611-13), Istanbul 2 (1615-16), Galata 41 (1616-17), Galata 42 (1617), Istanbul 3 (1617-18), Istanbul 4 (1619), Istanbul 9 (1661-62), Istanbul 16 (1664-65), Galata 130 (1683), Galata 145 (1689-90), Istanbul 22 (1694-96), and Istanbul 23 (1696-97). Transcripts of these registers are reproduced in the modern Turkish script in Kuran (2010-13).

[37] Galata 197 (1704-5), Bab 89 (1708), Galata 224 (1713-16), Bab 122 (1718-19), Galata 266 (1726-27), Bab 154 (1730-31), Galata 279 (1731-33), Bab 173 (1740), Galata 308 (1745-46), Bab 204 (1751-53), Galata 353 (1759), Galata 360 (1760-61), Galata 379 (1765), Bab 240 (1767-68), Galata 410 (1770-71), Bab 269 (1778), Galata 515 (1792-93), Galata 526 (1794-95), Istanbul 68 (1796-97), Galata 541 (1797-98), and Istanbul 70 (1797-99).

[38] Galata 567 (1803), Galata 587 (1808-9), Istanbul 105 (1811-12), Istanbul 122 (1817-18), Galata 636 (1820-21), Istanbul 142 (1824), Istanbul 151 (1827-29), and Istanbul 156 (1830-31).

[39] Because the courts in question favored certain groups, trials were subject to selection effects, which could bias the distribution of subjects in our records (Kuran and Lustig 2012). Fortunately, the vast majority of the cases relevant here are registrations. Appendix D shows that results hold when trials are removed the data set.

demographic information on the parties involved. For monetary transactions, ordinarily amounts are given. Gedik transactions record the prevailing value of the underlying assets and the distribution of shares among co-owners.

Multiple currencies saw use during this period, and exchange rates fluctuated. We converted all nominal monetary magnitudes to real values in silver, relying on currency conversions and price indices used in Kuran and Rubin (2018).

6. Declining Appeal of Waqfs

At the start of our period, around 1600, waqfs claimed the lion's share of Istanbul's private capital. A substantial share of rental real estate, including much of the best housing and most of the Grand Bazaar's 4,000 shops, belonged to classic waqfs. About 30% of all waqfs were cash waqfs (Fig. 3), which had become legal just a few decades earlier.

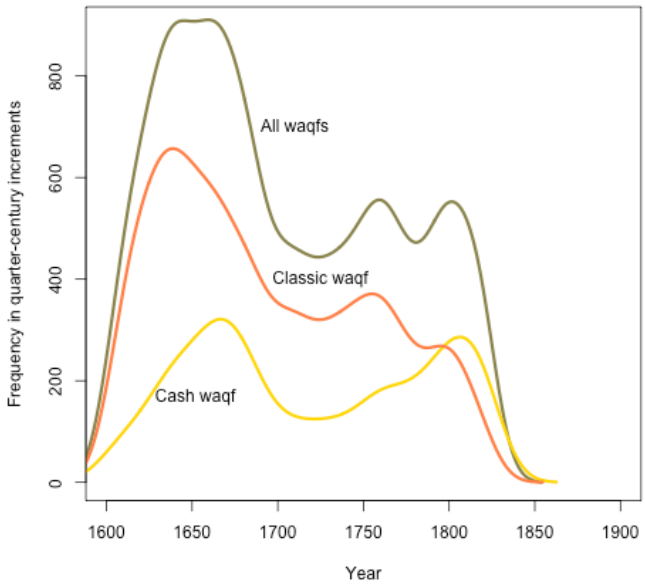

Fig. 3. Number of new classic and cash waqfs registered in Istanbul courts, 1600-1900. Computed from Aydın et al. (2015). The vertical axis measures the numbers founded in each quarter-century within the time period. Each time-series, including that for all waqfs, is overlaid with a kernel density estimate that smoothes the data.

Most narratives on this institutional innovation leave unaddressed why the cash waqf spread so widely in the face of strident opposition from legal purists. The key factor, evident in Istanbul's sky-high interest rates, is that the Eastern Mediterranean was starved for credit. Between 1602 and 1799, despite the prevalence of cash waqfs, the average real interest rate was

19%—at least double the Western European average (Kuran and Rubin 2018). In the absence of cash waqfs, which made 58% of all registered loans, credit costs would have been even higher. By 1800, the share of cash waqfs among all new waqfs reached 60%. Variations between the relative popularities of the two waqf types should have been driven by relative expected returns and risks. All else constant, the less secure the classic waqf became, the less attractive it would have been to investors.

Even though Islamic law gave waqfs immunity to expropriation, in the 1700s classic waqfs became less secure; and the trend accelerated in 1826 with the formation of a Waqf Ministry (*Evkâf-ı Hümâyûn Nezâreti*). The impetus was the Ottoman state's chronically low fiscal capacity. At a time of rising expenses due to advances in military technology, sultans saw venerable classic waqfs, especially those that owned nonperforming assets such as dilapidated houses, as potential sources of additional income. The ongoing privatizations of classic waqf assets through legally dubious "double sales" may well have inspired sultans to start cannibalizing waqfs for state needs. Initially, expropriations were achieved through state-organized neighborhood associations ostensibly meant to rejuvenate moribund local waqfs. Their actual functions were to redirect resources to the treasury, enrich officials, and weaken clerics opposed to reforms. The founding of the Waqf Ministry did not start the cannibalization in question. Rather, it brought transparency to clerics' loss of control over waqf assets. As growing numbers of classic waqfs fell under state management, it became common knowledge that the classic waqf was no longer a reliable wealth shelter (Öztürk 1995, pp. 69-77).

Cash waqfs were spared the mounting risks of classic waqfs, mainly because they tended to be much less valuable. Their significance shrank further as inflation eroded their capital. Over a quarter-millennium, both classic and cash waqfs declined in importance as investment vehicles. By 1800, the number of new waqf foundings was 38% lower than 160 years earlier. Shortly, we shall see that the size of the average waqf fell as well.

As mentioned above, forming a waqf was a right for Muslims but a seldom granted privilege for non-Muslims. Indeed, only 51 of the 9867 Istanbul waqfs with surviving deeds were founded by a Christian or Jew. At least up to 1839, then, the decline in the waqf sector's economic importance could have reflected, in addition to the cannibalization and nationalization of classic waqfs, the shift in financial capital toward religious minorities.

As suppliers of short-term loans, cash waqfs fulfilled one function of a bank. But two handicaps rooted in Islamic law kept them from becoming full-fledged financial intermediaries. First, they could not accept deposits; and second, they were barred from pooling resources with one another.[40] They were bound to become anachronisms when modern banking reached Istanbul. Indeed, with the emergence of local banks starting in the 1850s, they withered away.[41]

7. Rise of Gedik Market

About a century before banking wiped it out, the cash waqf faced competition in capital markets from the gedik. Though the gedik's origins are murky, the term started appearing in documents around 1500, as Istanbul's artisans acquired oligopolistic rights within the guild (*lonca*) system. Initially, a gedik referred to a guildsman's right to practice his craft without outside competition. The earliest gedik transactions involved the transfer of guild membership, along with associated rights and equipment, from a retiring guildsman to an apprentice, often a son. The gedik thus closed guild membership to strangers. At first with the guild's collective permission, then increasingly at will, gedik holders started selling shares of their privileges. The motivation was usually to raise cash to buy equipment, smooth consumption, or pay debts (Ağır 2018, pp. 139-40). The inefficiency of credit markets must have been a stimulus. Whatever the underlying motivations, the sales spawned a secondary market for divisible gediks.

By the 1750s, people unconnected to a guild were exchanging guild-regulated assets. Through this evolution, artisanal labor and capital got separated.[42] Whereas under Istanbul's classical guild system the owners of its oligopolistic rights were limited to commodity-producing or service-supplying guildsmen, in the mature gedik market of the 1750s these rights were shared very widely. In fact, the traded assets now included productive assets unrelated to guilds. Rights once reserved for guilds thus got extended to a much broader population.

The gedik was unknown as an investment instrument until the 1650s. When the word appears in court records before 1700, it almost always it describes transactions limited to guild members and their relatives. Its explosive growth as an investment vehicle is visible in court

[40] In principle, the caretakers of cash waqfs could have done battle with conservative clerics. The absence of institutional vehicles for forming private political organizations made this unlikely (Kuran 2016).

[41] Istanbul's first major bank was the Ottoman Bank, founded in 1856. The preceding years witnessed the founding of a few smaller banks (Clay 1994).

[42] For further insights, see Yi (2003, pp. 148-56).

records of the 1700s. Around 1750, 16.9% of all investment cases recorded in Istanbul's court registers involved a gedik; between 1800 and 1831, the share was 74.5% (Fig. 1). The latter figure points to the centrality the gedik achieved in Istanbul's economic life. Indeed, by this time most inheritance cases involved gediks, because of their presence in the typical investment portfolio.[43] As gediks became inceasingly prominent, waqfs lost relative significance. The time trend of all new waqfs was essentially flat (Fig. 3).

Sultans had an ambivalent attitude toward gediks. In promoting economic decentralization, they made it harder to track taxable resources. But they created new sources of revenue. Through repeated decrees that attempted to centralize gedik records at the Central Istanbul court, sultans sought to preserve the gedik market while also increasing its transparency to tax collectors (Kaya 2013b).[44]

The gedik market constituted a rudimentary stock market. As already noted, what it lacked was a centralized registry for information on ownership and assets. Unsurprisingly, the market's informality exposed gedik buyers to fraud. A gedik could be sold to one buyer, then to another who could not easily verify the seller's ownership.[45] Any one of Istanbul's Islamic courts, even a court outside the city, could harbor evidence of third-party claims on the assets involved. Istanbul's first formal securities market opened in 1866, at the start of Ottoman industrialization (Fertekligil 1993, pp. 18-34).[46] Artisans whose shops and equipment had been securitized as gediks were losing market share to modern firms. No gediks were ever listed on the Istanbul stock exchange. Like cash waqfs, they faded away.[47]

Between 1600 and 1839, then, Istanbul's financial markets witnessed two indigenous innovations with potential consequences for the composition of investors and thus the distribution of political power. One was the cash waqf's emergence as a liquid alternative to the classic waqf. The other was the gedik's emergence as a vehicle for securitization. Each

[43] In the 1800-31 period, 70.3% of all inheritance cases involved gediks.

[44] The repeated reissuing of decrees testifies to the Ottoman state's limited administrative capacity. Even in their own capital, sultans could not control the caseloads of their own judicial appointees. Our own data set contains references to stipulations that the Central Istanbul court had exclusive jurisdiction over certain gedik cases. See, for example, Istanbul 105 (1811), 27a/2 and 28b/1.

[45] For examples, see cases Galata 587 (1808), 6b/3, 12b/2, and 18a/1.

[46] The trading of centrally registered stocks themselves began in the 1830s, at sundry coffeehouses and street stalls. But up to the 1860s, the traded shares were those of companies registered outside the Ottoman Empire, in advanced economies (Al and Akar 2013, pp. 13-49).

[47] Economic histories of the Turkish Republic do not even mention the concept. See, for instance, Tezel (2015).

innovation broadened investment opportunities, then became obsolete through institutional transplants from abroad.

Factors other than liquidity played key roles in making gediks popular. Identifying them requires exploring distributional effects of the innovations just discussed. To this end, Section 8 focuses on the gains of Istanbul's large Christian minority and on Christian-Jewish differences in gedik market participaton. Section 9 then turns to the weakening of constituencies that had reasons to oppose the legal reforms of the Gülhane Edict. These two sections will thus establish that well before 1839, the start of the reforms that restructured Ottoman governance, alliances of the classical Ottoman order were already fraying. New coalitions spearheaded the secularizing reforms, not those traditionally in control of government, key economic sectors, and social rights. The rising elite corps contained far more non-Muslims than the one it supplanted.

8. Redistribution toward Christians

In the 800s, jurists of Arab empires limited to Muslims the right to shelter wealth at will through a waqf. A millennium later, the gedik's profitability induced Ottoman initiatives to restrict this new investment instrument, too, to Muslims. Imperial decrees limited gedik purchases to Muslims in sectors with a flourishing gedik trade (Kal'a 1997, p. 147). Nevertheless, sales to Christians (and occasionally to Jews) continued across the board. In fact, even officially banned transactions were registered routinely in Islamic courts staffed by Palace-appointed clerics—a sign of weak state capacity.

