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The medieval church and the foundations of impersonal exchange

Benito Arruñada and Lucas López-Manuel

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The Medieval Church and the Foundations of Impersonal Exchange

Benito Arruñada[1]

Lucas López-Manuel[2]

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Abstract

By refining the moral code and enforcing it through the new 'mendicant' orders, the Church of the 13th century laid the cognitive, interpersonal, and institutional groundwork for large-scale cooperation based on one-shot transactions between strangers. However, net outcomes at these three levels stem from opposite-sign effects coherent with the specialization of specific branches within the Church: while exposure to Dominicans had positive effects on traits favoring impersonal exchange, consistent with their emphasis on rationality, exposure to Franciscans had negative effects, related to their emotionality, and favoring personal exchange. Moreover, the effects of exposure to the secular clergy were insignificant. Our causal identification relies on refuting multiple confounders, comparing second-generation migrants, and leveraging within-country differences in mendicants' exposure in Europe and Mesoamerica.

JEL Classification Numbers: *O10, Z12, Z13.*

Keywords: cultural change, values, institutions, religion, Catholic Church, persistence, Late Middle Ages

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[1] Pompeu Fabra University, Barcelona GSE and FEDEA; Barcelona, Spain. Email: benito@arrunada@upf.edu.

[2] University of Vigo and ECOBAS; Vigo, Spain. Email: lucas.lopez@uvigo.gal.

1. Introduction

Evolution equipped humans for personal exchange. After thousands of years in close-knit communities, humans developed traits that fostered cooperation within their group and distrust towards strangers (Diamond, 1997; Fehr & Henrich, 2003; Powers et al., 2016; Seabright, 2004). Nevertheless, impersonal exchange is now common, and the extent of large-scale cooperation through one-shot exchanges between strangers positively correlates with social and economic development across and within societies. According to a multidisciplinary body of research in cognitive and social sciences, this transition towards impersonal exchange has been enabled by cultural and institutional changes that domesticated our innate psychology for ingroup cooperation (Boyd et al., 2003; Greif, 2002; Henrich et al., 2010; North, 1990; Powers et al., 2016).

The prevailing view is that the Renaissance, the Reformation, and the Enlightenment furthered in the West cultural and institutional settings based on impersonal prosociality and the rule of law, paving the way to impersonal exchange, and social and economic growth (Boorstin, 1983; Gibbon, 1776; Pinker, 2018; Voltaire, 1756; Weber, 1904). Allegedly, these post-Renaissance events ended the intellectual and technological darkness of the European Middle Ages, and the Catholic Church's monopolizing and irrational efforts to control people's beliefs and ideas stifled scientific work, hindered human capital accumulation, and impeded institutional development (Blasutto & de la Croix, 2023; Cabello, 2023; Drelichman et al., 2021; Finley et al., 2021; Squicciarini, 2020).

Conversely, this paper posits that the foundations of impersonal exchange can be traced back to the influence of the Catholic Church in the Late Middle Ages, channeled through the new 'mendicant' orders. It is therefore in line with revisionist historiographical works (Berman, 1983; Colish, 1997; Le Goff, 1980; Nemo, 2005) and recent empirical evidence (Castelló-Climent et al., 2018; Greif & Tabellini, 2017; Schulz et al., 2019; Valencia Caicedo, 2019) that see the Renaissance, the Reformation, and the Enlightenment as a continuation of a process initiated in the Middle Ages, in which the Church was not always a negative force. Figure 1 shows the cross-country correlation between exposure to the mendicant orders and impersonal exchange.

We focus on how the Medieval Church redefined its doctrine and organizational structure around the 13th century, considering the different approaches of two groups of mendicant or begging friars that eventually became integrated into the Church structure, namely, the Dominican and Franciscan orders. Elaborating on the consequences of these changes for the culture and institutions of populations exposed to the Medieval Church allows us to develop the testable predictions that we test empirically. Our findings offer implications for an understanding of the long-term consequences for the Catholic Church, the development of impersonal exchange, and the role of religions in the cultural evolution of societies.

2. Theoretical Background

2.1. Context: The Middle Ages and the Medieval Catholic Church

At the end of the 12th century, Europe was experiencing profound economic changes (Backman, 2003; Bartlett, 1993). Technological and organizational innovations—such as the three-field rotation system, the use of horses as draft animals, and improvements in shipbuilding and navigation (Hutchinson, 1955)—coupled with a substantial increase in temperature, raised the productivity of European fields. Such productivity gains not only resulted in the highest rates of population growth seen in the Middle Ages, but also facilitated an emerging process of urbanization.

These changes, added to a rise in trade and specialization, made cities the centers of economic activity. At the same time, the breakup of the Islamic Empire ended the blockade between the Muslim and Christian worlds in the Mediterranean, and the reorientation of the Byzantine Empire towards the East restored commercial routes with Asia. Meanwhile, trade fairs emerged throughout Europe and new financial instruments were developed, facilitating long-distance trade. The resulting gains from trade, the growing economic complexity, and the increasing availability of human capital eventually fostered greater specialization of the economy.

While these events laid the foundations for an embryonic capitalist system, they also challenged the Catholic Church. Economic growth posed new questions about the morality of business profits, labor relationships, commercial transactions with strangers, credit operations, and wealth accumulation that either conflicted with older Catholic positions or were absent in the casuistry

of the Early Medieval Church (Backman, 2003). Moreover, Europeans came into contact with new ideas, including the Aristotelianism and Neoplatonism that were rescued by Arab philosophers critical of Catholic theology (Hinnebusch, 1966).

The power of the Church was growing but uncertain. Even if the Gregorian Reformation had limited the role of kings in appointing bishops and enhanced the enforcement of rules forbidding simony and mandating the celibacy of the clergy (Backman, 2003; Berman, 1983; Ekelund et al., 1996; Tentler, 1977), the Church was still operating through two networks—the secular clergy and rural monasteries—that substantially depended on local rulers and suffered moral and education deficits. This equipped them badly to cope with the demand for renewing the moral code.

The Lateran councils, especially the fourth one, assembled by Pope Innocent III in 1215, sought to strengthen the Church through multiple organizational changes, mainly aiming to enhance the enforcement of rules on the education and conduct of the clergy. In parallel, the theology of penance—at the time, the key element of the belief system—and its enforcement mechanisms were renewed. Penitents must not only be absolved from guilt but also endure some temporal punishment in Purgatory, a doctrine that after "lengthy construction" was not formalized until 1274 (Le Goff, 1984).

Annual confession of sins was also made mandatory. Confession had been slowly evolving from primitive public confession, reserved for major sins, and performed only once in a lifetime, to private and recurrent confession, which was followed by private penance (Hebblethwaite & Donovan, 1979; Lea, 1896; Meens, 2014; Tentler, 1977). This evolution compelled true believers to self-examine their conduct and enabled a more sophisticated set of incentives based on subjective evaluation of moral performance by confessors and the tailoring of penances and even standards to the sinners' strength, taking penitents' merits into account, and allowing for trade of these merits, both within and between believers and saints (Arruñada, 2009).

Of course, such potential benefits are only reachable through faith. Moreover, they not only came at the price of greater potential for opportunism and rent-seeking on the part of priests and

the Church,[3] but required more capable preachers and confessors. Given the low numbers of priests, their lack of training and their corruption, priestly services had been scarce and of poor quality. To tackle this deficit, the Council insisted on stricter enforcement, professionalizing and raising the standards of the clergy by making theology lectures mandatory in every cathedral and expanding the list of forbidden misdeeds (Backman, 2003; Duggan, 2008; Tanner, 2016).

More critically though, Pope Innocent III (1198-1216) managed to channel a wave of widespread heretical uprisings that spread across Europe in the 12th century to add two specialized and centralized arms to the Church. These new arms were the first mendicant orders, whose members originally self-selected and were required much better education than average priests. This enabled them to effectively preach and teach by example, provide oral confession services, and face head-on the accelerating intellectual, social, and economic changes (Backman, 2003; Hinnebusch, 1966; Lea, 1896). Being well-educated and more specialized, mobile, and centralized, these new orders were likely to be more effective than the secular clergy in having a transformative effect, which seems consistent with their fast expansion and, as we will see, our empirical results.

2.2. Main Players: Dominican and Franciscan Orders

The increasing political ambitions and economic rent-seeking of the Church in the Early Middle Ages had often met with criticism and a strong desire to recover an earlier strand of Christian tradition, based on poverty and apostolic life and work (Grundmann, 1995). In the 12th century these ideas crystallized in a wave of grassroots movements across Europe when several independent groups of radical worshippers emerged outside the hierarchical structure of the Church. These movements initially lacked formal organization and were commonly led by poor and itinerant individuals who preached humility and the need to repent of their sins.

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[3] These changes might have also facilitated price discrimination and rent extraction (Ekelund et al., 1992; Schmidtchen & Mayer, 1997) but this does not preclude—it may even require—that they produce stronger and customized incentives for believers. Similarly, critiques of theological casuistry (including (Smith, 1759) and (Lea, 1896) highlight the costs of the more specialized and rationalistic refinement of the moral code without considering the costs of alternative informal and emotional moral developments (Jonsen & Toulmin, 1988; Santayana, 1916).

