

# Censorship, industry structure, and creativity: evidence from the Catholic Inquisition in Renaissance Venice

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## ABSTRACT

We examine the effects of the book censorship implemented by the Catholic Inquisition on printing outcomes in Renaissance Venice. We collect detailed information on indexes of prohibited books and publication activities by the main printers active in Venice during the 1500s. We construct treatment and comparison groups based on the specialization of each printer in transgressive publications before the Inquisition. We show that censorship had a significant impact on publication levels and industry structure, with the firms targeted by the Inquisition losing market shares to those less affected by censorship. These effects appear long lasting and associated to changes in survival and entry. We also show that censorship led to a change in the direction of publishing. These findings support the idea that censorship may have dynamic effects on the structure, evolution, and creativity of industries that go beyond the removal of certain types of creative work from the market (JEL O33, N33, L51).

## 1. INTRODUCTION

Censorship has been steadily present in human history for over 2000 years (Kemp 2015). From the first officially recorded examples of censorship of written content in the second century BC Rome, attempts of governments to control “dangerous ideas” for political, religious, or moral reasons have hardly waned (Berkowitz 2021). Recent estimates indicate that less than 15% of the world’s population enjoys a press free from government intrusion (Freedom House, 2017). Content control is especially stringent in countries like China and Iran.

Economic research on the topic has focused on effects that censorship can have on citizens’ beliefs, political attitudes (Chen and Yang 2019; Xue 2021), and on policy outcomes

(Qin et al. 2017). The literature has also identified factors—such as censorship costs and market competition—which can shape the effectiveness of government control of the media (Shadmehr and Bernhardt 2015; Qin et al. 2018). Outside of the political economy literature, there has been growing research interest in one historical attempt to block the circulation of written content: the Catholic reaction to the spread of Protestant ideas in the 16th century (Becker et al. 2021; Drelichman et al. 2021; Dewitte et al. 2022; Blasutto and De la Croix 2023; Cabello 2023). This article contributes to this emerging literature by examining the effects of Catholic censorship on the structure and dynamic evolution of the censored industry, a topic that has so far attracted little empirical and theoretical attention. Our analysis combines insights from economic history, innovation, and law and economics literatures.

Our study focuses on book publishers in Renaissance Venice, one of the largest European centers for printing in the 1500s. Following the development of the first movable type press in 1447 by Johannes Gutenberg in Mainz, Germany, the new printing industry flourished in Venice under minimal government regulation. Despite the attempts of the Catholic Church to contain the spread of Protestantism, the Venetian press experienced a minimum of censorship until the 1540s. The Republic of Venice could turn a deaf ear to papal pleas thanks to its strong international relations with England and with the Protestant princes of the Schmalkaldic league (Grendler 1975). In 1547 a combination of unforeseen circumstances led to a swift change in the relationship between Venice and Rome. In that year King Henry VIII of England died and the league of Protestant princes was defeated by Holy Roman Emperor Charles V. Under this new balance of power, Venice found itself isolated and in need of allies. As a gesture toward Rome, Venice established a new magistracy with competence in heresy, which marked the beginning of the Inquisition in Venice.

Our article examines how the censorship imposed by the Inquisition affected the printing outcomes of Venetian book publishers. To do so, we leverage one of the main tools used by the Inquisition: the *Index Librorum Prohibitorum*—that is, the indexes of prohibited books. These were lists approved by the Roman Church that aimed at censoring production and circulation of heretical publications. Beginning in 1547, several of these indexes were prepared by the Venetian government and the Catholic Church. These historical events provide a unique opportunity to examine the short- and long-term industry responses to censorship.

To guide our empirical analysis, we develop a theoretical framework that builds on the literature studying the strategic responses to product liability and safety perception (Viscusi and Moore 1993; Galasso and Luo 2022). We argue that, in general, the effect of censorship on market structure and supply of creative content is ambiguous. On the one hand, content banning may chill the incentives to create new content. On the other hand, censorship may incentivize the development of new and “safer” content that circumvents the regulation. Whether the positive effect of censorship on content creation can compensate for its “chilling effect” depends on the business and technological environment. Our framework emphasizes three factors that may tilt the tradeoff toward a negative effect of censorship on creative effort, especially for firms more specialized in literary fields and more heavily censored genres. These factors are: (1) heterogeneous resources and capabilities, (2) regulatory uncertainty, and (3) reputation effects. We discuss historical evidence suggesting that these are all important features of our empirical setting.

Our empirical analysis combines several sources to construct new data on publishers and authors of books printed in Venice during the 1500s and to identify the literary field of each publication. We exploit biographical information of publishers to identify the most prominent book printing firms active in Venice during the 16th century and aggregate them into family firms. Firms in our sample differ in terms of the fraction of books they published before 1547 that were subsequently listed in one of the Inquisition indexes. We use this

differential exposure to the Inquisition to construct treatment and comparison groups and compare outcomes in terms of publication levels, firm survival, and publishing fields using differences-in-differences regressions.<sup>1</sup>

Our analysis shows a substantial decline in publications, measured by book editions, for firms that before the Inquisition printed books that would subsequently be listed in one of the indexes, relative to firms less exposed to the Inquisition. We show that this decline is not driven by differential publishing trends between the treatment and control firms before 1547, and that it is not simply due to treated firms no longer publishing new editions of banned books. Dynamically, the decline in publishing did not start until 1559, supporting the idea that the first widely enforced Inquisition index in Venice was the “Pauline index” issued in 1559. Quantitatively, we estimate an average relative decline in the publication levels of treated firms of about 50% after 1559. Contrasting the publication activity of Venetian firms with the printing outcomes of some of the most prominent German and Swiss book publishers active during the period of our study, we show that about half of our baseline effect is due to a decline in publication by the Venetian firms more exposed to the Inquisition, and half is driven by an increase in publications by the Venetian firms less exposed.