Fig. 4 suggests that the gedik trade enabled Christians to capture a *growing* share of Istanbul's physical capital. By 1775, almost half of all gedik transactions were among Christians; and this share exceeded half in the early 1800s. Of the 2258 gedik cases in our data set up to 1831, 2211 feature identifiable individuals; Muslims were involved as a buyer, seller, or both in 1056; Christians in 1461; and Jews in just 52. The Muslim-Christian trades are revealing. In each of the four periods starting in 1750, the cases where the seller is a Muslim (gray bands) exceed those where it is a Christian (black bands).[48] This pattern points to a net transfer of wealth from Muslims to Christians. The Christians' vastly disproportionate participation in the gedik market

[48] The differences are statistically significant for 1775-99 and 1825-31 at the 99.9 level (t=4.80 and 2.05), but insignificant for 1750-74 and 1800-24.

is illustrated in Fig. 5. Like Muslim participation, this figure also confirms, Jewish participation was disproportionately low.

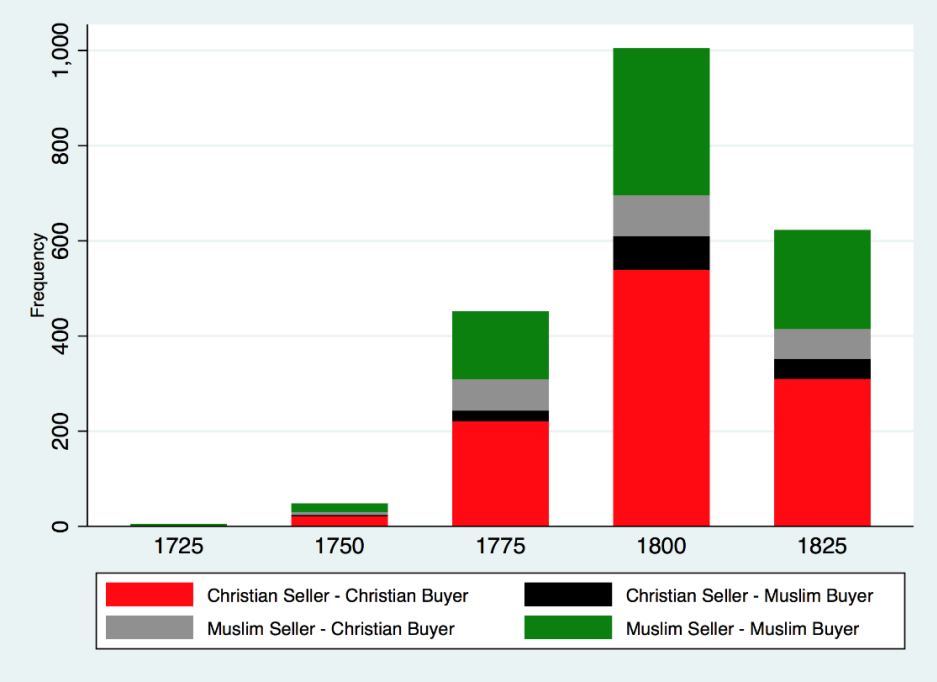

Fig. 4. Gedik transactions up to 1831, broken down by religion of buyers and sellers. Computed from information in the 44 registers listed in notes 36-38. Muslim participation is disproportionately low at the 99.9% significance level for each of the four periods starting with 1750-74 (in chronological order, *t*=-4.08, -13.20, -20.80, and -13.97). Christian participation is disproportionately high for the same four periods, insignificantly for 1750-74 but at the 99.9% significance level for 1775-99, 1800-24, and 1825-31 (*t*=5.41, 10.76, 7.06, respectively).

The growing prominence of Istanbul's Christians in the gedik market reflects inter-communal differences in investment incentives. A factor that whetted Christian appetites for buying and holding gediks was their relatively strong property rights. Even before these rights were formalized in 1774, European ambassadors routinely pressured Ottoman officials to leave Christian properties alone. Over time, the liquidity of gediks fueled to a growing Christian-Muslim wealth gap. Specifically, it enabled a much higher share of non-Muslim capital than Muslim capital to flow into the evolving economy's most lucrative sectors. It is as if, in multireligious Nigeria, Muslims locked capital in coal-fired utilities while Christians invested freely in high technology. As Istanbul's gedik market exploded, new technologies and business techniques were filtering in from the West, and the Industrial Revolution was just decades away. Insofar as Western innovations diffused to Istanbul's economy, enterprises securitized as gediks would have benefited disproportionately; real estate locked up in waqfs would hardly have been touched.

A striking aspect of Fig. 5 is the contrast between Christians and Jews. Nothing in Islamic law accounts for the observed difference in participation. The explanation lies in European protection. As Ottoman Christians achieved material security, no European power sought to protect Ottoman Jews as a community, except transiently. In the period of interest here, then, Jews were more exposed than Christians to expropriation.[49] This yields fresh insights into the Christian-Jewish economic divergence observed during the early stages of modernization in the Muslim-governed Eastern Mediterranean. Historians have tended to emphasize differences in timings of educational modernization. As the proportion of Christians with a secular education (as opposed to Bible-based traditional education) rose, for a few generations Jewish education remained centered on Torah study, which isolated Jews from Western ideological currents. Jewish educational modernization was spearheaded by Western Jewish philanthropies that promoted Jewish empowerment through secular Jewish schools.[50] Istanbul's first secular Jewish school opened in 1854, and more followed in the 1860s, fueling upward mobility (Levy 1992, pp. 112-15).

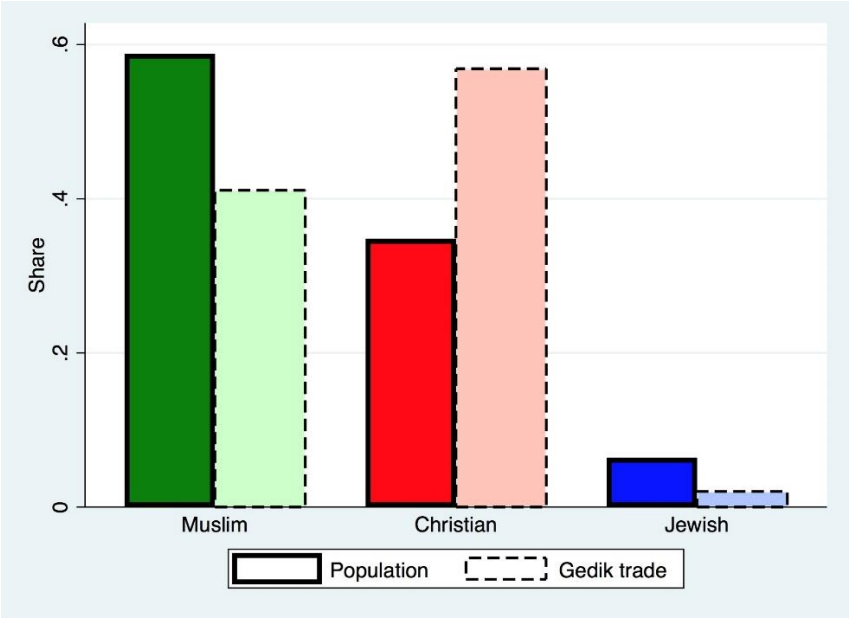

Fig. 5. Population shares of Istanbul's three religious groups and their participation shares in the gedik market, 1725-1831. Inter-communal transactions were split between the two sides. Hence, the gedik trade shares add up 100%. All three pairings differ statistically from random pairings at the 99.9% level of significance (t=-10.39, 31.06, and -12.56, respectively).

[49] Expropriation could be partial, in the form of opportunistic taxation.

[50] The most important of these philanthropies was Alliance Israélite Universelle. The campaign led to a steep decline in yeshiva enrollments. For influential arguments concerning the delayed modernization of Middle Eastern Jewry, see Lewis (1984, pp. 175-80) and Shaw (1991, pp. 170-75).

The literature on the Christian-Jewish divergence in the early-modern Eastern Mediterranean has neglected to explore the role of sectarian differences in property rights. What kept Istanbul's Jews relatively impoverished in the pre-Gülhane period under focus here is not only their lower likelihood to receive a non-religious education. Differences in property rights were also a factor. To be sure, Torah-focused education and weak property rights are not mutually exlcusive. They would have reinforced each other. Jewish religious education was less conducive than secular education to enrichment in a modernizing economy; it would have limited Jewish capital available for investing in gediks. By the same token, in perpetuating poverty disproportionately low participation in Istanbul's hottest investment market would have limited Jewish travel to the West, Western contacts, and joint ventures with Westerners; and all these factors would have dampened the need for a modern education, which always involved learning Western languages.

Economic studies of the rise of Ottoman non-Muslims have tended to focus on the protégé (*beratlı*) status that Christian and Jewish merchants obtained from European consulates. Attaining a form of "dual citizenship," these protégés gained the right to do business under the law of their protector—French law in the case of a French protégé (Kuran 2011, chap. 10; Artunç 2015). Whatever the benefits protégés received from foreign business procedures, another benefit of their dual status was immunity to expropriation. Although Ottoman subjects formally had to obey Ottoman laws in Ottoman realms, in practice they were treated differently from otherwise identical non-protégés. That is because, as the empire lost global standing, sultans became increasingly reluctant to cross the European powers on which they depended diplomatically, militarily, and financially. Critical here is that in buying European legal rights, protégés also obtained material security.[51] Jews were well represented among the dragomans (translators) hired by European embassies and given expatriate rights for commercial purposes. But no more than a few hundred dragomans existed across the empire (Artunç 2015, pp. 727-29). So the institution of the dragoman could not have trumped the treaty-based Christian advantage over Jews in regard to foreign protection.

The common illicit practice of privatizing waqf assets through "double sales" illuminates another facet of our findings. Since almost all waqfs were Muslim-controlled, at least initially the

[51] The privileges of protégés included the right to have one's estate handled by a European consul rather than Ottoman officials. This further strengthened their material security.

privatizations put waqf assets in Muslim hands. Some of these found their way into the gedik market, where, Figs. 4 and 5 suggest, they were transferred disproportionately to Greeks and Armenians. Öztürk (1995, p. 75) observes that in the early 1800s the assets of hundreds of ailing waqfs were "bought by non-Muslims at low prices." Jointly, then, the "double sale" and the gedik market transferred productive assets to Christians.

Implicit in our account of sectarian wealth redistribution has been that gediks were profitable. In fact, they tended to deliver supra-normal profits. Only fragmentary data on gedik returns are available, but they point to rates much higher than those of either waqf type.[52] The reason is that securitized sectors tended to have high entry barriers. Legal protections were provided sometimes through Sultanic decrees but ordinarily through court verdicts on lawsuits brought by parties seeking to institute, preserve, or extend oligopolistic privileges.[53] As for enforcing the privileges that boosted gedik values, the key actors were soldiers; and, within the military, janissaries played highly disproportionate roles as regulators of Istanbul's markets.

Janissaries were slave soldiers recruited as boys from Christian families and raised as Muslim Turks. Their main role was to obviate the Sultan's need to negotiate with regional strongmen for military manpower. Also, as foreign-born soldiers lacking local roots, they were expected to be particularly loyal to their master (Crone 1980, especially chap. 10; Blaydes 2017, pp. 493-95). Charged with protecting the Sultan, they also participated in military campaigns. But their military value waned, and their real wages fell progressively, as they failed to adopt new military technologies. Increasingly, the 20,000 to 30,000 janissaries stationed in Istanbul took to supplementing their pay through side occupations. These included the protection of enterprises securitized as gediks, often in return for shares. Janissaries guarded physical assets, such as stores and merchandise. They also blocked entry by competitors. The Palace tolerated their racketeering as part of a bargain with the leading shareholders (and often also operators) of securitized businesses (Ağır 2018, pp. 136-39). Businesses obeyed price controls on their output to keep Istanbul's consumers content; in return, the Palace let shopkeepers earn supra-normal profits through both entry restrictions and price ceilings on inputs. As enforcers of anti-

[52] Ağır and Yıldırım (2015, pp. 230-31) document that in the silk weaving sector gedik prices were inflated through court-ratified entry barriers. In 1817, the average price of permitted looms was 150% higher than in 1802.