The first reaction of the Church was to ban these groups by considering them heretical, but the bishops failed to enforce the ban and the movements continued to grow. The appointment of Pope Innocent III, however, brought change. Even if some groups were still persecuted, such as the Waldensians or the Albigensians, others were coopted to become levers for renewal and enforcement. This was the case with the mendicant orders, mainly Dominicans and Franciscans.

Around 1206, even before they received papal approval to establish the Dominican Order, Dominic and his fellow missionaries had started to engage Albigensian heretics in theological debates, as they thought that heresy arose because of ignorance. This original inclination to apply rational analysis guided the subsequent educational, doctrinal, and intellectual character of the Dominicans (Backman, 2003). Consequently, they proved vital for strengthening the intellectual life of the Church, founding and staffing the growing number of universities, and writing books dealing with all sorts of theological and practical questions (Boyle, 1981; Le Goff, 1980). Their educational and confessional practices were awash with critical thinking, self-examination, and moral development (Hinnebusch, 1966; Lesnick, 1989). Consequently, their emphasis on rational analysis advanced knowledge not only on religious matters, such as the nature of sin, its consequences, the need for contrition, repentance, salvation, and enforcement;[4] but also on all sorts of mundane concerns. In particular, they rationally explored all types of economic problems in their attempts to solve the moral dilemmas that these posed.[5]

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[4] Dominican rationalism was also key in the consolidation of the Medieval Inquisition, which, strange as it may sound from today's perspective, pioneered a set of relatively modern and humane judicial procedures aimed to convince more than punish (Kras, 2020; Lea, 1888). Only later did it evolve into more stable and hierarchical organizations, such as the Spanish Inquisition created in 1478, which have been at the core of the controversy between Catholicism and Protestantism and are the subject of considerable historical debate (e.g., Drelichman et al., 2021; Kamen, 1993).

[5] On the roots of economic thought, see Ch. II of Schumpeter (Schumpeter, 1954: 154) and especially Rothbard (Rothbard, 1995: 47-64), who summarizes how, from the 13th century on, Scholastics, mostly Dominicans (and mainly Thomas Aquinas) developed many foundational ideas of economics, including the concept of the just price as the common market price in specific circumstances of time and place; the utility and costs of trade as justification for the role of merchants; the division of labor and mercantile profits; the superiority of private to communal

Their contribution was not limited to scholarly circles, as their collections of devotional, preaching and confession manuals reached wide audiences (Tentler, 1977). However, they catered to the well-off and educated, with a special focus on the ruling elites (Backman, 2003). Dominicans encouraged individuals to scrutinize their own actions and beliefs, fostering a culture of guilt and self-awareness that was thought to deter moral transgressions. Hence, the center of Dominican morality was knowledge and introspection, making individuals more concerned about their own actions.

Conversely, the Franciscan Order had a simpler and humbler focus (Backman, 2003). It emerged in 1209, driven by a radical belief that the primitive Church had lived in simplicity and hardship (Robson, 2006). Even if, as the Order grew, this poverty principle was soon weakened in practice, simplicity, and concern for the community and for helping the weak remained their ideological pillars. Franciscan doctrine also entailed a recovery of the classical ideas of Augustinian determinism, care, shame, and compassion that had once favored the early expansion of Christianity throughout Europe (Pansters, 2012; Stark, 1997).[6] Their emphasis was on the relationship of individuals with their community as well as on the penitence that had to be paid for refusing the humble life of Jesus (Moorman, 1968). While they recognized the need to turn away from sin, they also saw human morality as a natural desire to do good and be generous and compassionate.

Their worldview translated into preaching and confessional practices based on example and on emotional messages suited for the illiterate (Moorman, 1968). While Franciscans were to mainly

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property; and the role of reason as opposed to revelation in mastering the basic truths of the world and natural law, including rational ethics, with key consequences in terms of inviolable human rights.

[6] This Franciscan recovery of classic Catholic values was occasionally conducive to regressive thinking in some economic and scientific ideas: e.g., John Duns Scotus held that communal property was superior (a proposition soon to be defeated, however, when Pope John XXII decreed in 1329 that property is a natural right) and advocated a sort of cost-of-production theory of value. Franciscans also opposed Thomistic rational ethics and natural law, even if Pierre de Jean Olivi and his late follower Bernardine de Siena also contributed to economic theory, coming close to solving the paradox value and therefore outlining the subjective utility theory (*46*: 59-61). Other Franciscans also contributed to accounting (Luca Pacioli), empiricism (Roger Bacon), epistemology (William of Ockham), and ethnography (Bernardino of Sahagún).

preach by example, their theological instruction—well above the average priest—allowed them to convey theological concepts straightforwardly in sermons that demanded shame, repentance, and humility (Backman, 2003). This Franciscan simplicity facilitated a widespread understanding of Catholic teachings, favoring adherence by creating a bridge between deep theological foundations and the worldly issues of daily life in the community.

2.3. Hypothesis: The Impact of the Mendicant Orders on Impersonal Exchange

A large body of literature in moral and social psychology, as well as economics, suggests that impersonal exchange only prospers in societies thanks to appropriate mechanisms at the cognitive, interpersonal, and institutional levels (Table 1). For the sake of brevity, we label these, respectively, as individualism, impersonal prosociality, and enforcement. In key dimensions, these mechanisms differ substantially between the Dominican and Franciscan approaches.

In the *cognitive* domain, individualism appears linked to self-scrutiny and introspection. Empirical evidence suggests that directing attention inwards, focusing on one's thoughts, feelings, and actions, underpins an independent psychology (Kitayama & Salvador, 2024; Ma et al., 2014; Markus & Kitayama, 1991; Zhu et al., 2007). On this basis, it is only natural to predict that, given the Dominican focus on educated self-examination, exposure to the Dominican Order must have enhanced individualism much more than exposure to the Franciscans, given the latter's emphasis on community, humility, and simplicity.

In the *interpersonal* sphere, studies in social psychology show that impersonal prosociality—the tendency to engage in prosocial behaviors with individuals who do not belong to the ingroup[7]—is linked to the moral emotions of guilt, shame, and compassion. Unlike shame and compassion, feelings of guilt have been observed to correlate with prosocial behavior towards strangers (Condon & DeSteno, 2011; de Hooge et al., 2007; Haidt, 2003; Pech et al., 2023), eventually

[7] This concept of impersonal prosociality overlaps with what other research—mainly social psychology—has termed "intergroup prosociality" or "positive intergroup contact". Similarly, the more positive behaviors of individuals towards the ingroup relative to the outgroup, including differences in prosociality, are often embedded within the broader term of "ingroup biases".

contributing to weaker ingroup-outgroup distinctions (Dovidio et al., 2017; Pettigrew & Tropp, 2006). These works ground a prediction that Dominican rationality, with its emphasis on critical thinking, moral development, and individual accountability, favors guilt feelings, while the Franciscan focus on community favors those of shame and compassion.

Lastly, in the *institutional* realm, for impersonal transactions to be viable they must benefit from impartial enforcement, precluding ingroup favoritism and considering systemic consequences (Aghion et al., 2010; Alesina et al., 1999; Gorodnichenko & Roland, 2017; Greif & Tabellini, 2010; Tabellini, 2010). Without it, outsiders will withdraw their cooperation and markets will tend to collapse (Arruñada & Casari, 2016). These works imply that the Dominican emphasis on rational thought is more likely to advance understanding of market-wide systemic consequences, a key ingredient in sustaining impersonal market transactions.[8] Conversely, the Franciscans' lesser attention to rational thinking and their related focus on parties' short-term welfare derived from their emphasis on compassion is likely to endanger enforcement, compromising future transactions.[9] This is also suggested by the aforementioned differential contribution of both orders to the development of economic thought.

[8] These three mechanisms interact and reinforce each other to sustain impersonal exchange. For instance, self-reflection is also a cognitive process involved in the experience of guilt (Baumeister et al. 2007; Nelissen 2014). Other studies hint at the presence of less rational, more emotive, and more collective processes behind feelings of shame and compassion (Tangney, Stuewig, and Mashek 2007; Novak et al. 2022). Furthermore, impersonal prosociality (e.g., trusting institutions, strong willingness to spend resources in punishing transgressors) is fundamental for impartial enforcement. Similarly, impartial institutions are arguably important for sustaining reduced ingroup tendencies and, therefore, maintaining high levels of impersonal prosociality (Pettigrew and Tropp 2006).

[9] Taking a broader perspective, this Franciscan attitude might have favored the development of safety nets to support community members in times of hardship, which may have positive consequences in terms of both personal psychological tranquility and dynamic social stability. This possible wider tradeoff remains, however, out of the scope of our current, relatively static, endeavor.

3. Results

To test these ideas, we explore the correlation between countries' exposure to the mendicant orders since their inception until 1500 and 20 indicators of impersonal exchange. Our exposure-to-mendicants independent variables consider the historical location of mendicant houses, the historical geographic distribution of European populations, and post-Columbian migration flows (Figure 2), as explained in the Materials and Methods summary and supplementary text S1.1.[10] We chose the 20 dependent variables based on the predictions of the theory, conditioned by the availability of data and before conducting the empirics, with the support of extant literature in economics and psychology on the cognitive processes, interpersonal relations, and institutional characteristics underlying impersonal exchange (see section S1.2 in the supplementary text for a description and the rationale behind these choices).