We then turn our analysis to the impact of the Inquisition on the direction of creative efforts. Despite the religious origin of the Inquisition, we find that its most dramatic effects are on non-religious books. We show that this decline is driven by the publications of treated firms, and it is particularly strong for literature books published in vernacular languages (Italian and other dialects) rather than those published in Latin. This finding suggests that the Inquisition affected not only the levels but also the direction of publishing, with printing firms shifting away from contemporary works of prose, poetry, and drama.

After documenting the impact of the Inquisition on publications, we examine how this translates into effects on market structure, firm survival, and entry. We show that the firms more exposed to the Inquisition reduced their yearly market share by 3.4 percentage points relative to the control group and that this effect was persistent and present decades after 1547. We also document how firms that before 1547 printed books that would later feature in the indexes have a shorter survival time relative to control firms. Specifically, we find that the lifespan of the firms more exposed to the Inquisition was 38 years shorter than that of firms in the control group. Censorship also appears to have created opportunities for new entrants, especially in the publishing fields more targeted by the Inquisition. We find that, on average, 5.5 firms entered the market every year up to 1559, and that this figure increased to 7 in the period after 1559. Together, these findings indicate that the Inquisition not only had an impact on book circulation but also had dynamic and long-lasting effects on the industrial organization and the survival of the firms operating in the censored sector.

Finally, we examine how the decline in literature publications affected the type of published authors. We show that treated firms became less likely to publish contemporary authors in literature even if they were not included in an index. The empirical analysis suggests that censorship may have tainted the reputation of the publishers and affected the choice of publisher for new authors entering the Venetian market.

Overall, our analysis supports the idea that censorship may have effects that go beyond the removal of specific works of authorship from the market. Content-banning policies may have long-term dynamic impacts on market structure, industry evolution, and on the direction of creative efforts. The historical case study analyzed in this article highlights that

<sup>1</sup> This approach resembles the methodology used in the labor economics literature to estimate the effect of minimum wage policies on firm outcomes, using information on the pre-policy distribution of wages to identify the firms most affected by a reform (see, e.g., [Draca et al. 2011](#)).

responding to censorship can be particularly challenging for firms in the presence of heterogeneous competencies, regulatory uncertainty, and reputation effects. At the same time, our theoretical framework shows that the links between censorship, market structure, and creativity are complex and nuanced. This highlights the need of additional research to inform managers and policymakers.

## 2. RELATED LITERATURE

This article is related to various strands of literature. First, it is connected to the debate on the consequences of the Catholic Inquisition. History scholars are divided between those who believe that the effects of the Inquisition were limited (e.g., [Defourneaux 1963](#); [Kamen 1998](#)) and those arguing that it had profound negative consequences for the cultural evolution of cities and regions ([Rotondò 1973](#); [Seidel Menchi 1987](#); [Fraguito 2019](#)). A series of recent studies show that, in areas where the Inquisition had stronger influence, the presence of scientists diminished ([Anderson 2015](#); [Cabello 2023](#)) and the consequences were persistent, with negative echoes even for today's economic performance ([Drelichman et al. 2021](#); [Cabello 2023](#)). These studies provide evidence that the Catholic Inquisition distorted the process of knowledge accumulation by means of two main channels. Censorship limited access to new, "revolutionary," ideas for scientists and scholars ([Blasutto and De la Croix 2023](#)). In addition to that, it induced scientists to migrate toward areas where the impact of Counter Reformation was less pervasive ([Dewitte et al. 2022](#)). Closely related to our article is the work by [Becker et al. \(2021\)](#). The authors look at several European cities and find that local indexes of prohibited books were effective in reducing the publication rates of indexed authors and printers. This affected city growth and its attractiveness to scholars. In our article, we focus on the effects of censorship on industry structure and evolution conducting a firm-level analysis of the most prominent printing site of Renaissance Europe. We contribute to the growing literature on the Catholic Inquisition highlighting how firm heterogeneity shaped the effects of censorship on the level and direction of publication efforts. We also document long-term effects on the structure and dynamic evolution of the industry, including entry of firms, and authors.

More generally, our article is related to the literature on how the competitive environment shaped the market for ideas in Renaissance Europe. [Binzel et al. \(2021\)](#) examine how the Protestant Reformation accelerated the vernacularization of printing in Europe, which led to an increased diversity among authors and book content and to greater economic development. [Dittmar and Seabold \(2019\)](#) provide evidence that the market structure of printing industry affected the diffusion of innovative religious ideas. [Cantoni et al. \(2018\)](#) show that religious competition during the Protestant Reformation led to a reallocation of human and physical capital from religious to secular purposes. Finally, [Comino et al. \(2020\)](#) analyze how guild market power shaped the propensity to use patent rights to protect innovations in Renaissance Venice. Our article contributes to this literature by showing that policies restricting circulation of printed knowledge had an effect on market structure and industry dynamics.