[53] For examples of relevant Sultanic decrees, see cases Bab 122 (1719) 7b/1, Galata 567 (1803) 92b/2, Galata 587 (1809) 96a/1, and Galata 636 (1821) 97b/2. And for pertinent court adjudications, see Galata 197 (1704) 22b/1 and Bab 173 (1740) 80b/3.

competitive rules, the janissaries formed a link in this bargain that contributed to the gedik's popularity. Sectors of Istanbul's economy differed, of course, in vulnerability to oligopolization. It was easier to shut down a new bakery than to drive a peddler out of business.[54]

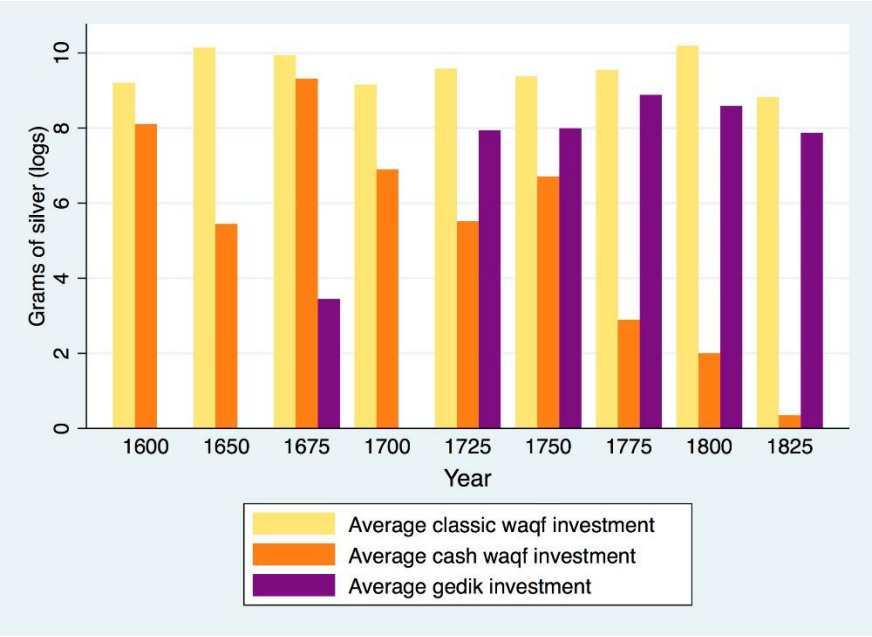

Fig. 6. Average investments in the two waqf types and gediks, 1600-1831, measured in logs of grams of silver. The average house price is used as a proxy for a classic waqf investment. Computed from the 44 court registers listed in notes 36-38. A variant of this graph, using inflation-adjusted silver rather than silver itself as its measure of value, is in Appendix C. It displays the same trends, except that the drop in the average cash endowment is even steeper.

As gediks earned supra-normal profits, the real interest rates of cash waqfs were essentially stable.[55] Meanwhile, the expected returns on classic waqfs were almost certainly falling because of rising expropriations. By themselves, the growing Christian domination of the gedik trade, the fall in the number of new waqfs, the falling security of classic waqfs, and the relatively high returns of gediks do not prove the redistribution of wealth toward Christians. In principle, average waqf size could have grown enough to trump these other factors. In fact, no such trend is evident for either waqf type (Fig. 6). The real value of houses, which formed the most common asset of a classic waqf, was essentially flat during the period of interest here; given the rise in expropriation risk, this implies a decline in expected returns; and the average endowment of cash

[54] Reopening a closed bakery at another location involved renting and furnishing a new store. A peddler simply moved to another street, and he might eventually return.

[55] Between 1725 and 1831, the trend is flat. In an OLS regression involving a 25-year time coefficient, the period effect on the interest rate is 0.00001 (t=0.13).

waqfs fell.[56] In any case, almost all of Istanbul's biggest waqfs were formed during the first century and a half after 1453 (Canatar 2004).

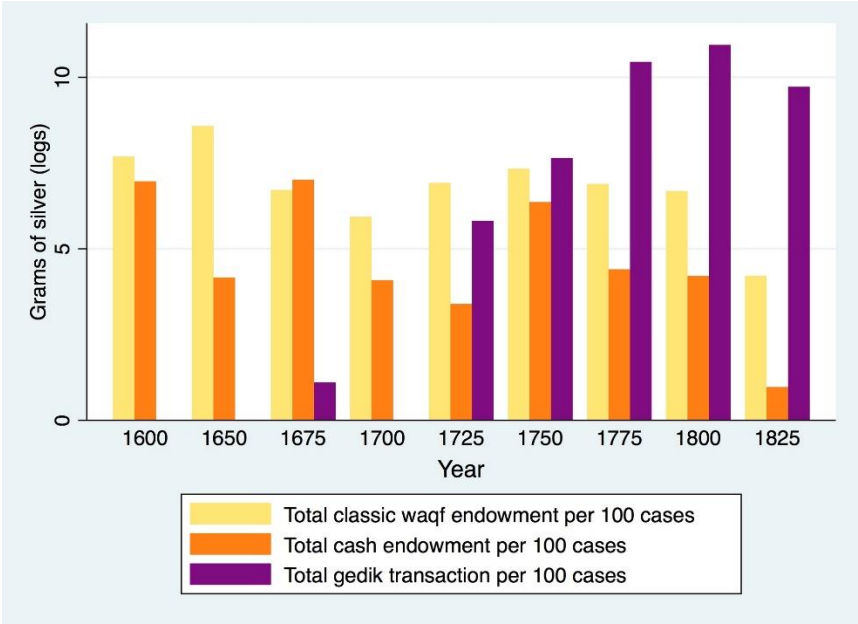

Fig. 7. Total investments in the two waqf types and gediks per 100 court cases, 1600-1831, measured in logs of grams of silver. The average house price is used as a proxy for a classic waqf investment. Computed from the 44 court registers listed in notes 36-38. Two variants of this graph are in Appendix C. One uses inflation-adjusted silver rather than silver itself as its measure of value; the other records the total per court register. Both variants display the same trends.

The total wealth flowing into our three investment types yield additional evidence for the sectarian redistribution documented in this section. As Fig. 7 shows, total investments in Muslim-dominated and Islamic court-supervised waqfs fell during the century preceding the Gülhane Edict, even as total investment in Christian-dominated and unregulated gediks rose.

9. Declining Economic Fortunes of Conservatives

The Gülhane Edict was a reaction partly to the economic advances of its Christians relative to its Muslim majority. On the one hand, it legitimized the political power that Christians had started

[56] An ordinary least-squares regression indicates that between 1600 and 1831, the average investment in a classic waqf actually fell slightly, though the coefficient is insignificant (-0.001, *t*=-0.39). Likewise, the average investment in a cash waqf fell significantly (-0.033, *t*=-3.87), and the average investment in gediks increased substantially (0.047, *t*= 4.32).

to exert on the basis of their growing economic clout.[57] On the other hand, it extended to Muslims property rights that Christians had acquired through foreigners, thus enabling Muslim elites to follow the "Christian path" to enrichment. By themselves, though, the benefits to Christian and Muslim elites explain neither the Gülhane Edict nor its peaceful acceptance. After all, conservative groups might have blocked it or forced the annulment of its revolutionary provisions. From 1622 to 1839, they had obstructed various reforms, spearheading 12 major mutinies in Istanbul alone (Kafadar 1981, chap. 5; Yıldız 2017, pp. 1-43). If on this occasion resistance was limited, one reason is that the empire's most conservative military units, the janissaries, had been annihilated, and clerics, key supporters of the traditional order, had weakened economically. Both developments were connected to processes already familiar: the declining appeal of waqfs and the explosion of the gedik trade.

Starting in the early 1600s, the janissaries became a source of chronic discontent. Angered by their falling pay, they revolted about once every two decades, sometimes in alliance with other disgruntled groups and often exploiting Palace rivalries. They became especially menacing as the Palace formed Western-inspired complementary military units. Military modernization devalued the skills of janissarises, incentivizing them to obstruct military reforms. Ultimately, though, they failed.[58] The formation of a technologically modern infantry in 1797 turned them into a relic. They survived for another quarter-century as a detested crime syndicate. Their revolt in 1826 was quelled with help from the very military units they feared.

Artisans, merchants, and shopkeepers also helped the Sultan suppress the 1826 mutiny and disband the Janissary Corps. They had come to view janissaries as predators. Even guildsmen resented the janissaries, in spite of the protection they provided from competition. The janissaries charged for their services, and guidsmen considered the charges shares excessive. Besides, in blocking entry by others, janissaries sometimes set up competing businesses themselves. By 1826, then, the janissaries had made bitter enemies even of gedik holders, who had benefited from janissary racketeering (Kafadar 1981, chaps. 3-4). Finding the janissaries too

[57] Although it was illegal to pipe water into one's home, wealthy Christians had started to defy the imperial ban. For evidence, see the following cases in Kılıç, Aşık, and Pakırdağ, eds. (2002): 8/363/4 (1802), 8/363/5 (1802), 8/365/1 (1804), and 8/365/2 (1804). In three of these cases, the Christian beneficiary carries an honorific title traditionally reserved for Muslims. Decades before the Gülhane Edict, Christians were also acquiring clout in agencies that turned into the Foreign Ministry (Findley 1980, pp. 126-40, 203-9).

[58] Their last successful rebellion was in 1807. It deposed the reformist sultan Selim III and placed on the throne an arch-conservative, Mustafa IV. But another reformist, Mahmut II, was soon in charge.

costly and too unreliable, they stood to gain from an alternative vehicle for keeping gediks profitable. Stronger property rights provided part of the solution.[59]

The year 1826 also saw the founding of the Ottoman Waqf Ministry. This is no coincidence. The ministry's function was already being served, albeit in a decentralized manner, through Palace-directed neighborhood committees. Through this ministry, the Sultan formed a single pool of capital to fund empire-wide modernization projects. This financial consolidation could not have been attempted before 1826, lest the janissaries use it as a pretext to revolt. The janissaries had been sharing in the rent transfers achieved through converting waqf assets into gediks. They had been competing with the state for stripping assetsfrom waqfs. Centralized nationalization mortally threatened their livelihood.

If the janissaries suffered from economic modernization, they were not alone. On the whole, Muslim clerics also lost ground. They had played huge roles in the city's traditional economy, overseeing all waqfs and earning rents from decisions of their waqf caretakers. In our quarter-millennium, the "double sale" yielded clerics short-term gains, as they could veto any rental agreement.[60] Alas, the stripping of waqf assets diminished the economic importance of waqfs as a whole. The nationalization of waqfs further eroded the clerics' economic base. In shrinking the assets they supervised, it reduced their income. Loss of economic power implied loss of political power, too.[61] Clerics could have compensated for the erosion of their traditional economic base in waqfs through heavy participation in gediks. Yet, in the half-century to 1825, as gediks proliferated, only a modest 1.98% of all gedik transactors were clerics. Central to the waqf-based traditional economy, they were strikingly inconspicuous in the most dynamic economic sectors of the early 1800s.

10. Statistical Analysis

Sections 6-8 documented that the groups welcoming the Gülhane Edict had either advanced already during the preceding century or stood to benefit from a new economic order. Section 9 then showed that groups with a stake in traditional Islamic institutions had either weakened or vanished. Along the way, we encountered trends consistent with the hypotheses of Section 4.

[59] Presumably, they expected a stronger state to enforce their state-provided oligopolistic rights itself.

[60] On the centrality of the waqf to clerical wealth, see Nizri (2014, chaps. 4-5).

[61] In 1839, the vast majority of the clerics serving the sultan, including his chief mufti (*şeyhülislam*), endorsed the edict's contents.

There were responses to changes in the properties of alternative investment options. The reweighting of investment portfolios differed across groups and over time.

Now we present statistical tests with controls. Our first test, a multinomial logistic regression, compares, across five investor groups, the probability of investing in a classic waqf (columns 1, 3, 5, 7) or gedik (columns 2, 4, 6, 8) relative to the cash waqf, over the 1750-1831 period, when gediks were common. The investor groups consist of Muslim commoners, Muslim political elites, Muslim economic elites, Muslim military, and Christians. Political elites consist of people with honorific titles indicating that they were high officials connected to the Palace[62] or belonged to the religious establishment.[63] Muslim economic elites were dignitaries carrying mainly civilian-conferred titles.[64] In the regression, Muslim commoners serve as the reference group. Time dummies, τ_t, capture period-specific fixed effects, and court dummies, κ_t, account for court-specific fixed effects. The data come from 44 registers belonging to three courts and the waqf deed catalog of Aydın et al. (2015). The regression tests whether the probabilities of using given investment instruments follow the logic of Section 4. The estimated equation is:

$$investment\ probability_i = \alpha_0 + \alpha_1 investor_i + \tau_t + \kappa_t + \varepsilon_i.$$

Four pairs of specifications are reported in Table 2. One result is that the probability of investing in a classic waqf fell during the century preceding the Gülhane Edict (specifications 2, 4). This is consistent with its diminishing security. Another result is that, relative to Muslims, the reference group, Christians were consistently less likely to found classic waqfs, and consistently more likely to invest in gediks (specifications 1-8). These findings accord with hypotheses 1 and 2. Christians were more likely to buy gediks because, on account of stronger property rights, their expected net returns were relatively high, and their need to shelter wealth against expropriation was relatively low. Muslim military show similar tendencies, though the coefficients are smaller. They had greater reason than Muslim commoners to fear expropriation; by the same token, their involvement in protecting securitized enterprises would have involved payoffs in the form of gediks. Another Muslim group exhibiting a clear tendency is the one that carried the highest risk of expropriation: political elites. They were consistently less likely to

[62] Mainly Pashas.
[63] Mainly *efendi*, sometimes *molla*, *hafiz, hoca*, or *şeyh*.
[64] *Bey* or *çelebi*.

invest in gediks. The results also suggest that they were more likely to endow a classic waqf than a cash waqf. These findings, too, accord with hypotheses 1 and 2.