To support a causal claim, we refute a myriad of possible confounders, leverage within-country differences in exposure to the different arms of the Church, compare adult children of immigrants in European countries, and consider the Christianization of Mesoamerica as a 'quasi-natural' experiment in which indigenous populations were exposed to Dominican and Franciscan doctrines for the first time. We describe these analyses in detail in supplementary text S2. Moreover, in the vein of Caicedo (Valencia Caicedo, 2019), we compare the effects of religious orders with opposing views.

Each analysis involves an array of specifications, including estimations that explore the unconditional effects of Dominican and Franciscan exposure or include possible confounders as covariates. To the extent possible, and with the objective of being transparent and avoiding any perception of "cherry-picking", we repeat each specification for all outcomes, even if this sometimes results in a loss of statistical significance because of "bad controls" that may bias the estimates (Angrist & Pischke, 2008). We mostly rely on indexes to simplify the presentation of results in the manuscript, but report individualized estimations for all analyses in the supplementary text.

[10] More details on materials and methods are available from the authors upon request.

3.1. The Medieval Church and Impersonal Exchange: Cross-country Evidence

Our cross-country results are consistent with the claim that exposure to the Dominican Order fostered the development of impersonal change by shaping the culture and institutions of societies. More precisely, we found that Dominican exposure favored all the 20 moral, cultural, and institutional traits that underlie impersonal exchange (supp. text S3). Conversely, we consistently find smaller negative effects for the Franciscan Order in all the 20 variables.

The first piece of evidence comes from partial dependence analyses, where we explore the correlation of Dominican and Franciscan exposure with an index of impersonal exchange conditioned on the effect of the other order. Figure 3 shows that the slope of the fitted regression line is positive for Dominican exposure (β = 0.61; *se* = 0.064) but negative for Franciscan exposure (β = -0.27; *se* = 0.058). Moreover, the statistical significance of these relationships is well perceived in the figures, as zero remains distant from the area bounded by the 95% confidence interval. Figures S3.1 and S3.2 present similar analyses for each outcome variable individually.

Additionally, we perform OLS estimations with a set of baseline covariates, namely, absolute latitude, ruggedness, landlockedness, land suitability, and the percentage of Christians in a country, differentiating between Catholics, Protestants, and others (Table 2, Table S3.1, and Figure 4). The estimates are not only statistically but also substantively significant: the effect size of a one-standard-deviation increase in exposure to the mendicant orders ranges between 0.09% and 0.74% of a standard deviation in the outcome variables.

These results are robust to the inclusion of a wide array of covariates, including historical population density and urbanization rates, the influence of other religions, or the historic prevalence of interstate conflict (Table S3.2). In particular, given the potential confounding effect of the secular clergy, we perform additional estimations where exposure to the secular clergy both *before* and *after* the 13th century are included as covariates (Table 2, supp. text S3.4). In these analyses, we find no evidence to attribute the development of impersonal exchange to exposure to the secular clergy either before or after the 13th century. Furthermore, we assess potential non-linearities, non-normality, and unequal error variances (supp. Text S3.5), evaluate

the sensitivity of results to the introduction of spatial correlation (supp. text S3.6), and address potential concerns associated with the presence of endogeneity (supp. text S3.7).

3.2. The Medieval Church and Impersonal Exchange: Cross-regional Evidence

Despite their robustness, cross-country correlations might still be inflated by unobserved factors influencing both the exposure of populations to the mendicant orders and our cultural and institutional outcomes. This advises the testing of the hypothesis within countries, where this confounding possibility should be less of a concern. We perform these tests in European and American regions.

3.2.1. Evidence from European Regions

We estimate four European models (supp. text S2.1 and S4). First, drawing upon a sample of native individuals in the European Social Survey (ESS), we explore how differences in the exposure of European regions to the mendicant orders have shaped values and attitudes that underpin impersonal exchange, including trust in others, preferences for market integration, or the importance of freedom.

Next, we use data from the Quality of Government (QoG) survey to assess how exposure to the mendicant orders has shaped institutional development at sub-national level. With QoG's reports of individual perceptions on the degree of quality, corruption, and impartiality of the police force, public education, and public healthcare, we build measures of the quality, corruption, and impartiality of sub-national institutions across Europe.

Third, we consider existing intra-regional variance in the location of mendicant houses across Italy to assess how the presence of a mendicant house in a city affects three modern city-level variables representing the prevalence of impersonal exchange: non-profits, organ donation organizations, and the amount of loans per capita.

Finally, we adopt the epidemiological approach to exploit existing within-country variation in exposure to both mendicant orders among second-generation migrants in the ESS survey whose parents were born outside the host country (Fernández, 2007; Giuliano, 2007).

Results of these estimations are consistent with the cross-country results: higher exposure to the Dominican Order is correlated with a higher prevalence of impersonal exchange, while exposure to the Franciscan Order appears to be negatively correlated (index reported in Table 3, separate analyses provided in Tables S4.1-S4.4 and Figures S4.1-S4.2). The only exception is that the estimated coefficient for Franciscan exposure in the sample of Italian cities (Table 3, columns 5 and 6) is positive, although it remains significantly lower than that of Dominican exposure.

These results are robust to the presence of many potential confounders, as shown when we re-estimate the previous specifications adding additional covariates, such as the secular clergy (Table 3, and Tables S4.1-4.4), religiosity and religious self-denomination (individual analyses), or modern inequality (city analyses). In the same vein, results hold when testing the more "democratic" government experienced by Northern Italy in the Middle Ages relative to Southern Italy. Lastly, results are unaffected by alternative metrics of mendicant exposure for second-generation migrants, namely, when we drop the condition that both parents are migrants.

3.2.2. Evidence from the Christianization of Mesoamerica

Our second regional analysis considers the Christianization of Mesoamerica, treating it as a 'natural' experiment to estimate the impact of Dominican and Franciscan doctrines (supp. text S2.2 and S4). We focus on Mexico because of data availability.

Relying on the World Value Survey, we explore how the number of Dominican and Franciscan missions in each Mexican state shaped a subset of individual values that underpin impersonal exchange. Even though the Christianization of Mesoamerica had an important stochastic component, we include meso-regional dummy variables to account for potential confounders stemming from differences in the colonization process, climate, geography, development, or pre-Columbian historical factors across states.

Because these meso-regional spatial effects might still leave room for confounding effects, we perform additional analyses at the postal code level, which allows us to measure mendicant exposure more precisely and include more granular spatial dummies. Here, we estimate how exposure to mendicant missions affects the number of civic organizations and public goods provision.

Results in Table 4 show that exposure to Dominican missions has favored the development of these proxies of impersonal exchange, while no effect is associated with the presence of the Franciscans (Table 4, Tables S4.5-S4.6). These results hold when, for robustness, we estimate the effect of secular, Augustinian, and Jesuit missions, and include additional covariates, both individual characteristics and measures of economic development at the state, town, or postal code levels (Table 4 and Tables S4.5-4.6).

4. Implications

By considering variability in the exposure of populations to the different arms of the Church during the Late Middle Ages, our analyses at country, region, city, postal code, and individual levels, suggest that the mendicant orders—the main channel used by the Church to promote the faith and enhance moral enforcement—exerted nuanced and significant influences which have been persistent and are visible in todays' societies, encompassing effects on moral psychology, impersonal prosociality, ingroup-outgroup distinctions, and institutions involved in third-party enforcement.

Two sets of implications follow. First, the paper supports the idea that the foundations of impersonal exchange can be traced back to doctrinal and organizational changes in the Catholic Church in the Late Middle Ages. This throws doubts on the flatly negative view of the Middle Ages and its consequent attribution of all human progress to ulterior historical processes, such as the Renaissance, Reformation, and Enlightenment. It therefore lends additional empirical support to historiographical works documenting the technological, intellectual, social, legal, and economic achievements of the Middle Ages (e.g., Berman, 1983; Colish, 1997; Le Goff, 1980; Nemo, 2005).

In this vein, this work also contributes to recent empirical evidence suggesting that modern cultural, institutional, and economic traits result from multiple actions by the Medieval Catholic Church, even if possibly as an unintended consequence (Blaydes & Paik, 2016; Castelló-Climent et al., 2018; Richardson, 2005; Valencia Caicedo, 2019; Waldinger, 2017). In particular, by reshaping family structures, the Church of the Early Middle Ages may have fostered

individualism and impersonal prosociality and diluted the power of clans (Schulz et al., 2019), a phenomenon also enhanced by the rise of incorporated organizations (Greif & Tabellini, 2017).

Nevertheless, while previous works emphasize social factors (e.g., family structure, education), our study provides an understanding of the doctrinal and organizational changes associated with the Catholic innovations of the 13th century. These changes had far-reaching consequences, paving the way for the emergence of cultural traits that precede impersonal exchange. Moreover, by enhancing enforcement, they may have made previous and future normative changes more effective.

Second, our work also expands the nascent cultural evolutionary literature that, informed by history, psychology, anthropology, and economics, links the origins of modern cultural, institutional, and economic differences to the "deep roots" of societies, such as ancestral family ties, historical institutions, land suitability, climate, geography, or pathogen stress levels (Alesina et al., 2013; Enke, 2019; Fincher et al., 2008; Galor & Özak, 2016; Götz et al., 2020; Van de Vliert, 2013). The paper contributes to this scholarship by showing that the foundations of large-scale cooperation based on one-shot exchanges between strangers are linked to a particular historical process: the doctrinal and organizational innovations introduced by the Catholic Church in the Late Middle Ages.