Our findings have also implications for a series of recent studies examining how changes in product liability risk and safety perception can shape firms' innovation and the supply of new products. Theoretical models show that the impact of liability risk on innovation is ambiguous (e.g., [Daughety and Reinganum 2013](#)). This finding is supported by the limited number of empirical studies examining this topic. [Viscusi and Moore \(1993\)](#) and [Galasso and Luo \(2017, 2021\)](#) find that, on average, higher liability and risk perception induces higher innovation investments. Conversely, [Galasso and Luo \(2022\)](#) document how a sudden increase in product liability risk faced by suppliers may disrupt vertical chains and have

a “chilling effect” on innovation investments. Our article complements these findings showing that the static and dynamic strategic adjustments observed in high-tech industries following changes in product liability risk can also take place in creative industries as a reaction to censorship policies. We also document a positive association between censorship and entry of small firms. This is in line with previous empirical work on product liability (Ringleb and Wiggins 1990; Galasso and Luo 2021) and has implication for theoretical law and economics literature, which has not yet examined this effect (see Daughety and Reinganum 2018 for a survey).

Finally, our article is also related to the vast literature on media power and media capture surveyed by Prat (2015) and Puglisi and Snyder (2015). Specifically, two recent studies highlight the relationship between censorship, media power, and citizens’ behavior. Chen and Yang (2019) find that demand-side factors play an important role in shaping the effect of the Chinese internet censorship policy. Shadmehr and Bernhardt (2015) show that the optimal amount of censorship depends on media power and censorship costs which in turn depend on the possibility that citizens may revolt. Our work contributes to this literature by examining a historical case of government policies regulating the printing press. Our findings suggest that the complex and nuanced relationship between media content and market structure is not a special feature of the modern media industry but is rather a persistent historical phenomenon.

### 3. THE VENETIAN PRINTING INDUSTRY AND THE INQUISITION

In the 16th century, the Republic of Venice was one of the largest regional economies in Renaissance Europe. Its center was the maritime city of Venice with roughly 150,000 inhabitants at the end of the 16th century and included the “Terraferma” dominion, which encompassed the present-day Italian regions of Veneto, Friuli, and part of Lombardy. The economy of the capital was driven by the vast international trading activities in spices, dying materials, silk, cotton, slaves, and precious metals (Pezzolo 2013).

In 1469, a German immigrant from Mainz, master Johannes of Speyer, established the first printing venture in Venice. The Northern Italian city provided the perfect environment for the nascent industry given its artistic and intellectual achievements, its financial institutions, its location and its leadership in international trade. By the 16th century, Venice was one of the largest European printing sites, accounting for about three-quarters of the books published in Italy and almost half of those published in Europe (Grendler 1975). Book publishers were involved in several activities that encompassed contracting authors, book production, and sales. Printing a new book required a sizable financial investment and the revenues often materialized several months after production. Non-local distribution relied on land and sea transportation, which was risky and expensive at the time. Publishing firms were family enterprises with different generations of family members contributing and providing continuity to the business (Grendler 1977). In the first few decades of the 16th century, the sector enjoyed freedom and government support. There was effectively no publishers’ guild until 1604 (Brown 1891) and regulation was limited.

#### 3.1 European Political Powers and the Inquisition

The Venetian printing press experienced a minimum of censorship until the 1540s.<sup>2</sup> Then, a change in the European political balance led the Republic to support the Inquisition. In the

<sup>2</sup> Catholic censorship as a means to limit the diffusion of Protestant ideas begun in 1520 with the publication of “Exsurge Domine,” the papal bull that excommunicated Martin Luther and banned his books. In the following years, the scope of

16th century, the political geography of Europe differed substantially from that of modern days. Italy was divided into various small states. Most of central Italy was under the control of the pope, with Rome as the capital city of the papal state. Even outside the boundaries of the papal state, the Catholic Church enjoyed a virtual monopoly in the market for religion, extracting large rents through the sale of indulgences and through coronations conferring religiously derived political legitimacy (Cantoni et al. 2018). As a result, the Catholic Church was able to exert political influence, to enjoy economic privileges, and to own land across Western Europe. Distinct from the papal state, the Holy Roman Empire was a large imperial federation of semi-autonomous principalities. It included various regions of modern Germany, of Central Europe, and of Northern Italy. For most of the first half of the 16th century, Charles V was emperor of the Holy Roman Empire.

During the reign of Charles V, the relationship between the Catholic Church and secular authorities in Europe changed substantially. This began in 1517, when Martin Luther sparked the Protestant Reformation, circulating his famous “95 Theses” that criticized Church practices. Many local rulers who supported Luther viewed the new religious movement as a chance to oppose both the hegemony of the Church and that of Charles V. To this end, they formed a military alliance named the Schmalkaldic league. In the early period of the Protestant Reformation, the influence of the Catholic Church on the Venetian Republic was limited, as Venice looked benignly on the Schmalkaldic league and England (Grendler 1975). This was evident in 1520, when the Catholic Church began to increase its control on books linked to Protestant ideas and promulgated the papal bull “Exsurge Domine” which excommunicated Luther and banned his books. Despite pressure from Rome to do something about heretics and heretical books, the Venetian government resisted the papacy. But a series of geopolitical events required a change in the relationship between Venice, Charles V, and the papal state. In 1547, Charles V defeated the Schmalkaldic league, and in the same year Henry VIII, King of England, died. The Republic found itself isolated and in need of allies as the threat to Venice’s trade supremacy from the Ottoman Empire was escalating. This led Venice to seek imperial and papal assistance. As Grendler writes “to erase the memory of their sympathy for the Protestant cause and to assure pope and emperor of their orthodoxy, the Venetians in the spring of 1547 established a new magistracy with particular competence in heresy” (1975: 50). The magistracy, which we will refer to as the Venetian Inquisition, worked as “enforcing agent” of the indexes of prohibited books. This swift adjustment in the Venetian approach to heresy, triggered by the change in the balance of European power, led to the book censorship in the Republic.