Table 2. Probabilities of investing in a classic waqf or gedik over a cash waqf: Istanbul's investor groups, 1750-1831

VARIABLES	(1) Classic waqf	(1) Gedik	(2) Classic waqf	(2) Gedik	(3) Classic waqf	(3) Gedik	(4) Classic waqf	(4) Gedik
Muslim political elite	0.36	-0.95***	0.30	-1.05***	0.35	-1.41***	0.26	-1.39***
	(0.31)	(0.25)	(0.29)	(0.14)	(0.33)	(0.27)	(0.30)	(0.24)
Muslim economic elite	0.12	0.26	0.11	0.18	0.09	-0.02	0.11	-0.01
	(0.31)	(0.44)	(0.39)	(0.39)	(0.28)	(0.40)	(0.35)	(0.40)
Muslim military	-1.24***	0.48***	-1.06***	0.13	-1.19***	0.18	-1.05***	0.13
	(0.23)	(0.11)	(0.32)	(0.18)	(0.25)	(0.19)	(0.31)	(0.16)
Christian	-2.36***	2.76***	-2.17***	2.51***	-2.34***	2.59***	-2.25***	2.54***
	(0.77)	(0.48)	(0.80)	(0.53)	(0.75)	(0.55)	(0.80)	(0.57)
1775-99			-0.66***	1.77*			-.073***	0.94
			(0.24)	(1.00)			(0.24)	(0.74)
1800-24			-1.09***	2.42***			-1.31***	0.97
			(0.11)	(0.63)			(0.15)	(0.96)
1825-31			-1.46	3.23*			-1.84	1.05
			(0.92)	(1.31)			(1.15)	(1.62)
Bab court					0.36***	-3.72***	-0.46	-3.35***
					(0.05)	(0.08)	(0.36)	(0.52)
Galata court					0.38***	-1.83***	-0.18	-1.66***
					(0.04)	(0.02)	(0.35)	(0.44)
Constant	-0.00	1.39	0.53***	-0.58***	-0.31***	2.75***	0.90**	1.79*
	(0.06)	(0.89)	(0.07)	(0.18)	(0.11)	(0.08)	(0.40)	(0.92)
Observations	2587	2587	2587	2587	2587	2587	2587	2587
Pseudo R^2	0.20	0.20	0.31	0.31	0.36	0.36	0.39	0.39

Reference category for dependent variable: investing in a cash waqf.
Omitted investor group: Muslim commoner.
Omitted date range: 1750-74.
Omitted court: Central Istanbul.
Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1
Data: Waqfs of the Bab, Central Istanbul, and Galata courts recorded in Aydın et al. (2015) and gedik transactions in our court registers spanning 1750-1831

Table 2 also provides guarded support for hypothesis 3, which concerns the share of real estate in the investor's portfolio. Political elites were often granted land and buildings in return for their services, or they were allowed to acquire immovable properties through shady means. What matters here is that their portfolios were weighted heavily in favor of real estate. Regardless of controls, they appear to be more likely to invest in classic waqfs, whose corpus had to consist of real estate, over cash waqfs (specifications 1, 3, 5, 7); possibly due to their small numbers in our data set, the coefficients are statistically insignificant. Eight additional specifications are given in Appendix D. Specifications 5-8 repeat the exercise with data limited

to registrations; and specifications 9-12 aggregate all Muslim investors, regardless of social status, into a single group. These robustness checks all show that our basic results are invariant to how investors are grouped. Christians are consistently more likely to invest in gediks and consistently less likely to invest in classic waqfs.

Our second test uses waqf-deed data drawn from Aydın et al. (2015) to examine the determinants of wealth invested in cash waqfs (Table 3). The trends discussed in sections 6-8, and in particular the emergence of a very lucrative gedik market, make one expect a decline during the century preceding the Gülhane Edict. The reason for limiting this particular test to cash waqfs is that the deed of a classic waqf listed the endowed real estate without appraisals, hindering comparability. We run the following regression using ordinary least-squares:

$$endowment\ size_i = \alpha_0 + \alpha_1 investor_i + \tau_t + \kappa_t + \varepsilon_i,$$

where the dependent variable, $endowment\ size_i$, measures the investment in cash waqfs by investor group i. Endowment sizes were recorded in multiple monetary units; for comparability, we standardize them in logarithms of inflation-adjusted silver.

Three findings stand out. First, the specifications with time controls (2 and 4) indicate that investments in cash waqfs fell dramatically in the late 1700s and early 1800s, suggesting that capital was being diverted elsewhere, almost certainly to gediks. A complementary factor may have been that Istanbul's wealth was shifting in favor of groups for whom the expropriation risk was low anyway, namely, Christians. Second, in all specifications with controls (2-4), the Christian coefficient is positive. Remember that Christians formed few waqfs, because they could not do so without a costly permit. Most of the waqfs that they did establish were cash waqfs, and they were founded in the century preceding the Gülhane Edict. These cash waqfs must have been large enough to justify the high cost of obtaining permission from Muslim clerics and the Sultan. Finally, regardless of specification, the Muslim political elite coefficient is positive. This is intriguing in the light of the tests reported in Table 2, which suggested that they were more likely to invest in classic waqfs than in cash waqfs. Insofar as they made liquid investments, they would have opted for cash waqfs over gediks. This is for two reasons. First, they were especially likely to face expropriation; and, second, unlike classic waqfs, cash waqfs never became major targets of expropriation. Sultans left cash waqfs alone because of the smallness of these investments and the relative difficulty of locating their capital; the caretaker could claim that it was trapped in unperforming loans. Sultans seeking to appropriate wealth

prioritized larger investments. Appendix E contains eight robustness checks. Specifications 5-8 repeat the exercise with more disagregated Muslim investor groups; and specifications 9-12 do so with more aggregated ones. The reported conclusions are unaffected.

Table 3. Wealth invested in cash waqfs by Istanbul's investor groups, 1600-1850

VARIABLES	(1) log real endowment	(2) log real endowment	(3) log real endowment	(4) log real endowment
Muslim political elite	0.36*	0.56***	0.38***	0.41***
	(0.17)	(0.15)	(0.11)	(0.13)
Muslim economic elite	-0.01	0.10	-0.00	-0.03
	(0.14)	(0.11)	(0.05)	(0.07)
Muslim military	0.19	0.25**	0.17*	0.15
	(0.12)	(0.09)	(0.09)	(0.09)
Christian	0.46	0.95***	0.48	0.97***
	(0.44)	(0.33)	(0.31)	(0.16)
1625-49		-0.78***		-0.51*
		(0.24)		(0.26)
1650-74		-0.10		-0.62**
		(0.31)		(0.28)
1675-99		-0.22		-0.36
		(0.22)		(0.32)
1700-1724		-0.23		0.10
		(0.29)		(0.30)
1725-49		-0.53		-0.01
		(0.35)		(0.22)
1750-74		-1.27***		-0.02
		(0.25)		(0.28)
1775-99		-0.53		-0.40
		(0.35)		(0.25)
1800-1824		-1.27***		-0.98***
		(0.25)		(0.18)
1825-1849		-1.71***		-1.62***
		(0.27)		(0.25)
Court fixed effects	No	No	Yes	Yes
Constant	8.30***	9.13***	8.59***	9.36***
	(0.18)	(0.30)	(0.05)	(0.19)
Observations	2256	2256	2256	2256
R^2	0.01	0.16	0.13	0.25

Omitted investor group: Muslim commoner.
Omitted date range: 1600-24.
Omitted court: Central Istanbul.
Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1
Data: Cash waqfs recorded in Aydın et al. (2015).

In the foregoing regressions, a crude periodization is used to control for intemporal effects. It involves dividing time into quarter-century periods. Although this method suffices to show broad trends, it makes it difficult to identify finer interactions between time and investor

groups. How, say, might the inclination of Muslim political elites to invest in gediks have varied over time? And how might this variation have compared with that of Christians? The conventional way to answer this question would be to add into the regression time x *investor*$_i$ interaction terms. But every such addition would come at the expense of analytic power. Fortunately, General Additive Models (GAMs) can be used to capture fine intertemporal variations.[65] This technique allows the examination of intertemporal effects free of any functional assumptions, in other words, nonparametrically. In particular, it enables the estimation of how investment decisions change over time without the restriction of predefined periods. A major difference between Generalized Additive Models and conventional regressions of the types shown in Tables 2 and 3 is the lack of numerical output. Since the coefficients are not fixed, there is no single point estimate to represent the relationships of interest. Instead, the non-parametric relationships are visualized using graphs.

To test the effects of year and investor type on investment decisions using GAMs, we estimate the following equation:

$$\gamma_i = \alpha_i + s_1(Year_i) + s_2(Investor_i) + s_3(Year_i, Investor_i) + s_4(Court_i) + \epsilon_i$$

where γ_i is the binary variable that takes the value 1 if the investment is a gedik and 0 if the it is a waqf. α_i is the intercept. The interactions between each investor type and years are smoothed by the function s_n with $n \in \{1,2,3\}$. $s_4(Court_i)$ is the court random effect to account for differences induced by applying to different courts. ϵ_i is the error term, where $E(\epsilon_i) = 0$ and $var(\epsilon_i) = \sigma^2$.[66]

Fig. 8 shows how the predicted probabilities vary over time. Most striking is the Christian lead in investing in gediks. The tendency of Christians to invest in gediks starts rising in the early 1700s, a half-century before Muslims join in. Also, the Christian probability remains higher than that of Muslims thereafter. This is consistent with the regressions presented in Tables 2 and 3; and it reflects the stronger property rights that Christians attained by virtue of foreign protections. The intra-Muslim variations are also instructive. In line with Tables 2 and 3, they show military elites were quickest to enter the gedik market and that political elites were the last

[65] GAMs provide an advantage where theoretical claims warrant non-linear effects that cannot easily be captured by polynomials. In such cases, it is helpful to refrain from imposing linear functional forms in empirical tests. On the method, see Beck and Jackman (1998), Neundorf (2010), and Grasso, Farrall, Gray, Hay, and Jennings (2017).

[66] Following Keele (2008), the preferred parameter selection criterion is generalized cross-validation that automatically selects smoothing parameters.

to join in. Officers supervised the janissaries who boosted gedik values through racketeering; they would have shared in the rents that janissaries earned in return for the protection they gave to securitized businesses. Political elites were laggards because, as the most vulnerable group to outright confiscation, they were most in need of the security afforded by waqfs. But as the security afforded by waqfs diminished, they, too, became increasingly likely to invest in gediks.

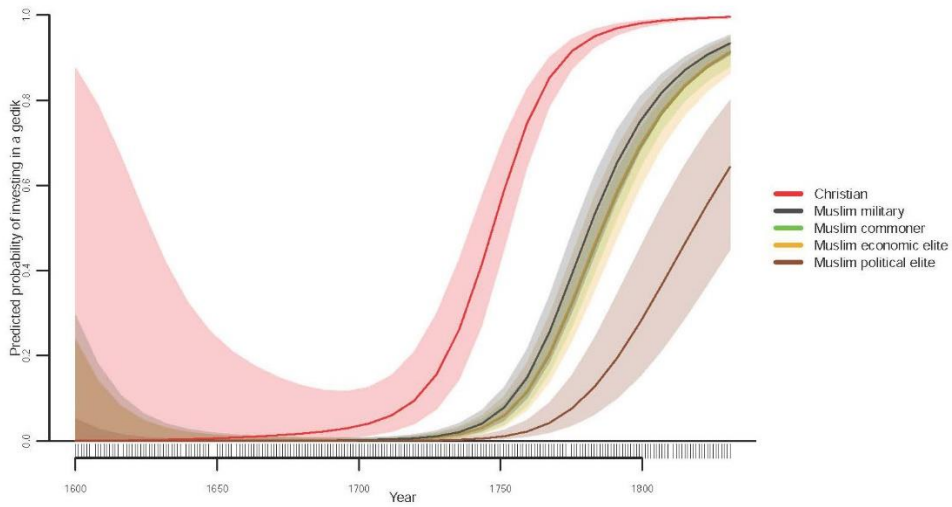

Fig. 8. Variations over time in the probability of investing in gediks, by investor group, 1600-1831. The bands of the curves represent confidence intervals.The data come from the 44 court registers listed in notes 36-38. The estimation uses GAMs.