More generally, this work illustrates how religion can evolve to support impersonal exchange. Evolutionary approaches suggest that religious beliefs facilitating personal exchange developed because of the competitive advantages provided by *personally* prosocial tendencies and reduced free-rider problems at a time when the gains of intergroup competition were larger than those of intergroup cooperation (Bloom, 2012; Dunbar, 2022; Norenzayan et al., 2016). Then, as societies grew and such differential gains consequently disappeared, it is believed that moralizing "Big Gods" emerged as an "internal moral policeman" to counteract the increasing likelihood of opportunism (Henrich et al., 2010; Lang et al., 2019; Norenzayan & Shariff, 2008). This eventually paved the way for impersonal exchange. As an ongoing research agenda is attempting to understand how this transition took place (e.g., Botero et al., 2014; Lightner et al., 2023), our results suggest that the relationship between religion and impersonal exchange might not be contingent on the transition to a moralizing god, but on the specific doctrines of religious organizations and their investments. This interpretation would explain why different arms of the

Catholic Church had contrasting impacts on the development of impersonal exchange, despite Christianity always having a moralizing god with a universal emphasis encompassing all the human race.

Finally, our finding of a positive net effect of religion is compatible with ambiguous temporal and cross-sectional roles, as seen here in those of the Dominican and Franciscan orders. It remains to be explained why the Church created and has maintained specialized organizations defending different positions and producing seemingly opposite effects on the psychological and institutional foundations of impersonal exchange.

Table 1. Theoretical summary

Foundations of impersonal exchange		*Differential hypothesized treatment*		*Variables used in the cross-country empirics*
Analytical levels	*Mechanisms*	*Dominican*	*Franciscan*	
Cognitive	Individualism	Self-scrutiny	Community	*Analytical thinking* *Individualism* *Intellectual autonomy* *Affective autonomy* *Out vs ingroup collectivism*
Interpersonal	Impersonal prosociality	Guilt	Shame	*Guilt vs shame* *Compassion* *Generalized trust* *Fairness* *Family vs generalized trust* *Ingroup favoritism* *Particularism* *Parking ticket violations* *Second- vs third-party punishment* *Blood donations to non-family*
Institutional	Enforcement	Reason	Compassion	*Control of corruption* *Government effectiveness* *Political stability* *Rule of law* *Regulatory quality* *Voice and accountability*

Notes: The table links the analytical levels of impersonal exchange with their operational mechanisms, identifying the main causal drivers of differential effects between the two mendicant orders, and listing in the last column the variables used in the empirical tests.

Table 2. Cross-country estimates of the effect of exposure to the Dominican and Franciscan Orders on the foundations of impersonal exchange

Panel A

Exposure to:	*Guilt vs Shame*		*Compassion*		*Analytic Thinking*		*Generalized Trust*		*Fairness*	
Dominican Order	0.31**	0.31**	-0.41**	-0.37**	0.29**	0.38***	0.36***	0.45***	0.23**	0.34***
	(0.13)	(0.14)	(0.17)	(0.17)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.11)
Franciscan Order	-0.13*	-0.14	0.29**	0.30**	0.55	1.06*	-0.09*	-0.06	-0.10	-0.06
	(0.07)	(0.08)	(0.13)	(0.14)	(0.42)	(0.50)	(0.05)	(0.05)	(0.06)	(0.07)
Secular Clergy (Pre-13th)		0.03		-0.09		0.09		-0.16***		-0.14
		(0.14)		(0.07)		(0.12)		(0.06)		(0.09)
Secular Clergy (Post-13th)		0.00		-0.03		-0.32**		-0.09		-0.14
		(0.13)		(0.13)		(0.12)		(0.08)		(0.12)
Baseline controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Language dummies	Yes	Yes	Yes	Yes	No	No	No	No	No	No
R^2	0.68	0.68	0.56	0.56	0.83	0.87	0.59	0.63	0.30	0.35
Mean of dependent variables	-0.00	-0.00	-0.03	-0.03	0.08	0.08	0.04	0.04	0.05	0.05
Observations	66	66	74	74	27	27	94	94	84	84

Panel B

Exposure to:	*Family vs General. Trust*		*Blood Donations to Non-Family*		*Second- vs Third-Party Punishment*		*Intellectual Autonomy*		*Parking ticket Violations*	
Dominican Order	-0.55***	-0.36**	0.47***	0.44***	-0.41**	-0.24	0.29***	0.23*	-0.43***	-0.45***
	(0.14)	(0.15)	(0.12)	(0.14)	(0.16)	(0.15)	(0.11)	(0.13)	(0.08)	(0.09)
Franciscan Order	0.26***	0.26***	-0.09	-0.10	0.17*	0.16*	-0.03	-0.04	0.25***	0.25***
	(0.08)	(0.08)	(0.08)	(0.08)	(0.09)	(0.08)	(0.06)	(0.06)	(0.04)	(0.05)
Secular Clergy (Pre-13th)		0.16*		0.02		0.24**		0.04		-0.06
		(0.08)		(0.07)		(0.10)		(0.06)		(0.11)
Secular Clergy (Post-13th)		-0.24		0.05		-0.30*		0.09		0.05
		(0.18)		(0.12)		(0.15)		(0.13)		(0.09)
Baseline controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Language dummies	No	No	No	No	No	No	No	No	No	No
R^2	0.61	0.64	0.56	0.56	0.38	0.42	0.69	0.70	0.29	0.29
Mean of dependent variables	-0.01	-0.01	0.04	0.04	-0.03	-0.03	-0.01	-0.01	0.02	0.02
Observations	65	65	134	134	71	71	66	66	138	138

Panel C

Exposure to:	*Individualism*		*Ingroup favoritism*		*Particularism*		*Out vs ingroup Collectivism*		*Control of Corruption (1996-2022)*	
Dominican Order	0.56***	0.51***	-0.49***	-0.43***	-0.36***	-0.32***	0.40***	0.47***	0.59***	0.53***
	(0.10)	(0.11)	(0.09)	(0.10)	(0.09)	(0.10)	(0.10)	(0.15)	(0.10)	(0.11)
Franciscan Order	-0.12*	-0.13**	0.24***	0.25***	0.07*	0.08*	-0.10	-0.08	-0.22***	-0.23***
	(0.07)	(0.06)	(0.06)	(0.06)	(0.04)	(0.04)	(0.06)	(0.07)	(0.06)	(0.06)
Secular Clergy (Pre-13th)		-0.11*		0.10*		-0.02		-0.02		0.05
		(0.05)		(0.06)		(0.10)		(0.12)		(0.04)
Secular Clergy (Post-13th)		0.12		-0.14		-0.06		-0.10		0.08
		(0.10)		(0.08)		(0.07)		(0.15)		(0.08)
Baseline controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Language dummies	No	No	No	No	No	No	No	No	No	No
R^2	0.72	0.73	0.58	0.59	0.73	0.73	0.73	0.74	0.63	0.63
Mean of dependent variables	0.01	0.01	-0.00	-0.00	-0.00	-0.00	-0.01	-0.01	-0.17	-0.17
Observations	90	90	105	105	40	40	54	54	149	149

Panel D

Exposure to:	*Govt. Effectiveness (1996-2022)*		*Political Stability (1996-2022)*		*Rule of Law (1996-2022)*		*Regulatory Quality (1996-2022)*		*Voice and Accountability (1996-2022)*	
Dominican Order	0.54***	0.51***	0.26***	0.26***	0.56***	0.53***	0.50***	0.47***	0.40***	0.36***
	(0.10)	(0.11)	(0.07)	(0.08)	(0.09)	(0.10)	(0.08)	(0.10)	(0.08)	(0.08)
Franciscan Order	-0.19***	-0.20***	-0.06	-0.06	-0.20***	-0.22***	-0.18***	-0.20***	-0.09**	-0.11**
	(0.05)	(0.05)	(0.04)	(0.04)	(0.06)	(0.06)	(0.06)	(0.06)	(0.04)	(0.05)
Secular Clergy (Pre-13th)		0.11***		0.03		0.09**		0.14***		0.13**
		(0.04)		(0.05)		(0.04)		(0.05)		(0.05)
Secular Clergy (Post-13th)		0.01		0.00		0.03		-0.00		0.03
		(0.08)		(0.06)		(0.08)		(0.07)		(0.07)
Baseline controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Language dummies	No	No	No	No	No	No	No	No	No	No
R^2	0.58	0.59	0.42	0.42	0.57	0.58	0.54	0.55	0.60	0.62
Mean of dependent variables	-0.13	-0.13	-0.25	-0.25	-0.19	-0.19	-0.12	-0.12	-0.20	-0.20
Observations	149	149	149	149	149	149	149	149	149	149

Notes. OLS cross-country estimates of the effect of exposure to Dominican and Franciscan Orders on 20 moral, cultural, and institutional traits that underlie impersonal exchange. All the estimations include absolute latitude, ruggedness, landlockedness, land suitability, and the percentage of Christians in a country, differentiating between Catholics, Protestants, and others. Models with guilt vs shame and compassion as dependent variables also include language family dummies to reduce the error that might stem from the construction of the variable and the bias arising from comparing different languages. Robust standard errors in parentheses. $^{*}p \leq 0.1$; $^{**}p \leq 0.05$; $^{***}p \leq 0.01$.