### 3.2 The Inquisition in Venice

Starting from 1547, a series of governmental acts introduced restrictions on book production and circulation. Press control and censorship took many forms, but the most important one was the prohibition of publishing, possessing, and reading books judged heretical or against Catholic morality. To make such a prohibition effective, the Venetian Government requested the Venetian Inquisition to prepare a list of books to be banned. The resulting index, drafted in 1549, was strongly opposed by the publishers and it was never enforced. However, the list was a clear sign of the change in the government’s attitude toward the press.

In 1553, the Roman Inquisition ordered the burning of the Talmud all over Italy. Venice complied with the order and the large and important Jewish printing industry disappeared

the censorship in the Italian peninsula was partly limited by the attempt of the Church to restore unity between Catholics and Protestants. These efforts vanished with the Diet of Regensburg (in 1541 and 1546) and with the Council of Trent.

from Venice for at least a decade. The censorship efforts of the Venetian government continued in 1554, when another index of prohibited books was prepared. But also in this case, the index was eventually withdrawn and never enforced. Pope Paul IV ordered the Roman Inquisition to prepare a new index of prohibited books, the Pauline Index, which was issued in 1559. The pope put pressure on Venice to enforce it in order to shield Venetians from heretical and immoral content. The Republic complied. The Pauline Index was also the first to include books with non-religious subjects, encompassing several vernacular classical authors such as Ariosto, Boccaccio, and Machiavelli. As explained by Grendler, the Pauline Index led to a clear shift toward a Counter-Reformation posture: “By 1560 the intellectual atmosphere had changed greatly. A generation of free, mocking, anticlerical authors had died or had found the climate uncongenial to their writing and had gone into retirement. Machiavelli’s name was disappearing from books, and writers were noticeably more cautious. At the same time, a genuine religious revival under the leadership of a reformed papacy occurred” (1975: 54).

Several other Roman Indexes followed the one by Pope Paul IV. In 1564, the Tridentine Index was issued. This Index included not only a list of banned books but also a series of rules to guide the Inquisition activity. Historians have stressed that the vague nature of these rules generated widespread uncertainty (Fraguito 2019).<sup>3</sup> Two additional indexes were prepared but not issued in 1590 and 1593. Eventually, in 1596 the Roman Inquisition issued the Clementine Index, which included more than one thousand prohibitions, and represents the highest point in the press control by the Catholic Church (Infelise 1999).<sup>4</sup> The Clementine Index was followed by a dispute between Venice and Rome over several rules appended to the index, such as the power of local ecclesiastical authorities to ban titles not listed if judged immoral. In the end, the arguments of the Venetian printers prevailed and a concordat between Rome and Venice was signed. This was a clear sign that the fervor of the Counter-Reformation was beginning to fade. Throughout the 17th century, the influence of the Catholic Church on the Venetian press diminished and banned books began circulating again, and eventually were printed again, in the Republic.

### 3.3 Enforcement

The Venetian Republic and the Roman Inquisition collaborated to prevent the publication and circulation of indexed books and to enforce the punishment in case of non-compliance. The Venetian inquisition comprised three lay members and three religious ones: the inquisitor, the patriarch and the papal nuncio. The lay members belonged to the Venetian nobility and acted as representatives of the Council of Ten, the chief judicial organ of the Republic. Sentences were pronounced by the ecclesiastics, but lay members retained the right to authorize the arrest. Overall, Brown (1891) reports 101 cases of press prosecution before the Holy Office in Venice between 1547 and 1585. Press prosecution intensified after the approval of the Tridentine Index and in the 1560s “the Venetians prosecuted heretical books with as much zeal as even Pope Pius V could want” (Grendler 1975: 49). The punishment for publishers not complying with the indexes could take different forms, with pecuniary penalties being the most common one. The Venetian legislation established severe penalties of 50 to 100 ducats but, in practice, the inquisition generally imposed lighter fines that

<sup>3</sup> For instance, rule VII prohibited immoral and obscene books, without providing a specific definition of obscene or lascivious content. The Tridentine Index also allowed printers to sell expurgated books in the case where content was considered appropriate but for a few “mistaken” passages. The time required by the expurgation process was long and highly unpredictable. See [Supplementary Appendix C](#) for additional historical information on the indexes.