GAMs can be used also to compare the time trends of all three of our long-term invetment instruments in a standardized way, using the same controls. To test the effects of year on investment decisions, we use the following model:

$$m_i = \alpha_i + s_1(year_i) + s_2(court_i) + \epsilon_i,$$

where m_i is the factor variable that takes the value 0 if the investment is classic waqf, 1 if the investment is cash waqf, and 2 if the investment is gedik. α_i is the intercept. The effect of year is smoothed by the smoothing function s_1. $s_2(court_i)$ is the court random effect to account for differences in induced by applying to different courts. $\epsilon_i$is the error term, where $E(\epsilon_i) = 0$ and $var(\epsilon_i) = \sigma^2$.[67]

[67] Again, the preferred parameter selection criterion for smoothing is generalized cross-validation.

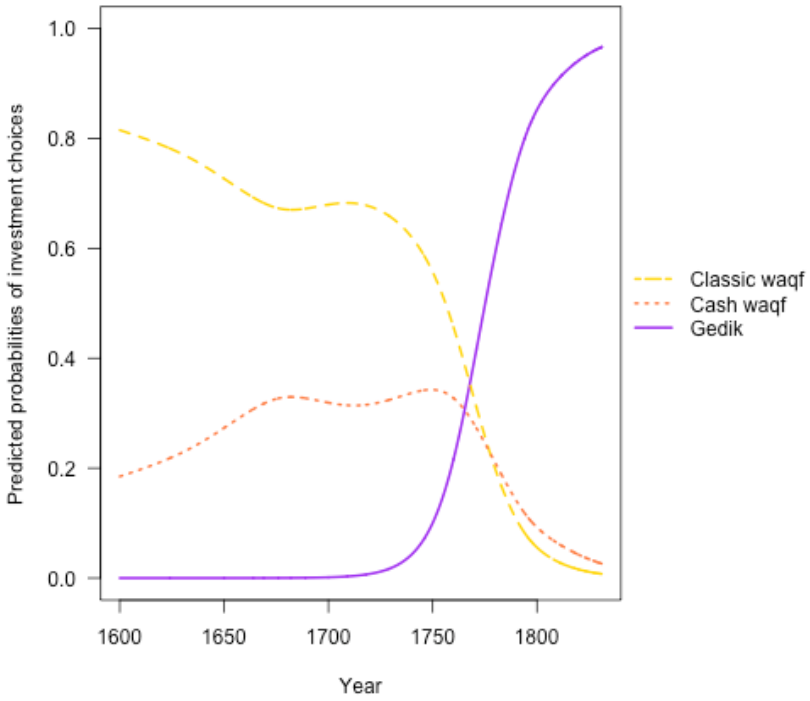

Fig. 9. Variations over time, from 1600 to 1831, in investment probabilities by type of investment for the Bab, Central Istanbul, and Galata courts: classic waqf, cash waqf, and gedik. The gedik data come from the 44 court registers listed in notes 36-38 and the new waqf data from the entries in Aydın et al. (2015) for the Bab, Galata, and Central Istanbul courts. The estimation uses GAMs.

Fig. 9 depicts the results. What jumps out is that the explosion of the gedik market coincided with the shinkage of new investments in classic waqfs. The two time trends practically mirror one another. Cash waqfs followed classic waqfs with a lag of about a half-century. This is consistent with the shift of investment resources from classic waqfs to both cash waqfs and gediks. Evidently, at least for a while, the loss of new cash waqfs because of investors opting for gediks was counterbalanaced by investors switching from increasingly less secure classic waqfs to cash waqfs.

11. From Religion-Based Privileges to General Secular Rights

The foregoing interpretation of the Gülhane Edict is consistent with observations that Douglass North, John Wallis, and Barry Weingast (2009, pp. 148-58) put forth concerning the expansion of rights in "limited-access orders"—states in which, unlike "open-access orders," narrow factions monopolize valuable social, economic, and political rights. In a limited-access order,

dominant factions justify their privileges through an ideology. Often they use religion to delineate, on the one hand, hierarchies, privileges, and tax obligations, and on the other, meritorious and punishable acts. The governing coalition seeks to maintain internal harmony. If evolving conditions make the intra-coalition distribution of benefits unsustainable, institutional adjustments will be negotiated to keep the coalition viable, they observe. Meanwhile, outside factions that somehow gain prominence will be brought into the ruling coalition, if only to preempt their joining a rival political coalition. The reforms undertaken to lessen intra-elite tensions may replace idiosyncratic privileges with uniform rights, expanding the constituency inclined to defend the prevailing order. Elites whose outside opportunities improve will receive concessions from the ruler ir order to secure their loyalty. As conditions change, successful recontracting raises a limited-access order's likelihood of survival.

The specifics of the Ottoman act of 1839 match the scenarios that North, Weingast, and Wallis associate with long-living limited-access orders. The edict helped to sustain the Ottoman state for almost another century, through World War I. In the immediate run, it eliminated a source of constant friction between the Sultan and officials weary of expropriation. In outlawing sectarian discrimination, it recognized and legitimized already achieved realignments in inter-faith relations. Dampening the alienation of Christian-Ottomans, it diminished their incentives to work with foreigners against imperial interests. Finally, and most critical to the empire's longevity, it gave the Sultan and elites of all faiths a common interest in economic modernization. Subsequent decades saw massive reforms that accelarated economic growth, benefiting diverse groups. The gainers included the state, whose tax revenues rose by an order of magnitude (Karaman and Pamuk 2010, pp. 619-24).

In providing a historically important illustration of the North, Wallis, and Weingast claims, this paper adds two complementary insights concerning resistance to institutional reforms in limited-access orders. If a withdrawal of customary elite rights belongs to a package that compensates losers with superior rights, violent reactions are unlikely. Similarly, if an expansion of rights to an out-group legitimizes already achieved distributional shifts, the former in-group is likely to greet the legal adjustment with resignation, peacefully. By the same token, violence is probable when a ruler attempts to form a new alliance that excludes former allies or to change the rights of coalition members without compensating the losers. In the first quarter-millennium of the Ottoman state (1299-1922), the sultan reconstituted his ruling coalition at certain

junctures, with some groups gaining at the expense of others. These were bloody affairs.[68] The quarter-millennium covered here has touched on another recontracting case whose losers reacted violently. Once the backbone of the Ottoman military, the janissaries became dispensable as technological advances devalued semi-professional soldiers; and their stubborn resistance to reorganization, due to vested interests, sealed their fate (Aksan 2007, chap. 5). Because of their rent seeking through brute force, they had become a social menace anyway. Their replacements were more disciplined, more open to technological change, more comfortable with Western transplants, and generally more distant to clerics. The 1826 showdown started as their last-ditch effort to subvert pending initiatives. The janissaries sensed that reforms would take away what little power they retained, without compensation.

In granting general property rights, the edict set a prominent precedent for constraining the soverign through a social contract. Until then, he was bound only by Islamic law, which religious officials under his command interpreted opportunistically, to suit his needs (Zilfi 1988, chap. 5; Heyd 1961; Rubin 2017, chap. 8). The edict energized a dynamic that transformed the Ottoman state into a constitutional monarchy and, ultimately, ended monarchical rule in much of the Middle East. Another momentous dynamic that the edict stimulated was secularization. For the first time, the head of the Middle East's largest empire and the caliph of Sunni Islam treated his Muslim and non-Muslim subjects as equal under the law. He officially abrogated the principle that Muslims, by virtue of their religion, merited privileges deniable to Christians and Jews. The edict thus planted the seeds of secular movements that would push religion out of public life. Kemalism, the modernization program of Turkey's first Republican regime (1923-50), was the most radical. But Iran under the Pahlavis (1925-78), the Tunisia of Bourgiba and Ben-Ali (1957-2011), Egypt under Nasser (1952-70), Baathist Iraq (1968-2003), and Baathist Syria (1963-present) also pursued assertive secularism. With local variations, they all disestablished Islam as the basis of social order (Azak 2010; Amanat 2017, chaps. 8-12; Masri 2017, chaps. 12-15; Warburg 1982; Baram 2014, chaps. 2, 6-7; Pierret 2013, chaps. 2-3).

Just as religion did not become irrelevant to Ottoman social, economic, or political relations in 1839, so it did not wither away under the secular regimes established in the 1900s.

[68] One violent transformation came in the 15th century, when the Ottoman state, until then a small power neighboring a hegemon, became an ambitious empire (Kafadar 1995, pp. 138-50). The 16th century saw another troubled renegotiation among elites as the empire's administrative organization changed (Kunt 1983).

Though Islam became invisible in elite circles, the masses kept it alive outside the main centers of power. Besides, secular regimes made tactical retreats in the face of resistance to religious repression. Nevertheless, secular reforms left an indelible mark on the routines of daily life. Even where secularism has given way to Islamism, the role of Islam in everyday life remains, even for the pious, far diminished relative to the early 1800s. Consider the administration of justice. In the Ottoman Empire's heyday, Islamic courts treated non-Muslim testimony as inferior to that of Muslims (Kuran and Lustig 2012); and in daily life non-Muslims endured numerous indignities, such as restrictions on dress and modes of transport (Braude and Lewis 1982, chaps. 1, 6). The Gülhane Edict made all such discrimination illegal. Moreover, subsequent reforms transferred various clerical duties to secular professionals. Thus, in 1850 the opening of commercial courts narrowed the judicial roles of Muslim clerics; and in 1868 the first secular school for training top government servants transferred to secular teachers, including foreigners, educational duties that had been the preserve of professionals with formal Islamic training.

No country in the Middle East has made the transition from a limited-access order to an open-access order. Like the broader Muslim world, the region remains economically underdeveloped and politically repressive by global standards (Kuran 2018). In the 20th century, its Muslim-majority countries lost most of their non-Muslim minorities, partly due to repression and massacres. None of these disturbing realities detract from the historical importance of the Gülhane Edict. Vast inequalities in today's France and Russia (Piketty 2020, chaps. 4, 12) do not imply that the revolutions of 1789 and 1917 were epiphenomena. Similarly, the Middle East's current failures do not lessen the significance of 1839 to its historical development. No account of Middle Eastern history would be complete without taking account of the political realignments and secularization that the Gülhane Edict legitimized, reinforced, or initiated.

12. Institutional Causes of the Delay in Initiating Reforms

The existence of large constituencies that benefited from general property rights and secularization raises the question of why the 1839 reforms did not come earlier. Sections above have invoked resistance from clerics and janissaries. The weakening of the former and the annihilation of the latter allowed reforms to proceed with minimal violence. But this is not a complete explanation for the timing because, in principle, the potential winners could have bought off the expected losers. Noticing that the Islamic waqf was holding them back, Muslim

investors could have changed waqf law through collective action. They could have used their gains from relaxing the rules of the waqf partly to overcome clerical objections. Another remaining enigma is why it took so long for the Sultan to relinquish his right to expropriate. The Ottoman dynasty could have done so unilaterally, instantly removing the incentive for Muslims to establish waqfs in the first place.

To start with the second puzzle, two precedessors of Sultan Abdülmecit I, Selim III (r. 1789-1807) and Mahmut II (1808-39), were alarmed by how imperial confiscations distorted the investment choices of wealthy subjects. Each tried to lessen the consequent material insecurity by promising stronger property rights. Alas, their promises lacked credibility. Justifying fears that they would renege, both broke their promises in financial emergencies.[69] It took a momentous occasion like the Gülhane Edict to make general private property rights credible. The edict was announced as inaugurating a new era at a ceremony attended by Ottoman and foreign dignitaries. All top statesmen, from the Sultan on down, took an oath committing them to the edict's principles—an event without Ottoman precedent (Akyıldız 2011, pp. 2-3). By itself, though, the solemnity of this ceremony would not have provided the credibility needed to change Muslim investment patterns. It must have helped that capital was becoming more mobile across borders and that growing commerce with Europe and rising European immigration were creating lucrative new business opportunities (Eldem 1999; Rothman 2012). The Sultan needed to give Muslims the property rights that his Christian subjects already enjoyed in order to incentivize Europeans to do business with them, too. The willingness of Europeans to trade and pool capital with Muslims would increase insofar as Muslims could make credible commitments. In addition to increasing Muslim capital available for international ventures, stronger property rights would raise the reliability of Muslim promises. In sum, the Ottoman state's growing reliance on European financial and human capital contributed to making the promises of Abdülmecit I more credible than those of his predecessors.