Table 3. Cross-regional estimates of the effect of exposure to the Dominican and Franciscan Orders on the foundations of impersonal exchange

	European individuals (ESS)		European individuals (QoG)		Italian cities (ANCITEL, ISTAT, AIDO)		Second-generation migrants (ESS)	
	Index of impersonal values		*Index of institutional development*		*Index of civil society*		*Index of impersonal values*	
Exposure to:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dominican Order	0.020***	0.020***	0.011**	0.012**	0.45***	0.38***	0.066***	0.07***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.087)	(0.077)	(0.017)	(0.017)
Franciscan Order	-0.009*	-0.005	-0.012**	-0.007	0.12***	0.11***	-0.034***	-0.036***
	(0.005)	(0.005)	(0.006)	(0.006)	(0.030)	(0.030)	(0.007)	(0.008)
Secular Clergy (Pre-13th)		-0.011***		-0.015***		0.089*		0.021*
		(0.002)		(0.003)		(0.052)		(0.011)
Secular Clergy (Post-13th)		0.007		0.006*		0.76*		-0.005
		(0.004)		(0.003)		(0.39)		(0.011)
Regional controls	Yes	Yes	Yes	Yes	No	No	Yes	Yes
Individual controls	Yes	Yes	Yes	Yes	No	No	Yes	Yes
City controls	No	No	No	No	Yes	Yes	No	No
Spatial dummies	Country	Country	Country	Country	Region	Region	Region	Region
Wave dummies	Yes	Yes	Yes	Yes	No	No	Yes	Yes
Observations	323971	323971	145895	145895	7620	7620	5729	5729

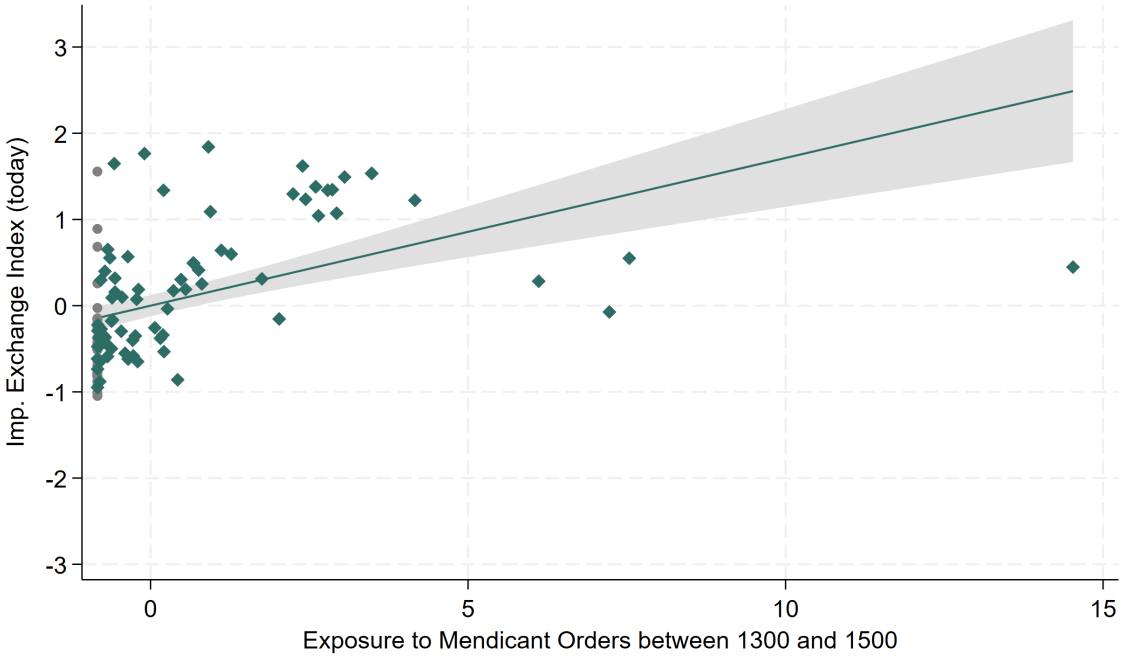
Notes. This table uses multiple samples and levels of analysis. The unit of observation for columns (1)-(8) is, respectively, European individuals from the ESS survey; European individuals from the QoG survey; second-generation migrants from the ESS survey; and Italian cities. The dependent variable in columns (1), (2), (7) and (8) is a composite index of the following variables: generalized trust, institutional trust, fairness, rent-seeking relevance, altruism, preference for European integration, participation in social activities, importance of following rules, importance of tradition, and importance of freedom. The dependent variable in columns (3) and (4) is a composite index of the quality, corruption, and impartiality of institutions in each European region. The dependent variable in columns (5) and (6) is a composite index of the number of nonprofit organizations in a city, whether the city has an organ donation organization, and the amount of loans per capita in the city. The variables are code reversed when necessary to build the indexes. Covariates in individual estimations—columns (1)-(4) and (7) and (8)—include absolute latitude, ruggedness, landlockedness, land suitability, as well as age, age^2, sex, and income. Additionally, estimations in columns (3) and (4) include population density in 1200 and respondents' settlement size. Estimations in columns (5) and (6) include caloric suitability, three dummy variables accounting, respectively, for whether the city is in a mountain area, near the sea, or by the sea, as well as modern population and population density in 1200. To account for the hierarchical relationships of the data, multilevel mixed-effects linear models are used to obtain the estimates in samples with European individuals. Robust standard errors clustered at the regional level are shown in columns (1)-(6). Robust standard errors clustered at the regional, country-of-father, and country-of-mother levels are shown in columns (7) and (8). * $p \leq 0.1$; ** $p \leq 0.05$; *** $p \leq 0.01$.

Table 4. The effects of mendicant missions on impersonal exchange in Mesoamerica

	Mexican individuals (WVS)		Civic organizations (RFOSC)		Households (CPV)	
	Index of impersonal values		*Number of civic organizations per capita*		*Public goods provision*	
	(1)	(2)	(3)	(4)	(5)	(6)
Dominican Missions	0.042**	0.088***	0.003***	0.003***	0.014**	0.014**
	(0.017)	(0.026)	(0.001)	(0.001)	(0.006)	(0.006)
Franciscan Missions	-0.049	0.032	-0.005	-0.005	0.006	0.005
	(0.045)	(0.033)	(0.007)	(0.007)	(0.005)	(0.005)
Augustinian Missions		-0.119**		-0.003		0.004*
		(0.049)		(0.006)		(0.002)
Secular Missions		-0.003		-0.006		0.003
		(0.030)		(0.008)		(0.002)
Jesuit Missions		-0.180***		0.003***		0.007
		(0.049)		(0.001)		(0.006)
Regional controls	Yes	Yes	Yes	Yes	Yes	Yes
Individual controls	Yes	Yes	No	No	No	No
Spatial dummies	Mesoregion	Mesoregion	Postal codes	Postal codes	Postal codes	Postal codes
Wave dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3321	3321	24185	24185	21886	21886

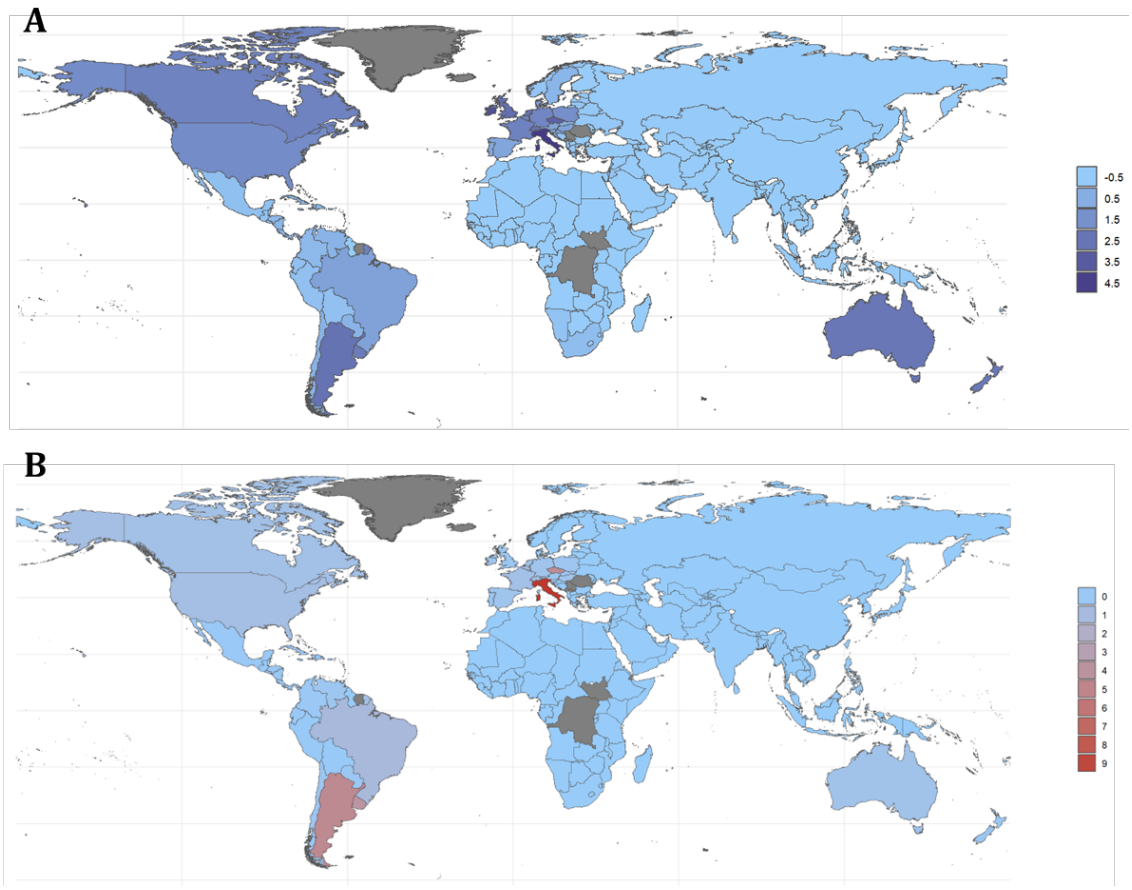
Notes. The units of observation are, respectively, Mexican individuals from the WVS survey, in columns (1) and (2); and Mexican postal codes, in columns (3)-(8). The dependent variable in columns (1) and (2) is a composite index of the following variables: generalized trust, fairness, the importance of tradition, and the importance of independence. The dependent variable in columns (3) and (4) is the number of civic organizations per capita in each Mexican postal code. The dependent variable in columns (5) and (6) is the amount of public goods provided in each Mexican postal code. The variables are code reversed when necessary to build the index. All the estimations include absolute latitude, ruggedness, landlockedness, land suitability, and modern religiosity (the percentage of Catholics, Protestants, and non-religious people in the region). Covariates in individual estimations—columns (1)-(2)—also include a set of individual covariates, namely, age, age^2, sex, and income. In addition, covariates in columns (3) and (4) include modern population in each postal code. To account for the hierarchical relationships of the data, multilevel mixed-effects linear models are used to obtain the estimates in samples with individuals. Robust standard errors clustered at the state and postal code levels are shown in columns (1) and (2); and (3)-(6), respectively. * $p \leq 0.1$; ** $p \leq 0.05$; *** $p \leq 0.01$.