<sup>4</sup> Outside of Rome and Venice, the neighboring cities of Milan and Parma drafted censorship indexes in 1554 and 1580, respectively.

varied depending on the gravity of the offence and on the ability of the bookmen to pay (Grendler 1977: 60). In many cases, the most important damage for the bookmen was the confiscation of the prohibited volumes. Anecdotal evidence indicates that, in several cases, the amounts of volumes confiscated to printers and publishers were large, beginning with the 1400 books burned in Piazza San Marco and at the Rialto in 1548.<sup>5</sup>

The ability of the inquisition to prosecute bookmen greatly improved in 1569 when the Venetian Government approved a law that authorized the Holy Office to make inspections in the shops and the storehouses of printers and publishers. Inspections became systematic in the period 1569–71 when authorities confiscated thousands of prohibited books. For the most serious offences, bookmen could also be arrested.<sup>6</sup> In other cases, in addition to the fine or imprisonment, other penances were imposed. For example, when the Venetian inquisition found prohibited books in his warehouse, Bindoni was sentenced to penances including a bread-and-water fast every Friday for a year. Another sanction that printers could suffer was excommunication, that is, being excluded by the Catholic community and deprived of certain rights, such as receiving communion. Readers and owners of prohibited material could also be fined or excommunicated, and the possession of heretical books could lead to a trial for heresy. In addition, owners of prohibited books were required to disclose the identity of the seller of the manuscript, generating a general climate of suspicion. The Holy Office also worked to limit the circulation of prohibited content printed abroad by closely examining imported books at the custom house. Even if it is difficult to estimate the number of prohibited volumes smuggled, and despite historians have documented that some prohibited books circulated, according to Grendler: “the Holy Office, with the aid of the state, quarantined all but a few Italians against Protestant literature” (1977: 200). Thus, our reading of the history literature suggests that the size of the black market was limited and concerned mainly religious books.

#### 4. THEORETICAL CONSIDERATIONS

When the circulation of a book is prohibited, its publisher experiences a shock akin to a sudden cost increase, as selling a copy of a banned book becomes impossible or very costly.<sup>7</sup> Such a shock may not necessarily have a significant impact on publishing firms’ profits and market shares. For example, the ban may only involve books that account for a negligible fraction of a firm’s production. In this case, censorship is unlikely to generate substantial changes in profitability and market outcomes. Even when the banned books account for a large fraction of a firm’s production, the ban may have minimal effects on sales and market share if consumers substitute their purchases of banned books with other titles sold by the firm.

If we consider firms’ dynamic responses to the policy through the development of new content, the impact of censorship on competition and market structure becomes even more complex and nuanced. This is suggested by a growing literature on the strategic responses to product liability risk, which emphasizes the tradeoffs faced by firms when regulation increases the liabilities that protect customers from dangerous products and services

<sup>5</sup> To give an idea of how severe the damage due to confiscation could be, we report the case of the printer Giustiniani. According to the son of the printer, when Talmud was burned in 1553, his father incurred a loss of around 24,000 ducats (Grendler 1977: 93).

<sup>6</sup> Grendler reports different cases of booksellers possessing prohibited material and punished by the Holy Office “with penances, a few days’ imprisonment, a year’s house arrest, and, of course, destruction of the books” (1977: 184).

<sup>7</sup> Alternatively, one can think of the shock as a sudden drop in demand, with the consumption of the banned book constrained to be equal to zero by the policy. In canonical IO models with linear demand and constant marginal costs, the two types of shocks are mathematically equivalent.



(Galasso and Luo 2017, 2021). Stronger product liability regulation increases the costs of producing and selling products associated with high risk. This reduces firm profits and may lead to a drop in innovation incentives as new products face higher liabilities (Galasso and Luo 2022). At the same time, the literature has also shown that regulation may alter consumer preferences and increase willingness to pay for safer products (Viscusi 1993). This shift in consumer perception may serve as a “demand-pull” force that incentivizes the development of safer products, which may shape the direction of creative efforts (Schmookler 1966; Dosi 1982). The strategy literature has indeed documented various cases in which firms have responded to stricter regulation and greater risk awareness with an increase in innovation (inter alia see Kesidou and Demirel 2012 for environmental technologies; Galasso and Luo 2021 for radiation emitting diagnostic devices).

In the context of book censorship, content-banning rules increase the costs of publishing transgressive books. The discussion above suggests that, on one hand, this may reduce the incentives to develop new content, especially in the literary fields more targeted by censorship, as the new books may end up being banned. At the same time, censorship may also incentivize the development of new content as firms cannot sell some of their existing books and consumers may develop greater willingness to pay for non-transgressive content circumventing the regulation. Overall, this suggests that the effect of censorship on creative effort and production of new books is ambiguous and highlights the need for empirical research.

#### 4.1 Drivers of Negative Effects

Whether the incentives to develop safer book content can compensate for the “chilling effect” of censorship depends on a number of social, economic, and regulatory factors. In the following, we discuss three important channels that may exacerbate the negative effect of censorship on creative effort, especially for firms more specialized in literary fields and heavily censored genres.

First, re-directing production toward non-transgressive fields and genres may be challenging when firms possess heterogeneous technological and customer competencies. In this case, each firm tends to be successful in a particular submarket, but less efficient in submarkets for which it does not have the relevant competencies (Mitchell and Skrzypacz 2015). This implies that censorship generates a competitive disadvantage for publishers operating more heavily in submarkets in which many books are banned. In [Supplementary Appendix A](#), we present a multi-product oligopoly model that examines this issue in greater detail. The modeling approach follows theoretical studies of the effects of product liability risk (Hay and Spier 2005; Dawid and Muehlheusser 2022; Hua and Chen 2023). We assume that censorship increases firms’ marginal cost of production and changes the relative profitability of censored submarkets relative to safer literary fields. This induces firms to shift production in favor of less risky submarkets. However, the inferior capabilities in developing less transgressive content limit the ability of the firms specialized in the censored submarkets to compensate for the drop in publication of transgressive books with an increase in the publication of non-risky titles. This leads to a decline in the total production of books for the most exposed firms relative to firms less affected by the regulation.