Let us turn now to the first of this section's puzzles, why Muslims did not mobilize to change waqf rules that held them back. Research on Ottoman expropriations shows that expropriation risk varied over time and across groups. In the century up to 1839, merchants and

[69] Several Ottoman chroniclers of the 1700s and early 1800s had advised the Palace to limit confiscations for economic gains. Defterdar Sarı Mehmet Paşa (1717/1971) offers an example. In the decades preceding 1839, Ottoman sultans promised explicitly to end expropriations in 1812 and 1826 (Arslantaş 2017, pp. 231-34). For theoretical insights, see Veitch (1983).

artisans hardly suffered at all (Arslantaş 2019, Table 3). Low-risk groups could avoid handicapping themselves simply by investing in intruments other than waqfs. Our analysis shows, in fact, that Muslim commoners and economic elites—categories that would have included all merchants and artisans— were quicker than political elites to divert their investments from classic waqfs to gediks. This is consistent with the relative risks involved. It matters here, though, for another reason, too. Some Muslims did not need to mobilize for waqf reforms; they could simply walk away from the waqf with their feet. The downward trend in new waqfs (Fig. 9) is also relevant. It points to a shrinking of the broader constituency for reforming waqf law. Two other factors reducing the potential beneficiaries of a reform were the waqf nationalizations and privatizations already discussed. Each of these processes reduced the numbers with a stake in relaxing waqf rules.

The point remains that as late as 1839 there existed Muslim elites who controlled frozen assets. So massive was the waqf sector that decades of nationalization and privatization left vast resources under the control of surviving waqfs. As Muslims fell substantially behind their Christian compatriots, the caretakers and beneficiaries of these waqfs would have wanted the option of diverting their assets to higher-yielding investments. But undertaking the necessary collective action was no easy feat. For one thing, the prevailing rules prohibited inter-waqf cooperation; they also barred the use of waqf resources for political purposes (Kuran 2016). For another, any move to alter waqf law would have irked the beneficiaries of traditional rules. Such constituencies included not only clerics who earned rents from supervising waqfs but also elites who founded waqfs to secure largely private goods on the pretext of performing charity (Cansunar 2018).

At its emergence in the 700s, the waqf provided an ingenious solution to problems that threatened the economic viability of early Islamic states. Specifically, it spurred wealthy officials both to accumulate and to invest in public goods. If eventually it contributed to Muslim economic underperformance, this was an unanticipated by-product of an ingenious innovation that initially supported urban prosperity. The waqf helped to keep civil society anemic. This, too, was an unintended effect of rules meant to solve problems, in this case, misalignments between the incentives of waqf founders and caretakers. This paper adds that, a millennium after its emergence, the waqf had yet another unintended effect. It held Muslims back vis-à-vis the Christians living in their midst.

Whereas the waqf was absorbed into Islamic law, expropriation by the sovereign never secured Islamic approval as a governance tool. Under Islamic law, legitimate private wealth had to be respected. Although illegitimate wealth could be confiscated, it was not supposed to accumulate in the first place. For this reason alone, the clerics overseeing state policies could have charged their masters with abuse of authority. But that would have entailed huge personal risks, precisely because civil society was impoverished. Had civil society developed healthily, sultans could have been forced to stop expropriating much earlier than 1839. Muslim incentives to form waqfs would have faded sooner, spurring more Muslim investment in gediks.

13. External and Domestic Drivers of Institutional Change

Bold political reforms that alter the social contract may be responses to foreign-based existential threats. As with many states that found themselves underdeveloped with the rise of the West, the Ottoman Empire's 1839 reform act fits this pattern. The Sultan and elites understood that their society was ill-adapted to the emerging new global order. Institutional changes were undertaken to maintain power and independence. But neither the substance of the reforms nor their timing nor their peaceful reception can be explained solely with reference to the threat from abroad. The specifics of the new social contract reflect prior shifts in domestic distributions of wealth and power. The impetus for broadening property rights and ending the second-class status of non-Muslim minorities came from the ongoing enrichment of local Christians through new markets that emerged outside the supervision of the Muslim religious establishment. Muslim political elites willingly gave up longstanding religious and social privileges in order to start benefiting from the opportunities that accounted for the economic advances of their Christian compatriots. The Sultan, too, gave up something important to bring Muslim elites on board. To encourage wealthy Muslims to invest in high-return instruments, he voided his longstanding right to expropropriate at will. He himself got something valuable as part of the grand bargain. Investment in taxable financial financial instruments would rise, increasing the empire's fiscal capacity.

An influential literature on the global consequences of the West's economic ascent focuses on the choices of colonizers. For example, Acemoglu, Johnson, and Robinson (2001) attribute differences in non-Western development trajectories to variations in the institutions that European colonizers imposed on the colonized. And Caicedo (2019) shows that in Latin America

areas where Catholic missions gave indigenous inhabitants literacy and artisanal skills are educationally more advanced a half-millennium later. With respect to this broad literature, the foregoing analysis makes two contributions. It shows that in economically lagging countries major structural reforms can be driven by internal economic transformations. It also raises the question of why internally driven reforms took place in some parts of the world and not others. Systematic comparative investigations could yield insights into why some economic laggards, including not only Turkey but also Iran and Japan, escaped colonization altogether.

In many economic laggards, far fewer historical data sets exist on local patterns than on the policies of foreign governments and organizations. One reason is that Western players are more likely to have kept and preserved records of their activities, another that scholars have had easier access to Western records than to those maintained in (often poorly funded) archives of underdeveloped countries. As previously untouched data get coded and analyzed, opportunities will emerge to explore the laggards' own reactions to Western advances. This paper has demonstrated that such reactions are path-dependent. Pre-existing institutions, trends, and power relations determine whether reforms occur and, insofar as they do, their timing and content.

That the Gülhane Edict and the preceding transformations involved domestic constituencies and choices does not mean that foreign actors played no roles. By strengthening Christian property rights, treaty-based European protections contributed to the explosion of Istanbul's indigenous securities market. They were instrumental in altering the sectarian wealth distribution and, ultimately, in inducing a broad demand for general property rights. The paper's general lesson is not, then, that trajectories of the laggards can be studied without reference to the West. Rather, it is that the West's effects took forms dramatically different from the narratives that dominate analytic literatures on colonization. Certain huge transformations were among the unintended consequences of measures that outside powers took solely to promote their own political agendas. In strengthening the property rights of Christian Ottomans—even as those of Russians remained weak—Russian Tsars tried to cultivate allies who would assist them in future Ottoman-Russian wars. They did not mean to trigger a dynamic that would strengthen the property rights of the entire Ottoman population; nor did they aim to improve Ottoman fiscal capacity.

The broad analytic literature on the trajectories of laggards has started to appreciate the roles that religious institutions played both in holding back certain regions and in instigated

reforms. Broadening the discussion on the roles of Islamic institutions, this paper has identified additional harms of the Islamic waqf. The waqf limited Muslim participation in a primitive but very profitable new equity market, the market for gediks. In less than a century, this market transferred enormous wealth from Muslims to Christians, and it ended the waqf's self-sustaining centrality in the Ottoman economy. It also made the sultan commit credibly to respecting private property rights. Yet another effect of the flow of capital from waqfs to gediks was a rise in society's ability to pursue reforms. Unlike waqf founders and caretakers, gedik owners were free to use resources under their control to campaign for institutional reforms.

If religious institutions were fixed, their analytic roles would be limited. Through the works of McCleary and Barro (2019), Johnson and Koyama (2019), Cantoni, Dittmar, and Yuchtman (2018), and others, we know, though, that they do get reinterpreted. The factors that result in the redefinition of sacredness merit further investigation. Positional losses on the part of a religion's adherents may be among the pre-conditions. Another may be economic losses incurred by the religious authorities in charge of explicating scripture and its derivatives. The poorer clerics are, the lower their ability to resist institutional change.

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Appendix A: Long-run investment shares in a sample that includes estate cases

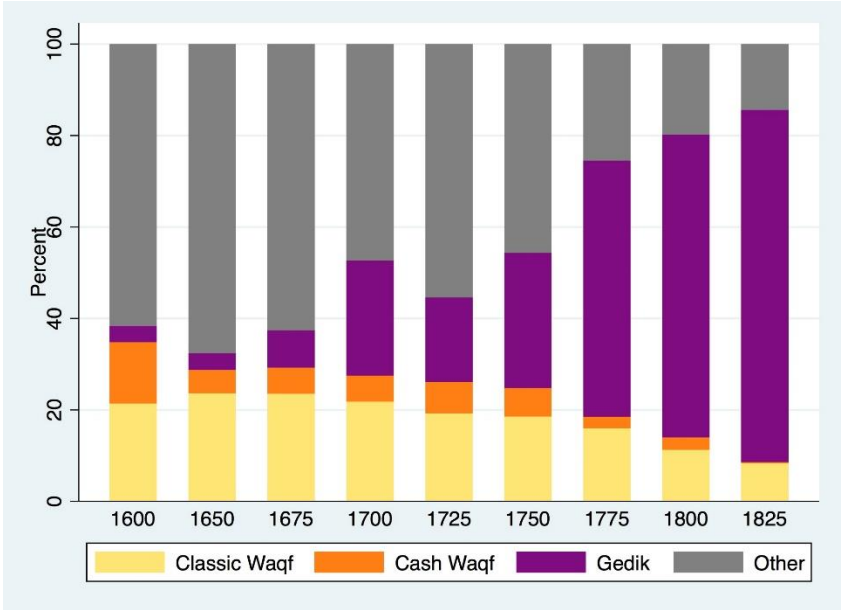

Fig. A1. Shares of cases involving long-run investments in Istanbul's court registers, including those found in estates, 1600-1831. The "other" category consists of partnerships and credit transactions. Each bar represents a 25-year time span beginning with the started year, except 50 years for the first and 6 years for the last. For the list of 44 registers in the sample, see notes 36-38.

Appendix B: Model of investment choice

Imagine that each of N investors, indexed by i, plays a one-shot game against the state. Each investor has three characteristics: wealth $z_i > 0$, the apportionment of this wealth between immovable and liquid assets $\alpha_i \in [0, 1]$, and private property rights $\beta_i \in [0, 1]$. When $\beta_i = 0$, the investor has no material security at all; at the other extreme, when $\beta_i = 1$, the investor's private property is fully secure. When $\alpha_i = 0$, the investor's wealth is entirely in immovables; at the other extreme, when $\alpha_i = 1$, the investor's wealth is fully liquid. The tax that the state imposes on taxable wealth depends on its fiscal capacity $f \in [0,1]$, which we treat as exogenous. This parameter captures the state's ability to locate wealth; this ability cannot be improved quickly (Scott 1998). The state's tax revenue is given by the function $t(f) = 1 - (1 - f)^2$. According to this function, tax revenue increases with fiscal capacity. As a practical matter, the f values of empirical interest are ones away from the extremes. The Ottoman state was neither powerless, nor unconstrained. Hence, the tax rate will be positive, yet under 100 percent.

Suppose that our investor has a choice between investing in the gedik market (g), where the return is r_g, in a classic waqf (w), which delivers r_w , or in a cash waqf, which returns r_m.

Remember that whereas Muslims were free to establish waqfs, non-Muslims needed special permission. The permission must have required a quid pro quo. This sectarian asymmetry may be captured by positing a cost of registering a waqf, c_i. This cost is zero if i is Muslim, positive otherwise. Another relevant cost is the state's cost of expropriating a waqf, c_w. This cost reflects the risk of alienating the clerics on whom the state depended for legitimation; as we shall see, clerics were capable of fomenting unrest.