Figure 1. Cross-country correlation between exposure to the mendicant orders and impersonal exchange



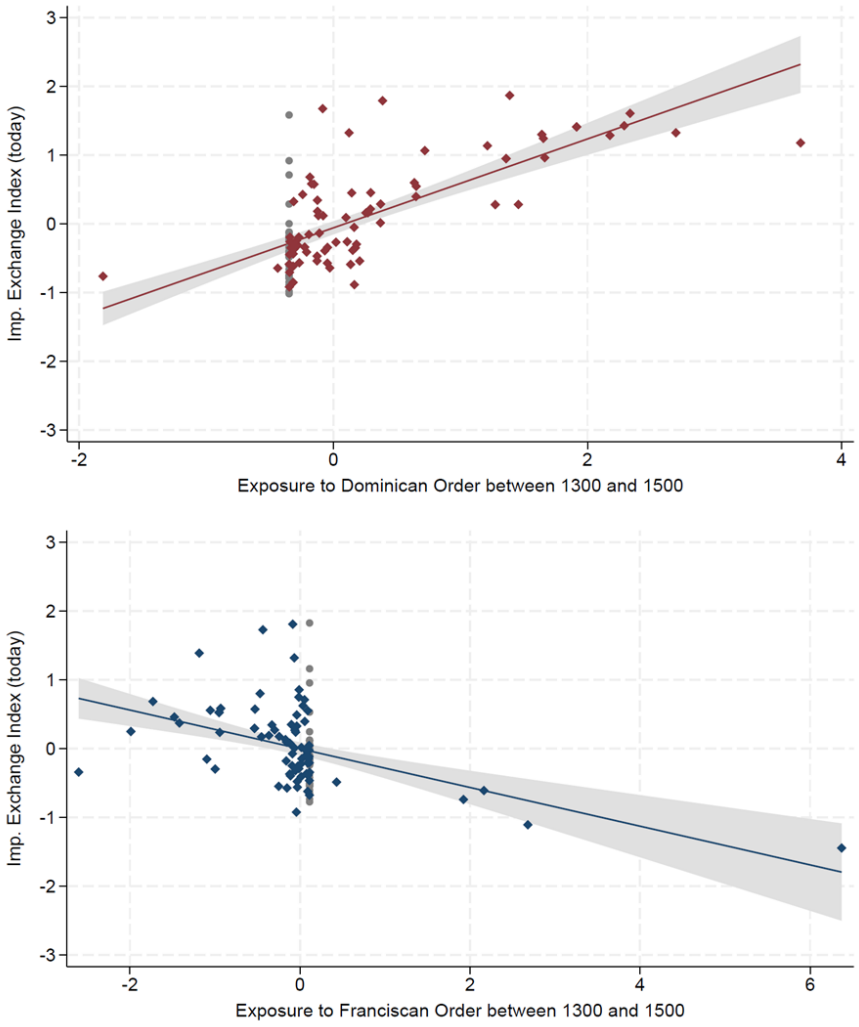
Notes. The Figure shows the cross-country correlation between exposure to the mendicant orders and impersonal exchange. Exposure to the mendicant orders is calculated as the sum of the standardized measures of Dominican and Franciscan exposure. To measure impersonal exchange, we build a composite index with our selected outcomes (see Appendix A1.2). Calculation of the index does not include the guilt vs shame and compassion variables given that these estimations include language family dummies to reduce any error stemming from construction of the variable and bias arising from comparing two different languages. Including them, nevertheless, does not change the results substantially. Exposure to the mendicant orders and the impersonal exchange index are correlated at $r = 0.48$. Colored dots indicate countries that have been at least minimally exposed to any of the mendicant orders, either directly or through migration flows. The gray area represents the 95% confidence interval for the linear fit of the distribution. The outlier is Italy. When excluding it from the analyses, the results remain similar.

Figure 2. Historical Exposure to the Dominican and Franciscan Orders up to 1500



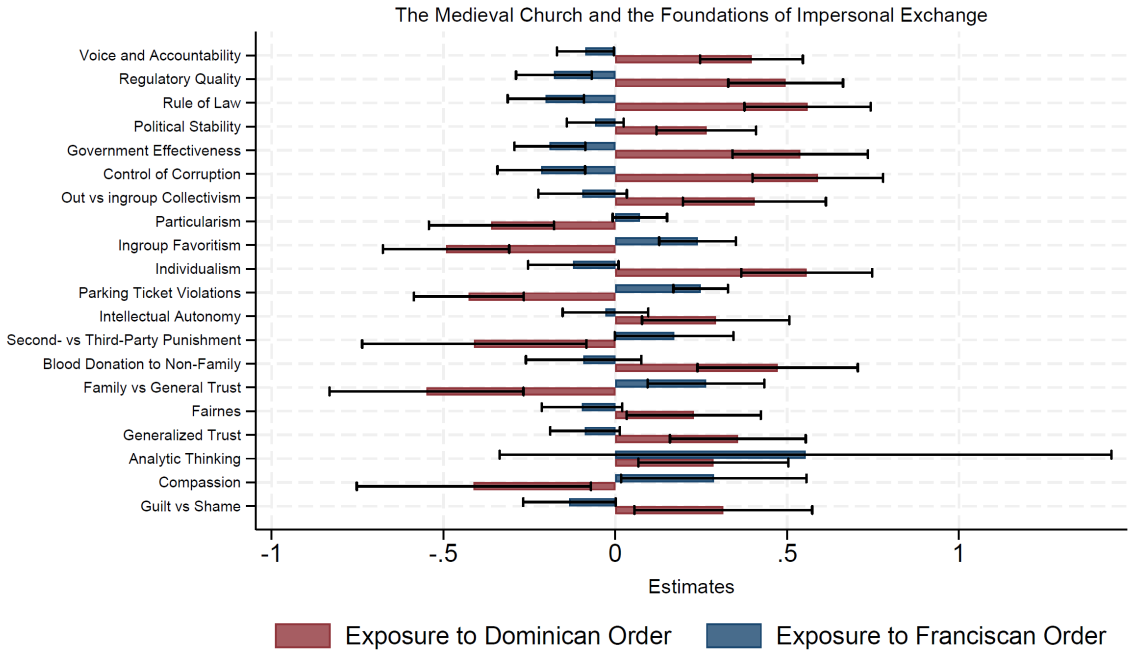
Notes. Fig. 2A shows (standardized) average exposure to the Dominican Order up to 1500 in each country. Fig. 2B shows the (standardized) average exposure to the Franciscan Order up to 1500 in each country. Although Italy is a clear outlier, results remain similar when it is excluded from the analysis.

Figure 3. Partial dependence analyses of the effect of exposure to Dominican and Franciscan Orders on impersonal exchange



Notes. The first Figure (above) shows the effect of exposure to the Dominican Order after partialling out the effect of Franciscan exposure. Red dots indicate countries that have been at least minimally exposed to the Dominican Order, either directly or through migration flows. The slope of the fitted regression line is positive ($\beta = 0.61$; $se = 0.064$). The second Figure (below) shows the effect of exposure to the Franciscan Order after partialling out the effect of Dominican exposure. Blue dots indicate countries that have been at least minimally exposed to the Franciscan Order, either directly or through migration flows. The slope of the fitted regression line is negative ($\beta = -0.27$; $se = 0.058$). The gray area in both figures represents the 95% confidence interval for the linear fit of the distribution. Calculation of the index does not include the guilt vs shame and compassion variables given that these estimations include language family dummies to reduce any error stemming from construction of the variable and bias arising from comparing two different languages. Including them, nevertheless, does not change the results substantially.