A second mechanism through which censorship may reduce firms’ creative efforts relates to regulatory uncertainty. Evidence suggests that policy uncertainty lowers investment, especially for firms operating in policy-sensitive sectors or for whom investment has a higher degree of irreversibility (Baker et al. 2016; Gulen and Ion 2016). In the printing sector, the incentives to invest in new content may be reduced when firms cannot predict how censorship will evolve and the type of content that will be banned. For example, firms may expect an entire literary field to be banned, which renders it impossible for firms specialized in the

field to re-direct their creative effort toward new titles within the genre. Uncertainty on future banned content is likely to have a larger impact on firms operating in the subfields more targeted by censorship, as these firms may need to invest in new assets and switch to a new submarket. In particular, uncertainty may generate an option value of waiting, inducing firms to postpone their switching investments until the uncertainty is resolved (Dixit and Pindyck 2012).

The third channel relates to reputational costs and stigma. Stigma is a label evoking a collective perception that a firm is flawed and discredited (Tirole 1996, 2021; Devers et al. 2009). Producing and selling a censored product may directly affect the reputation of a firm. Indirect effects through stigma by association may also be at play, with industry players less likely to transact not only with directly stigmatized individuals but also with their mere associates. In the context of book censorship, one may expect the stigmatization of censored authors to also affect publishers who work closely with them. This may impact market demand, as consumers may become reluctant to buy other books of the publisher and may also have supply effects, as new authors may be reluctant to work with a stigmatized publisher (Luo and Zhang 2021). Both effects penalize the firms specialized in fields targeted more by censorship, relative to other firms in the industry.

In a related article, Blasutto and De la Croix (2023) develop a model of book publishing with homogeneous firms. In their context, the presence of censorship reduces the stock of revolutionary knowledge that authors have access to, which induces printers to focus on compliant books. Our model describes a different and complementary channel, in which censorship affects differentially publishing firms depending on their pre-existent heterogeneity in the content specialization.

#### 4.2 Implications for Our Empirical Setting

Historical evidence indicates that censorship had real impacts on the profits of a Venetian publisher. Banned books were confiscated, thus imposing a loss on the bookseller. Additional pecuniary penalties were also common. In addition, Grendler (1977) reports cases of booksellers being arrested because of their prohibited books. This suggests that the costs associated with the censorship intervention were large enough to affect publishers' production and choice of content.

Each of the above-described factors limiting the ability of publishers to re-direct their production toward new content described above are present in our empirical setting. Grendler (1977) explains that publishers specialize in certain subject matters.<sup>8</sup> Several features of book publishing explain such specialization. Publishers had different expertise in editing and marketing specific categories of books. They also owned assets specific to the production of particular types of books (as in the case of music, cartography, or Greek language). Moreover, each publisher relied on a network of authors, friends, and collaborators to evaluate book proposals and plan future production (Pettegree 2010).

Historical evidence also supports the idea of substantial regulatory uncertainty. While initially the targets of the Inquisition were religious publications related to Protestant ideas, later editions of the indexes greatly expanded the scope of prohibitions, to also cover works of poetry, literature, and classical authors. In many cases, inclusion in the lists of banned books evolved in ways unpredictable to the publishers and the authors. As stated by Brown: “[ ... ] many of these books did not, mediately or immediately, touch upon religious questions, but were condemned for some triviality, such as the works of many poets and an

<sup>8</sup> For instance, Manuzio was renowned for its editions of classics and humanist commentaries. Tramezzino specialized in the publications of vernacular books—chivalric romances and history—and legal texts.

immense number of books on a variety of subjects which did not contain any attack on dogma, but in which the presence of a single word which might raise a scruple had been deemed sufficient to condemn them to an everlasting death” (1891: 137).

Finally, there is also evidence that publishers sustained large reputation costs when books in their catalogue became prohibited (Ottone 2019). The Roman Church required Catholics to denounce whoever owned or sold prohibited books (Fraguito 2005). Within this general climate of suspicion, reputational costs emerged through direct and indirect channels. The first (direct) mechanism was the excommunication of the publisher. Excommunication led to exclusion from the Catholic community and deprived an individual from certain rights, such as receiving communion.<sup>9</sup> A second (indirect) mechanism through which publishers were stigmatized was their association with authors of banned books. Publishers and authors were often involved in close interactions, as authors actively contributed to defining the publisher’s editorial strategy (Grendler 1977).<sup>10</sup> These strong ties suggest that the stigma attached to the authors of prohibited books could easily spill over to publishers through mere association. Together, these direct and indirect reputation costs reduced the ability of censored publishers to respond to the policy with an increase in the production of new content.

The historical evidence summarized above confirms the presence of all three factors limiting the ability of firms to respond to censorship with an increase in the supply of new content. While the historical accounts and the available data do not allow us to empirically disentangle and quantify the role of each of the three mechanisms, they suggest that a decline in publications for the firms more targeted by the Inquisition is more likely in our empirical setting. This testable prediction will guide our econometric analysis.