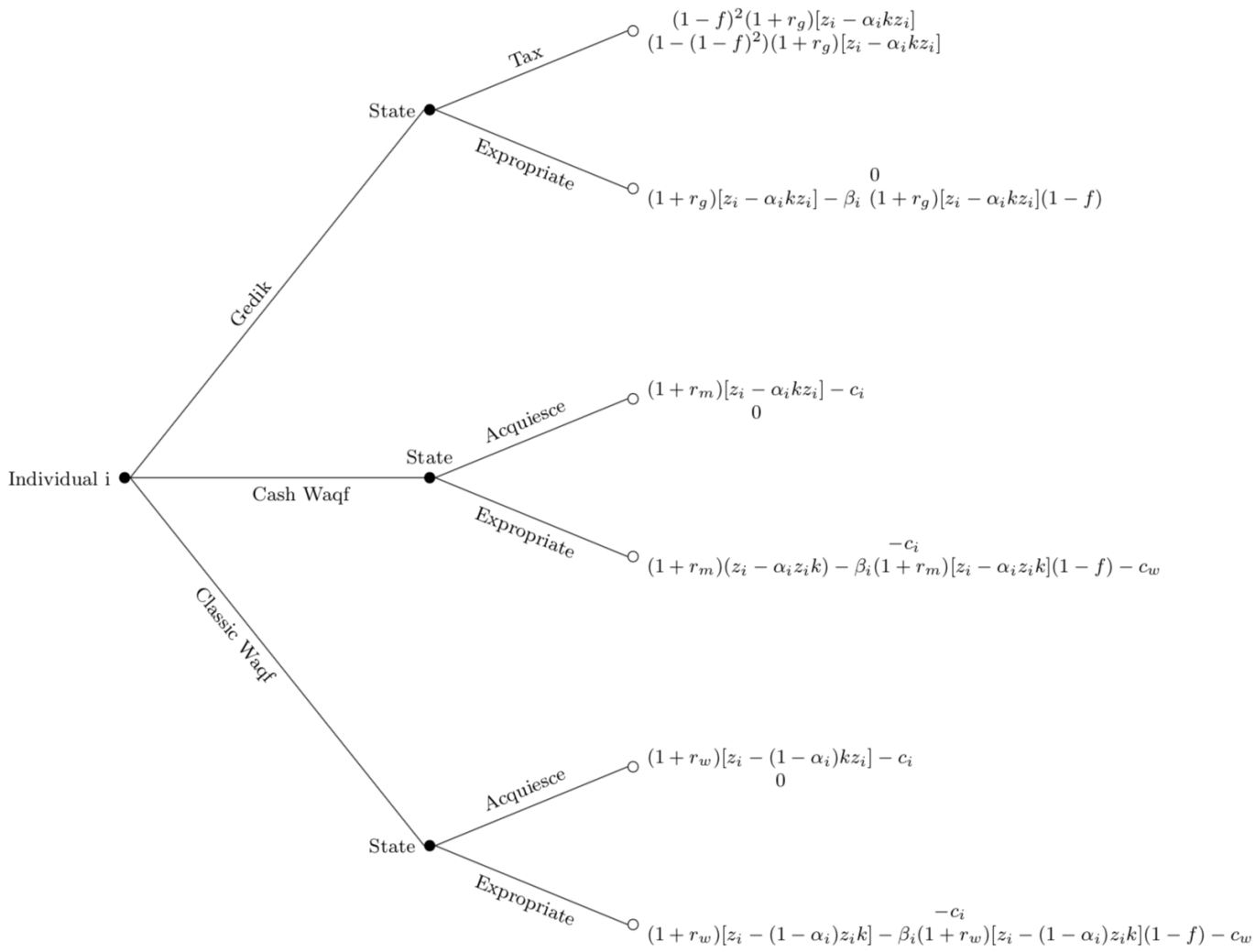

Fig. A2. The investment game between the state and investor. In each pair of payoffs, the top one belongs to the individual and the bottom one to the state.

The game consists of three stages, as shown in extensive form in Fig. A2. It begins with a move by nature, which selects z_i, β_i, α_i, f, c_i, k, and c_w. The investor and the state both observe

these parameters. The investor moves next, deciding whether to endow a classic waqf, a cash waqf, or invest in a gedik.

Only the immovables among an investor's assets ($z_i\alpha_i$) can be invested in a classical waqf; likewise, only liquid assets ($z_i(1-\alpha_i)$) can be invested in a gedik or cash waqf. Liquid assets can be converted to immovables, and vice versa, at a cost, k, per unit.

Let us now consider the consequences of the three choices. If the investor endows a classic waqf, in the next stage the state can either acquiesce or expropriate. In the latter case, the state's total cost is $\beta_i(1-f)(1+r_w)[\,z_i - z_i\,(1-\alpha_i)k] - c_w$. Similarly, if the investor endows a cash waqf, in the next stage the state can either acquiesce or expropriate. In the latter case, the state's total cost is $\beta_i(1-f)(1+r_m)[\,z_i - z_i(\alpha_i)\mathrm{k}] - c_w$. Observe that expropriating either type of waqf is prohibitively costly when c_w, the fixed cost of waqf expropriation, is very high. If the investor opts for a gedik, the government can either tax the investment or confiscate it. The government incurs a total cost $(1-f)\,\beta_i\left(1+r_g\right)[\,z_i - z_i(1-\alpha_i)k]$ if it expropriates investor i's gedik. This cost is zero if i has no property rights ($\beta_i = 0$) or state capacity is at its maximum ($f = 1$); and it equals the expropriated endowment when i's private property rights are complete ($\beta_i = 1$) and fiscal capacity is at its minimum ($f = 0$).

A subgame perfect Nash equilibrium of this game is one where gedik returns and gedik expropriation costs are both sufficiently high that the government prefers to tax gedik investments to bearing the cost of expropriation, and at least some investors prefer to invest in gediks rather than waqfs.

Proposition. A gedik market subgame equilibrium exists when the following conditions hold:

$$1.\ f + \beta_i > 1.$$

$$2.\ r_g > \frac{1+r_w}{(1-f)^2} - \frac{c_i}{(1-f)^2[1-(1-\alpha_i)k]z_i} - 1$$

$$3.\ r_g > \frac{(1+r_m)[1-\alpha_i k]}{[1-(1-\alpha_i)k](1-f)^2} - \frac{c_i}{[1-(1-\alpha_i)k]z_i(1-f)^2} - 1$$

Proof. The first condition requires that, for some i, the state's payoff from opting to tax gediks exceeds its payoff from expropriating them.

$$(1-(1-f)^2)\left(1+r_g\right)z_i > \left(1+r_g\right)z_i - \beta_i\left(1+r_g\right)z_i(1-f)$$

$$(1-(1-f)^2)z_i > z_i - \beta_i z_i(1-f)$$
$$(1-(1-f)^2) > 1 - \beta_i(1-f)$$
$$(-(1-f)^2) > -\beta_i(1-f)$$
$$f + \beta_i > 1$$

The second condition requires that, for some *i*, the payoff from investing in an un-confiscated gedik exceeds the payoff from investing in an un-confiscated classic waqf.

$$(1-f)^2(1+r_g)[1-(1-\alpha_i)k]z_i > (1+r_w)[1-(1-\alpha_i)k]z_i - c_i$$
$$(1-f)^2(1+r_g) > (1+r_w) - \frac{c_i}{[1-(1-\alpha_i)k]z_i}$$
$$(1+r_g) > \frac{1}{(1-f)^2}((1+r_w) - \frac{c_i}{(1-f)^2[1-(1-\alpha_i)k]z_i})$$

$$(1+r_g) > \frac{1}{(1-f)^2}((1+r_w) - \frac{c_i}{(1-f)^2[1-(1-\alpha_i)k]z_i})\text{-1}$$

Finally, the third condition requires that, for some *i*, the payoff from investing in an un-confiscated gedik exceeds the payoff from investing in an unconfiscated cash waqf.

$$(1-f)^2(1+r_g)[1-(1-\alpha_i)k]z_i > (1+r_m)[1-\alpha_i k]z_i - c_i$$
$$(1-f)^2(1+r_g) > \frac{(1+r_m)[1-\alpha_i k]z_i}{[1-(1-\alpha_i)k]z_i} - \frac{c_i}{[1-(1-\alpha_i)k]z_i}$$
$$(1-f)^2(1+r_g) > \frac{(1+r_m)[1-\alpha_i k]}{[1-(1-\alpha_i)k]} - \frac{c_i}{[1-(1-\alpha_i)k]z_i}$$
$$(1+r_g) > \frac{(1+r_m)[1-\alpha_i k]}{[1-(1-\alpha_i)k](1-f)^2} - \frac{c_i}{[1-(1-\alpha_i)k]z_i(1-f)^2}$$

$$r_g > \frac{(1+r_m)[1-\alpha_i k]}{[1-(1-\alpha_i)k](1-f)^2} - \frac{c_i}{[1-(1-\alpha_i)k]z_i(1-f)^2} - 1$$

The first of the three conditions holds when the state's payoff from taxing individual *i*'s gedik investments exceeds its payoffs from expropriating the gediks. The second holds when for individual *i*, the payoff from investing in taxed gediks exceeds that of investing in an un-confiscated classic waqf. The third holds when the payoff from investing in taxed gediks exceeds that of endowing an unconfiscated cash waqf.

Having shown how state capacity, composition of personal endowments, and property rights both affect investment decisions, we can perform comparative statics to illuminate how changes in parameters of interest affect the equilibrium. Three of these lead to the hypotheses of in section 4.

Define *l*, *m*, and *n* as follows:

$l = f + \beta_i > 1;$

$m = \frac{1+r_w}{(1-f)^2} - \frac{c_i}{(1-f)^2[1-(1-\alpha_i)k]z_i} - 1;$

$n = \frac{(1+r_m)[1-\alpha_i k]}{[1-(1-\alpha_i)k](1-f)^2} - \frac{c_i}{[1-(1-\alpha_i)k]z_i(1-f)^2} - 1.$

The following comparative statics lead to hypotheses 1, 2, and 3, respectively.

1) $\frac{\partial m}{\partial c_i} = -\frac{1}{(1-f)^2[1-(1-\alpha_i)k]z_i} < 0, \frac{\partial n}{\partial c_i} = -\frac{1}{[1-(1-\alpha_i)k]z_i(1-f)^2} < 0.$

The second and third conditions of the proposition require r_g to exceed both *m* and *n*. As ci increases, both *m* and *n* fall, making it more likely that r_g will exceed them. The signs of these two derivatives thus show that, for a given value of the state's fiscal capacity, *f*, as the cost of endowing a waqf increases, an investor is more like to invest in a gedik over, respectively, a classical waqf and a cash waqf.

2) $\frac{\partial l}{\partial \beta_i} = 1 > 0.$

The first condition of the proposition requires *l* to exceed 1. When this condition holds, the state prefers to people invest in gediks and tax their gains than to expropriate them. This becomes more likely as β_i increases. Thus, as the private property rights of the investor strengthen, for a given value of the state's fiscal capacity, *f*, that individual becomes more likely to invest in a gedik over endowing either a cash or a classical waqf.

3) $\frac{\partial m}{\partial \alpha_i} = \frac{c_i k}{(1-f)^2[1-(1-\alpha_i)k]^2 z_i} > 0.$

The second condition of the proposition is satisfied when r_g exceeds *m*. By causing *m* to rise, an increase in α_i makes that less likely, which then reduces the incentives to invest in a gedik. In other words, as the proportion of the immovable assets in an investor's wealth increases, for a given value of the return from investing in a gedik, r_g, that person becomes less likely to invest in a gedik over a cash waqf.

Appendix C: Average prices using inflation-adjusted silver

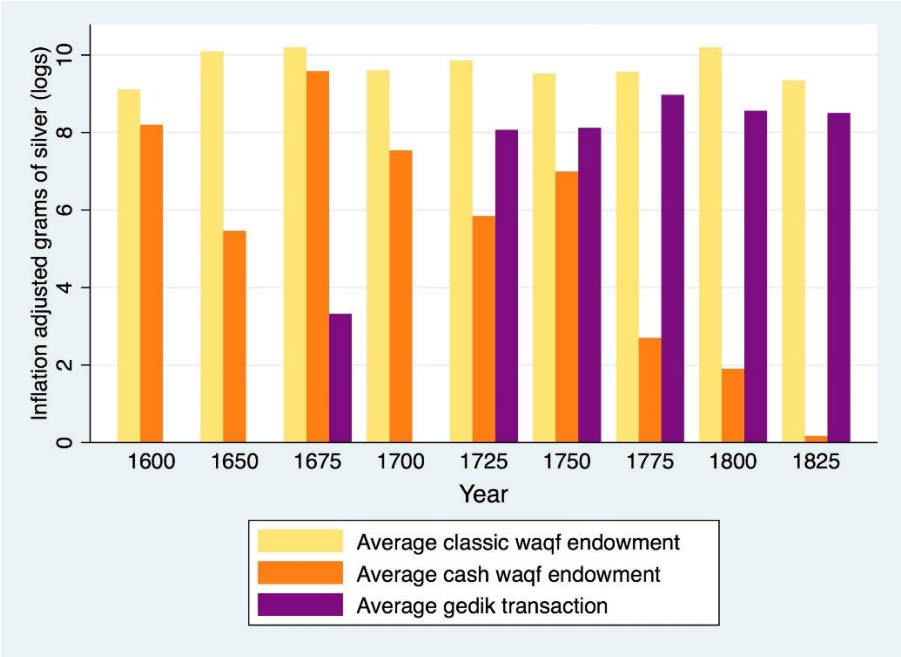

Fig. A3. Average investments in the two waqf types and gediks, 1600-1831, measured in logs of inflation-adjusted grams of silver. The average house price is used as a proxy for a classic waqf investment. Computed from the 44 court registers listed in notes 36-38.