Figure 4. Baseline estimations of the effect of exposure to the Dominican and Franciscan Orders on impersonal exchange



Notes. Baseline estimations of the effect of exposure to the Dominican and Franciscan Orders on 20 moral, cultural, and institutional traits that underlie impersonal exchange. The figure shows the size effects of exposure to the Dominican and Franciscan Orders, as well as the 95% confidence interval for each estimate (black lines). These estimations include absolute latitude, ruggedness, landlockedness, land suitability, and the percentage of Christians in a country, differentiating between Catholics, Protestants, and others. Models with guilt vs shame and compassion as dependent variables also include language family dummies to reduce any error stemming from construction of the variable and bias arising from comparing two different languages. Standard errors are robust.

References

Aghion, P., Algan, Y., Cahuc, P., & Shleifer, A. (2010). Regulation and Distrust. *Quarterly Journal of Economics*, *125*(3), 1015–1049. https://doi.org/10.1162/qjec.2010.125.3.1015

Alesina, A., Baqir, R., & Easterly, W. (1999). Public Goods and Ethnic Divisions*. *The Quarterly Journal of Economics*, *114*(4), 1243–1284. https://doi.org/10.1162/003355399556269

Alesina, A., Giuliano, P., & Nunn, N. (2013). On the Origins of Gender Roles: Women and the Plough. *The Quarterly Journal of Economics*, *128*(2), 469–530. https://doi.org/10.1093/qje/qjt005

Angrist, J. D., & Pischke, J.-S. (2008). *Mostly harmless econometrics: An empiricist's companion*. Princeton University Press.

Arruñada, B. (2009). Specialization and rent-seeking in moral enforcement: The case of confession. *Journal for the Scientific Study of Religion*, *48*(3), 443–461.

Arruñada, B., & Casari, M. (2016). Fragile markets: An experiment on judicial independence. *Journal of Economic Behavior & Organization*, *129*, 142–156. https://doi.org/10.1016/j.jebo.2016.06.013

Backman, C. R. (2003). *The Worlds of Medieval Europe*. Oxford University Press.

Bartlett, R. (1993). *The Making of Europe: Conquest, Colonization, and Cultural Change, 950–1350*. Princeton University Press.

Berman, H. J. (1983). *Law and Revolution: The Formation of the Western Legal Tradition*. Harvard University Press.

Blasutto, F., & de la Croix, D. (2023). Catholic Censorship and the Demise of Knowledge Production in Early Modern Italy. *The Economic Journal*, *133*(656), 2899–2924. https://doi.org/10.1093/ej/uead053

Blaydes, L., & Paik, C. (2016). The Impact of Holy Land Crusades on State Formation: War Mobilization, Trade Integration, and Political Development in Medieval Europe. *International Organization*, *70*(3), 551–586. https://doi.org/10.1017/S0020818316000096

Bloom, P. (2012). Religion, morality, evolution. *Annual Review of Psychology*, 63,179-199.

Boorstin, D. J. (1983). *The Discoverers*. Random House.

Botero, C. A., Gardner, B., Kirby, K. R., Bulbulia, J., Gavin, M. C., & Gray, R. D. (2014). The ecology of religious beliefs. *Proceedings of the National Academy of Sciences*, *111*(47), 16784–16789. https://doi.org/10.1073/pnas.1408701111

Boyd, R., Gintis, H., Bowles, S., & Richerson, P. J. (2003). The evolution of altruistic punishment. *Proceedings of the National Academy of Sciences*, *100*(6), 3531–3535.

Boyle, L. E. (1981). Notes on the Education of the Fratres communes in the Dominican Order in the thirteenth century. In L. E. Boyle (Ed.), *Pastoral Care, Clerical Education and Canon Law, 1200-1400* (pp. 249–226). Variorum Reprints.

Cabello, M. (2023). *The Counter-Reformation, Science, and Long-Term Growth: A Black Legend?* (4389708). SSRN. https://doi.org/10.2139/ssrn.4389708

Castelló-Climent, A., Chaudhary, L., & Mukhopadhyay, A. (2018). Higher Education and Prosperity: From Catholic Missionaries to Luminosity in India. *The Economic Journal*, *128*(616), 3039–3075. https://doi.org/10.1111/ecoj.12551

Colish, M. L. (1997). *Medieval Foundations of the Western Intellectual Tradition, 400–1400*. Yale University Press.

Condon, P., & DeSteno, D. (2011). Compassion for one reduces punishment for another. *Journal of Experimental Social Psychology*, *47*(3), 698–701. https://doi.org/10.1016/j.jesp.2010.11.016

de Hooge, I. E., Zeelenberg, M., & Breugelmans, S. M. (2007). Moral sentiments and cooperation: Differential influences of shame and guilt. *Cognition and Emotion*, *21*(5), 1025–1042. https://doi.org/10.1080/02699930600980874

Diamond, J. M. (1997). *Guns, Germs, and Steel: The Fates of Human Societies*. Norton.

Dovidio, J. F., Love, A., Schellhaas, F. M. H., & Hewstone, M. (2017). Reducing intergroup bias through intergroup contact: Twenty years of progress and future directions. *Group Processes & Intergroup Relations*, *20*(5), 606–620. https://doi.org/10.1177/1368430217712052

Drelichman, M., Vidal-Robert, J., & Voth, H.-J. (2021). The long-run effects of religious persecution: Evidence from the Spanish Inquisition. *Proceedings of the National Academy of Sciences*, *118*(33), e2022881118. https://doi.org/10.1073/pnas.2022881118

Duggan, A. J. (2008). Conciliar Law 1123–1215: The Legislation of the Four Lateran Councils". In W. Hartmann & K. Pennington (Eds.), *The History of Canon Law in the Classical Period, 1140–1234: From Gratian to the Decretals of Pope Gregory IX* (pp. 318–366). The Catholic University of America Press.

Dunbar, R. (2022). *How Religion Evolved: And Why It Endures*. Penguin Random House.

Ekelund, R. B., Hébert, R. F., & Tollison, R. D. (1992). The economics of sin and redemption: Purgatory as a market-pull innovation? *Journal of Economic Behavior & Organization*, *19*(1), 1–15. https://doi.org/10.1016/0167-2681(92)90067-L

Ekelund, R. B., Hébert, R. F., Tollison, R. D., Anderson, G. M., & Davidson, A. B. (1996). *Sacred Trust: The Medieval Church as an Economic Firm*. Oxford University Press.

Enke, B. (2019). Kinship, Cooperation, and the Evolution of Moral Systems. *The Quarterly Journal of Economics*, *134*(2), 953–1019. https://doi.org/10.1093/qje/qjz001

Fehr, E., & Henrich, J. (2003). Is strong reciprocity a maladaptation? On the evolutionary foundations of human altruism. In P. Hammerstein (Ed.), *Genetic and Cultural Evolution of Cooperation* (pp. 55–82). MIT Press.

Fernández, R. (2007). Women, Work, and Culture. *Journal of the European Economic Association*, *5*(2–3), 305–332. https://doi.org/10.1162/jeea.2007.5.2-3.305

Fincher, C. L., Thornhill, R., Murray, D. R., & Schaller, M. (2008). Pathogen prevalence predicts human cross-cultural variability in individualism/collectivism. *Proceedings of the Royal Society B: Biological Sciences*, *275*(1640), 1279–1285. https://doi.org/10.1098/rspb.2008.0094

Finley, T., Franck, R., & Johnson, N. D. (2021). The Effects of Land Redistribution: Evidence from the French Revolution. *The Journal of Law and Economics*, *64*(2), 233–267. https://doi.org/10.1086/713688

Galor, O., & Özak, Ö. (2016). The Agricultural Origins of Time Preference. *American Economic Review*, *106*(10), 3064–3103. https://doi.org/10.1257/aer.20150020

Gibbon, E. (1776). *The History of the Decline and Fall of the Roman Empire* (Vol. 3). Allen Lane.

Giuliano, P. (2007). Living Arrangements in Western Europe: Does Cultural Origin Matter? *Journal of the European Economic Association*, *5*(5), 927–952. https://doi.org/10.1162/JEEA.2007.5.5.927

Gorodnichenko, Y., & Roland, G. (2017). Culture, Institutions, and the Wealth of Nations. *The Review of Economics and Statistics*, *99*(3), 402–416. https://doi.org/10.1162/REST_a_00599

Götz, F. M., Stieger, S., Gosling, S. D., Potter, J., & Rentfrow, P. J. (2020). Physical topography is associated with human personality. *Nature Human Behaviour*, *4*(11), Article 11. https://doi.org/10.1038/s41562-020-0930-x

Greif, A. (2002). Institutions and Impersonal Exchange: From Communal to Individual Responsibility. *Journal of Institutional and Theoretical Economics (JITE*, *158*(1), 168–204.