## 5. DATA AND EMPIRICAL APPROACH

Our empirical analysis relies on several data sources. The main database that we use to identify information on books published, publishers, and authors is Edit16 “Censimento nazionale delle edizioni italiane del XVI secolo.” Edit16 provides a comprehensive census of manuscripts published between 1500 and 1600 in Italy. For each manuscript, Edit16 reports its title, author, publisher, publication date, and place. The data also provide some biographical information on authors and publishers. In part of our analysis, we complement the data with information obtained from the Universal Short Title Catalogue (USTC), a repository of editions published in Europe between the 15th and the 17th centuries.

Data on censored books are obtained from De Bujanda (1996), who provides a comprehensive description of the indexes of prohibited books issued across a variety of European countries. For each index, De Bujanda (1996) reports the full list of censored books, specifying their title, author, publisher, edition as well as place and year of publication. We manually match the data in Edit16 with the books listed in indexes drawn up in Rome, Venice, and its neighboring regions of Parma and Milan.<sup>11</sup> In practice, not all of these indexes were enforced. As we discuss in Section 3, historians have emphasized the importance of the Pauline index enacted in Rome in 1559, which will play a central role in our empirical

<sup>9</sup> This was a very powerful weapon for the inquisition because the Venetian booksellers, despite the hostile attitude toward the censorship, recognized the religious authority of the pope and “were lively dread of excommunications” (Brown 1891: 140).

<sup>10</sup> For example, Quondam (1980) describes the close collaboration between the publisher Marcolini and the author Aretino, whose books were included in indexes.

<sup>11</sup> Specifically, we match the following indexes: the Roman indexes of 1557, 1559, 1564, 1590, 1593, and 1596; the Venetian indexes of 1549 and 1554; and those of Milan of 1554 and Parma of 1580.

analysis. We provide examples of the information available in Edit16 and in [De Bujanda \(1996\)](#) in [Supplementary Appendix D](#).

There is one feature of the data that require further discussion. Edit16 provides only records of books for which at least one copy has survived up to today. This selection on survival can be a potential source of sample bias. The main concern is that the books targeted by the Inquisition may be less likely to survive, as their circulation and possession was forbidden. This would lead us to overestimate the negative impact of the Inquisition on book production, as our measures would undercount censored books. We expect this selection, even if present, not to play a quantitatively large role. Historians suggest that the books more likely to be completely removed from circulation were those printed in Protestant countries ([Grendler 1977](#)). Evidence indicates that some copies of books printed in Venice were kept, even when circulation was substantially reduced. [Grendler \(1977\)](#) and [Frajese \(2010\)](#) document how theologians, jurists, and scholars could obtain reading permissions from the Church and access prohibited books for their studies.<sup>12</sup> At the same time, our data provide evidence that the indexes affected future editions of the listed books. Specifically, the likelihood of observing a new edition of a book declines substantially once it is included in one of the indexes. This is particularly the case for the books listed in the 1559 Pauline index.<sup>13</sup> [Supplementary Appendix Figure A1](#) provides an illustration of this point, documenting a substantial drop in the publication of new editions of the books listed in the 1559 Index.<sup>14</sup>

We exploit the information reported in Edit16 to identify the most prominent book publishers active in Venice during the 16th century. To this end, we first group publishers into family firms, using the surname, location, and years of activity of each publisher together with the biographical information provided by Edit16. An analysis at the family level is appropriate in our context as historians have emphasized the crucial role of family ties in providing continuity within publishing firms ([Grendler 1977](#)).

Our main analysis relies on a sample of 27 family firms that were active in Venice during the Roman Inquisition. Specifically, we include in our main sample families that were active in Venice (i.e., published at least one book) both before 1540 and after 1575. For each of these families, we collect information on the books published during the entire century. Overall, in the first decade of the sample period, the 27 firms accounted for roughly 75% of the production of books in Venice. Notice that in our sample there is no entry or exit of firms during the period 1540–75 by construction. Moreover, only a handful of sample firms enter or exit during the 50-year window 1537–87, which is the main focus of our analysis (four firms enter between 1537 and 1539 and six firms exit in 1575–87). In this respect, most of our analysis illustrates how the most prominent Venetian publishers responded to the Roman Inquisition at the intensive margin, by adjusting their publishing activity. In Section 9, we extend the sample and include firms that enter or exit the industry during the

<sup>12</sup> Our manual match between the books listed in the inquisition indexes and those in Edit16 confirms that prohibited books were not completely removed from circulation, as we were able to match more than 90% of the books in the indexes. The unmatched cases typically refer to Bibles or anonymous prayer books for which, absent the information on authors, it was impossible to identify the relevant Edit16 match.

<sup>13</sup> Take, for example, the manuscript “I Capricci del Bottaio” by Giovanni Battista Gelli, which was included in the Pauline index. While there are records of editions of the book published in Venice in the early 1550s, there are no new editions published after 1559.