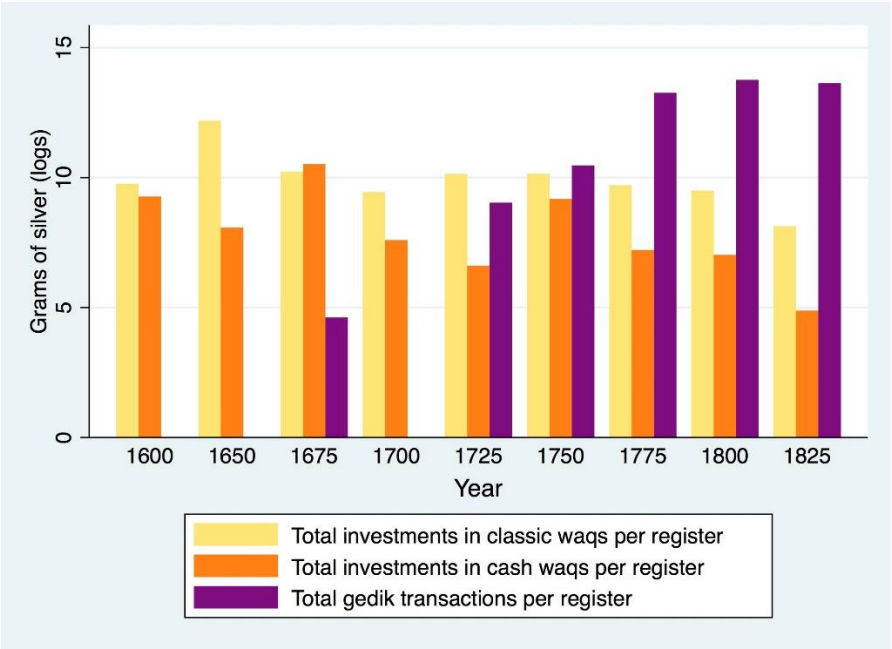

Fig. A4. Total investments in the two waqf types and gediks per register, 1600-1831, measured in logs of grams of silver. The average house price is used as a proxy for a classic waqf investment. Computed from the 44 court registers listed in notes 36-38.

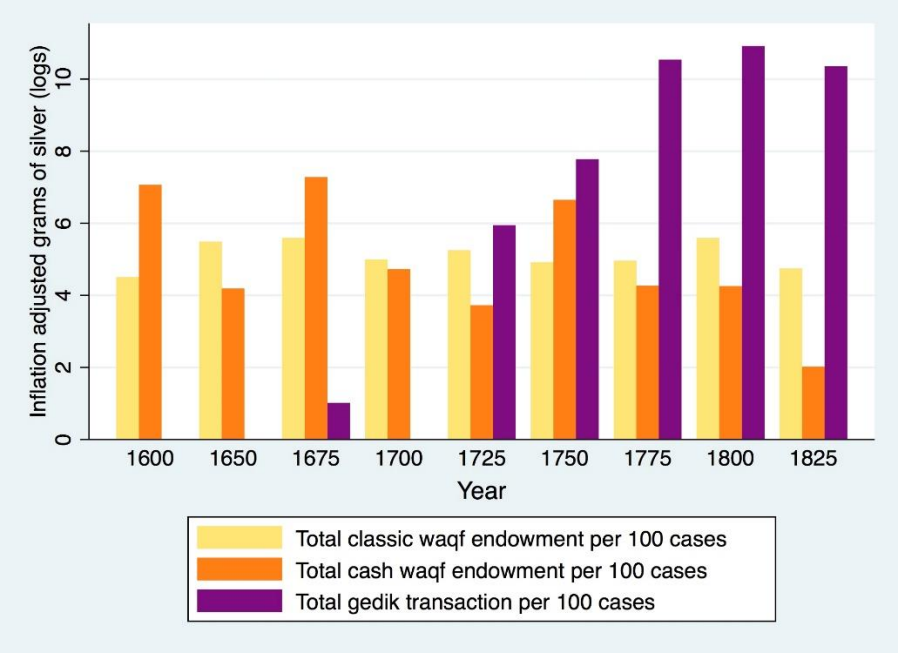

Fig. A5. Total investments in the two waqf types and gediks per 100 court cases, 1600-1831, measured in logs of inflation-adjusted grams of silver. The average house price is used as a proxy for a classic waqf investment. Computed from the 44 court registers listed in notes 36-38.

Appendix D: Robustness checks for investment probabilities

Table A1. Probabilities of investing in a classic waqf or gedik over a cash waqf: Istanbul's investor groups, 1750-1831 (trials omitted)

VARIABLES	(5) Classic waqf	(5) Gedik	(6) Classic waqf	(6) Gedik	(7) Classic waqf	(7) Gedik	(8) Classic waqf	(8) Gedik
Muslim political elite	0.36	-0.95***	0.30	-1.05***	0.35	-1.40***	0.26	-1.38***
	(0.31)	(0.25)	(0.29)	(0.14)	(0.33)	(0.26)	(0.30)	(0.23)
Muslim economic elite	0.12	0.27	0.11	0.19	0.09	-0.01	0.10	0.01
	(0.31)	(0.44)	(0.39)	(0.40)	(0.28)	(0.41)	(0.35)	(0.41)
Muslim military	-1.24***	0.48***	-1.06***	0.14	-1.19***	0.19	-1.06***	0.14
	(0.23)	(0.11)	(0.31)	(0.18)	(0.25)	(0.18)	(0.31)	(0.15)
Christian	-2.36***	2.76***	-2.16***	2.51***	-2.34***	2.59***	-2.24***	2.53***
	(0.77)	(0.48)	(0.80)	(0.53)	(0.75)	(0.56)	(0.80)	(0.58)
1775-99			-0.66***	1.81*			-0.72***	0.98
			(0.24)	(1.01)			(0.25)	(0.76)
1800-24			-1.09***	2.46***			-1.31***	1.01
			(0.11)	(0.63)			(0.15)	(0.98)
1825-31			-1.46	3.27**			-1.84	1.08
			(0.92)	(1.31)			(1.15)	(1.63)
Bab court					0.37***	-3.75***	-0.46	-3.38***
					(0.05)	(0.08)	(0.36)	(0.51)
Galata court					0.39***	-1.84***	-0.18	-1.67***
					(0.04)	(0.02)	(0.35)	(0.44)
Constant	-0.00	1.38	0.53***	-0.62***	-0.31***	2.74***	0.90**	1.75*
	(0.06)	(0.90)	(0.08)	(0.16)	(0.11)	(0.09)	(0.40)	(0.93)
Observations	2576	2576	2576	2576	2576	2576	2576	2576
Pseudo R^2	0.20	0.20	0.31	0.31	0.37	0.37	0.39	0.96

Reference category for dependent variable: investing in a cash waqf.
Omitted investor group: Muslim commoner.
Omitted date range: 1750-74.
Omitted court: Central Istanbul.
Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1
Data: Waqfs of the Bab, Central Istanbul, and Galata courts recorded in Aydın et al. (2015) and gedik transactions drawn from our court registers spanning 1750-1831.

Table A2. Probabilities of investing in a classic waqf or gedik over a cash waqf: Istanbul's investor groups, 1750-1831 (all Muslim elites aggregated)

VARIABLES	(9) Classic waqf	(9) Gedik	(10) Classic waqf	(10) Gedik	(11) Classic waqf	(11) Gedik	(12) Classic waqf	(12) Gedik
Muslim elite	-0.51**	0.11	-0.39	-0.14	-0.48**	-0.25	-0.41	-0.28
	(0.25)	(0.12)	(0.27)	(0.18)	(0.24)	(0.20)	(0.27)	(0.22)
Christian	-2.37***	2.66***	-2.19***	2.44***	-2.35***	2.49***	-2.27***	2.45***
	(0.79)	(0.51)	(0.80)	(0.56)	(0.77)	(0.59)	(0.80)	(0.61)
1775-99			-0.65**	1.77*			-0.73***	0.95
			(0.27)	(0.98)			(0.26)	(0.70)
1800-24			-1.13***	2.43***			-1.38***	1.02
			(0.15)	(0.61)			(0.16)	(0.95)
1825-31			-1.63*	3.28**			-2.01*	1.14
			(0.94)	(1.31)			(1.15)	(1.59)
Bab court					0.34***	-3.72***	-0.56	-3.33***
					(0.06)	(0.07)	(0.36)	(0.51)
Galata court					0.43***	-1.84***	-0.18	-1.64***
					(0.03)	(0.02)	(0.35)	(0.42)
Constant	0.04	1.47	0.56***	-0.52***	-0.28*	2.85***	0.99***	1.83**
	(0.06)	(0.92)	(0.08)	(0.15)	(0.15)	(0.15)	(0.38)	(0.90)
Observations	2587	2587	2587	2587	2587	2587	2587	2587
Pseudo R^2	0.17	0.17	0.30	0.30	0.35	0.35	0.38	0.38

Reference category for dependent variable: investing in cash waqf.
Omitted investor group: Muslim commoner.
Omitted date range: 1750-74.
Omitted court: Central Istanbul.
Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1
Data: Waqfs of the Bab, Central Istanbul, and Galata courts recorded in Aydın et al. (2015) and gedik transactions drawn from our court registers spanning 1750-1831.

Appendix E: Robustness checks for cash waqf sizes by group

Table A4. Wealth invested in cash waqfs by Istanbul's investor groups, 1600-1850 (Muslim elites disaggregated further)

VARIABLES	(5) log real endowment	(6) log real endowment	(7) log real endowment	(8) log real endowment
Paşa	1.12***	1.26***	1.00***	1.08***
	(0.25)	(0.24)	(0.20)	(0.23)
Efendi	0.25	0.49**	0.29**	0.36***
	(0.20)	(0.17)	(0.11)	(0.12)
Beşe	-1.04**	-1.27***	-0.77***	-0.95***
	(0.38)	(0.39)	(0.23)	(0.25)
Ağa	0.22*	0.32***	0.19*	0.21*
	(0.13)	(0.10)	(0.10)	(0.11)
Çelebi	-0.26	-0.66**	-0.18	-0.49
	(0.31)	(0.31)	(0.37)	(0.36)
Bey	0.15	0.32**	0.14	0.22*
	(0.17)	(0.12)	(0.15)	(0.12)
Muslim titled woman	-0.02	0.16	-0.02	-0.01
	(0.17)	(0.14)	(0.05)	(0.08)
Christian	0.47	0.97***	0.47	0.99***
	(0.44)	(0.33)	(0.31)	(0.16)
1625-49		-0.78***		-0.51*
		(0.25)		(0.26)
1650-74		-0.83***		-0.57*
		(0.29)		(0.29)
1675-99		-0.46		-0.30
		(0.34)		(0.31)
1700-1724		-0.07		0.12
		(0.32)		(0.31)
1725-49		-0.20		0.01
		(0.23)		(0.22)
1750-74		-0.23		-0.02
		(0.30)		(0.28)
1775-99		-0.55		-0.41
		(0.36)		(0.26)
1800-1824		-1.29***		-1.00***
		(0.25)		(0.19)
1825-1849		-1.74***		-1.64***
		(0.27)		(0.25)
Court fixed effects	No	No	Yes	Yes
Constant	8.31***	9.13***	8.60***	9.36***
	(0.18)	(0.30)	(0.05)	(0.20)
Observations	2256	2256	2256	2256
R^2	0.01	0.17	0.13	0.26

Omitted investor group: Muslim commoner.
Omitted date range: 1600-24.
Omitted court: Central Istanbul.
Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1
Data: Cash waqfs recorded in Aydın et al. (2015).

Table A5. Wealth invested in cash waqfs by Istanbul's investor groups, 1600-1850 (all Muslim elites aggregated)

VARIABLES	(9) log real endowment	(10) log real endowment	(11) log real endowment	(12) log real endowment
Muslim elite	0.16	0.27***	0.16**	0.15*
	(0.12)	(0.09)	(0.06)	(0.08)
Christian	0.46	0.94***	0.49	0.98***
	(0.44)	(0.33)	(0.32)	(0.16)
1625-49		-0.77***		-0.51*
		(0.24)		(0.25)
1650-74		-0.86***		-0.58**
		(0.27)		(0.28)
1675-99		-0.53		-0.32
		(0.35)		(0.32)
1700-1724		-0.07		0.14
		(0.32)		(0.31)
1725-49		-0.18		0.04
		(0.22)		(0.22)
1750-74		-0.19		0.02
		(0.30)		(0.28)
1775-99		-0.49		-0.36
		(0.35)		(0.25)
1800-1824		-1.22***		-0.93***
		(0.25)		(0.19)
1825-1849		-1.67***		-1.58***
		(0.28)		(0.26)
Court fixed effects	No	No	Yes	Yes
Constant	8.30***	9.09***	8.57***	9.30***
	(0.18)	(0.31)	(0.06)	(0.19)
Observations	2256	2256	2256	2256
R^2	0.01	0.15	0.13	0.25

Omitted investor group: Muslim commoner.
Omitted date range: 1600-24.
Omitted court: Central Istanbul.
Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1
Data: Cash waqfs recorded in Aydın et al. (2015).