Greif, A., & Tabellini, G. (2010). Cultural and Institutional Bifurcation: China and Europe Compared. *American Economic Review*, *100*(2), 135–140. https://doi.org/10.1257/aer.100.2.135

Greif, A., & Tabellini, G. (2017). The clan and the corporation: Sustaining cooperation in China and Europe. *Journal of Comparative Economics*, *45*(1), 1–35. https://doi.org/10.1016/j.jce.2016.12.003

Grundmann, H. (1995). *Religious Movements in the Middle Ages: The Historical Links Between Heresy, the Mendicant Orders, and the Women's Religious Movement in the Twelfth and Thirteenth Century, with the Historical Foundations of German Mysticism*. University of Notre Dame Press.

Haidt, J. (2003). The moral emotions. In R. J. Davidson, K. R. Scherer, & H. H. Goldsmith (Eds.), *Handbook of affective sciences* (pp. 852–870). Oxford University Press.

Hebblethwaite, M., & Donovan, K. (1979). *The theology of penance*. Clergy Book Service.

Henrich, J., Ensminger, J., McElreath, R., Barr, A., Barrett, C., Bolyanatz, A., Cardenas, J. C., Gurven, M., Gwako, E., Henrich, N., Lesorogol, C., Marlowe, F., Tracer, D., & Ziker, J. (2010). Markets, Religion, Community Size, and the Evolution of Fairness and Punishment. *Science*, *327*(5972), 1480–1484. https://doi.org/10.1126/science.1182238

Hinnebusch, W. A. (1966). The History of the Dominican Order. In *Intellectual and Cultural. Life to 1560: Vol. I.*

Hutchinson, G. (1955). *Medieval Ships and Shipping*. Leicester University Press.

Jonsen, A. R., & Toulmin, S. E. (1988). *The Abuse of Casuistry: A History of Moral Reasoning*. University of California Press.

Kamen, H. (1993). *The Spanish Inquisition: A Historical Revision*. Weidenfeld & Nicholson.

Kitayama, S., & Salvador, C. E. (2024). Cultural Psychology: Beyond East and West. *Annual Review of Psychology*, *75*(Volume 75, 2024), 495–526. https://doi.org/10.1146/annurev-psych-021723-063333

Kras, P. (2020). *The System of the Inquisition in Medieval Europe*. Peter Lang.

Lang, M., Purzycki, B. G., Apicella, C. L., Atkinson, Q. D., Bolyanatz, A., Cohen, E., Handley, C., Kundtová Klocová, E., Lesorogol, C., Mathew, S., McNamara, R. A., Moya, C., Placek, C. D., Soler, M., Vardy, T., Weigel, J. L., Willard, A. K., Xygalatas, D., Norenzayan, A., & Henrich, J. (2019). Moralizing gods, impartiality and religious parochialism across 15 societies. *Proceedings of the Royal Society B: Biological Sciences*, *286*(1898), 20190202. https://doi.org/10.1098/rspb.2019.0202

Le Goff, J. (1980). *Time, Work, and Culture in the Middle Ages*. University of Chicago Press.

Le Goff, J. (1984). *The birth of Purgatory*. University of Chicago Press.

Lea, H. C. (1888). *A History of the Inquisition of the Middle Ages: Vol. Vols. 1-3* (2010th ed.). Harper.

Lea, H. C. (1896). *A history of auricular confession and indulgences in the Latin Church* (1968th ed.). Greenwood Publishing Group.

Lesnick, D. R. (1989). *Preaching in Medieval Florence: The Social World of Franciscan and Dominican Spirituality*. University of Georgia Press.

Lightner, A. D., Bendixen, T., & Purzycki, B. G. (2023). Moralistic supernatural punishment is probably not associated with social complexity. *Evolution and Human Behavior*, *44*(6), 555–565. https://doi.org/10.1016/j.evolhumbehav.2022.10.006

Ma, Y., Bang, D., Wang, C., Allen, M., Frith, C., Roepstorff, A., & Han, S. (2014). Sociocultural patterning of neural activity during self-reflection. *Social Cognitive and Affective Neuroscience*, *9*(1), 73–80. https://doi.org/10.1093/scan/nss103

Markus, H. R., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review*, *98*(2), 224–253. https://doi.org/10.1037/0033-295X.98.2.224

Meens, R. (2014). *Penance in Medieval Europe, 600–1200*. Cambridge University Press.

Moorman, J. (1968). *A History of the Franciscan Order: From its Origins to the Year 1517*. Oxford University Press.

Nemo, P. (2005). *What Is the West?* (K. Casler & M. Novak, Trans.). Xanedu Pub.

Norenzayan, A., & Shariff, A. F. (2008). The origin and evolution of religious prosociality. *Science*, *322*(5898), 58–62.

Norenzayan, A., Shariff, A. F., Gervais, W. M., Willard, A. K., McNamara, R. A., Slingerland, E., & Henrich, J. (2016). The cultural evolution of prosocial religions. *Behavioral and Brain Sciences*, *39*, e1. https://doi.org/10.1017/S0140525X14001356

North, D. C. (1990). *Institutions, Institutional Change and Economic Performance*. Cambridge University Press.

Pansters, K. (2012). *Franciscan Virtue: Spiritual Growth and the Virtues in Franciscan Literature and Instruction of the Thirteenth Century*. Brill1.

Pech, G. P., Gishoma, D., & Caspar, E. A. (2023). A novel electroencephalography-based paradigm to measure intergroup prosociality: An intergenerational study in the aftermath of the genocide against Tutsis in Rwanda. *Journal of Experimental Psychology: General*. https://psycnet.apa.org/record/2024-18966-001

Pettigrew, T. F., & Tropp, L. R. (2006). A meta-analytic test of intergroup contact theory. *Journal of Personality and Social Psychology*, *90*(5), 751.

Pinker, S. (2018). *Enlightenment Now*. Allen Lane.

Powers, S. T., van Schaik, C. P., & Lehmann, L. (2016). How institutions shaped the last major evolutionary transition to large-scale human societies. *Philosophical Transactions of the Royal Society B: Biological Sciences*, *371*(1687), 20150098. https://doi.org/10.1098/rstb.2015.0098

Richardson, G. (2005). Craft Guilds and Christianity in Late-Medieval England: A Rational-Choice Analysis. *Rationality and Society*, *17*(2), 139–189. https://doi.org/10.1177/1043463105051631

Robson, M. (2006). *The Franciscans in the Middle Ages*. Boydell Press.

Rothbard, M. N. (1995). *Economic Thought Before Adam Smith. An Austrian Perspective on the History of Economic Thought: Vol. I* (2006th ed.). Edward Elgar Publishing Ltd.

Santayana, G. (1916). *Egotism in German philosophy*. J.M. Dent & Sons.

Schmidtchen, D., & Mayer, A. (1997). Established Clergy, Friars and the Pope: Some Institutional Economics of the Medieval Church. *Journal of Institutional and Theoretical Economics (JITE) / Zeitschrift Für Die Gesamte Staatswissenschaft*, *153*(1), 122–149.

Schulz, J. F., Bahrami-Rad, D., Beauchamp, J. P., & Henrich, J. (2019). The Church, intensive kinship, and global psychological variation. *Science*, *366*(6466), eaau5141. https://doi.org/10.1126/science.aau5141

Schumpeter, J. A. (1954). *History of Economic Analysis*. Oxford University Press.

Seabright, P. (2004). *The Company of Strangers: A Natural History of Economic Life*. Princeton University Press.

Smith, A. (1759). *The Theory of Moral Sentiments* (1982nd ed.). J.M. Dent & Sons.

Squicciarini, M. P. (2020). Devotion and Development: Religiosity, Education, and Economic Progress in Nineteenth-Century France. *American Economic Review*, *110*(11), 3454–3491. https://doi.org/10.1257/aer.20191054

Stark, R. (1997). *The Rise of Christianity: How the Obscure, Marginal Jesus Movement Became the Dominant Religious Force in the Western World in a Few Centuries*. HarperCollins.

Tabellini, G. (2010). Culture and Institutions: Economic Development in the Regions of Europe. *Journal of the European Economic Association*, *8*(4), 677–716. https://doi.org/10.1111/j.1542-4774.2010.tb00537.x

Tanner, N. P. (2016). *Decrees of the Ecumenical Councils* (Vol. 1). Georgetown University Press.

Tentler, T. N. (1977). *Sin and confession on the eve of the Reformation*. Princeton University Press.

Valencia Caicedo, F. (2019). The Mission: Human Capital Transmission, Economic Persistence, and Culture in South America*. *The Quarterly Journal of Economics*, *134*(1), 507–556. https://doi.org/10.1093/qje/qjy024

Van de Vliert, E. (2013). Climato-economic habitats support patterns of human needs, stresses, and freedoms. *Behavioral and Brain Sciences*, *36*(5), 465–480. https://doi.org/10.1017/S0140525X12002828

Voltaire. (1756). *The Age of Louis XIV* (W. F. Flemming, Trans.; 1901st ed.). E. R. Dumont.

Waldinger, M. (2017). The long-run effects of missionary orders in Mexico. *Journal of Development Economics*, *127*, 355–378. https://doi.org/10.1016/j.jdeveco.2016.12.010

Weber, M. (1904). *The Protestant Ethic and the Spirit of Capitalism*. Scribner.

Zhu, Y., Zhang, L., Fan, J., & Han, S. (2007). Neural basis of cultural influence on self-representation. *NeuroImage*, *34*(3), 1310–1316. https://doi.org/10.1016/j.neuroimage.2006.08.047