<sup>14</sup> In the few cases, where new editions of prohibited books are published after this index, the title of the book is often adjusted to include the caption “ricorrette con grandissima diligenza”—that is, revised with great diligence—suggesting that the original text of the book was amended to comply with the regulation. Another source of possible concern is that publishers might have published banned books under a false name. Edit16 corrects this potential bias reporting both the publisher’s name appearing in the cover page and the true name of the publisher when different.

period 1540–75. We leverage this larger sample to examine the extensive margin effects of the Inquisition on industry entry and exit.

### 5.1 Econometric Model

To investigate the impact of the Inquisition on the Venetian book publishing industry, we divide firms into a treatment and a comparison group, using information on the books they published before the Inquisition. Specifically, we classify firms into the treatment or comparison group depending on whether the firm published at least one book between 1520 and 1547 that will be listed in one of the Inquisition Indexes of prohibited books drafted in Rome, Venice, and nearby regions.

Intuitively, our treatment group captures publishing firms that, at the beginning of the 16th century, were more exposed to topics and authors that will later become targets of the Inquisition. It is important to notice the forward-looking nature of this approach as, in some cases, the books will be listed in an index decades after they are published by the firm. There are a number of advantages of using this pre-Inquisition exposure measure relative to other metrics linked to the contemporaneous effects of the indexes. First, our approach focuses on the books published before the shift in the European political equilibrium, which jump-started the Inquisition in Venice. As we explain in Section 3, it is unlikely that Venetian firms could anticipate these events and adjust their publications accordingly. Second, contemporaneous effects of indexes are more likely to reflect unobservable firm-level variables, which would bias our estimates.

Our analysis uses indexes from Rome, Venice, and other nearby Italian cities. As we discussed above, the Roman Indexes were strongly enforced across the Venetian Republic, even if they were promulgated by the Catholic Church in Rome. The two Venetian Indexes, prepared by the local government, were never implemented. Nonetheless, the books listed in these indexes provide information on the publications of Venetian publishers that the Church perceived as being transgressive. For the same reason, we also use the indexes drafted in the two neighboring dukedoms of Parma and Milan.

The unit of observation in our analysis is a firm–year. Our empirical strategy relies on a difference-in-differences estimation:

$$Y_{f,t} = \alpha + \beta \text{Inquisition}_{f,t} + \delta_t + f_f + \varepsilon_{f,t} \quad (1)$$

where the dependent variable,  $Y_{f,t}$ , represents the publications by firm  $f$  in year  $t$ . Following a standard approach in the literature, we measure publications at the book-edition level. This dependent variable captures the contribution of each firm to the stock of creative knowledge available in the Venetian Republic (Dittmar and Seabold 2019; Binzel et al. 2021). The treatment variable,  $\text{Inquisition}_{f,t}$  is equal to one after 1547 for firms that were more exposed to the Inquisition. One can think of this variable as the product between two dummies:  $\text{treated}_f \times \text{after47}_t$  where  $\text{after47}_t$  is equal to one for each year after 1547 and  $\text{treated}_f$  is an indicator capturing firms which published at least one prohibited book in the pre-Inquisition period 1520–47. This leads us to classify 18 out of the 27 firms in our sample as treated. With this threshold, prohibited books account for about 3.5% of the publications of treated firms during the period between 1520 and 1547, on average. In [Supplementary Appendix B](#), we examine robustness to alternative pre-Inquisition time windows and definitions of the treatment group. The terms  $\delta_t$  and  $f_f$  are year and firm fixed effects. The coefficient  $\beta$  is a difference-in-differences estimator identifying the effect of the Inquisition on treated firms relative to firms in the comparison group.

In our analysis, we also distinguish between two treatment periods:  $EarlyInquisition_{f,t}$  which is equal to one for treated firms in the period 1548–58; and  $Index_{f,t}$  which is an indicator for treated firms after the enactment of the Pauline Index in 1559. We cluster the standard errors at the firm level in all regressions.

While, in general, censorship has an ambiguous effect on the provision of creative output, the features of our empirical context suggest that  $\beta < 0$ . The theoretical framework and the historical evidence discussed in the previous Section indicate that three factors may lead to a decline in publications: (1) heterogeneous resources and capabilities, (2) regulatory uncertainty, and (3) reputation effects. To disentangle the magnitude of each of these factors is outside the scope of the article, and not feasible with the available data. At the same time, the historical evidence discussed in Section 4 and [Supplementary Appendix C](#) and the empirical evidence in Sections 6–10 are consistent with the idea that these factors shaped the effect of the policy.

## 5.2 Summary Statistics

[Supplementary Appendix Table A1](#) provides summary statistics. On average, each firm in our sample publishes about 7 new editions per year during the period 1537–87. The dummy  $Inquisition_{f,t}$  is equal to one for about 52% of the sample. In [Supplementary Appendix Table A2](#), we provide the complete list of the firms in our sample, the lifespan of each firm and the list of family members involved in the printing activities during the sample period. In [Supplementary Appendix Figure A2](#), we illustrate the total publication activity during our sample period, distinguishing between firms that were more and less exposed to the Inquisition. The number of new editions released each year by the two groups of firms appears to be relatively stable before the Inquisition, with the more exposed firms accounting for about 70% of the new editions released each year. After 1559, the year in which the Pauline Index was enacted, there was a substantial decline in publication by the more exposed firms. This is suggestive of a change in market structure, with less exposed firms gaining market share. In fact, our data show a change in market leadership during the period of our analysis. In the first decade of our sample period (1537–46), the three largest publishers are Bindoni (with a market share of 14.5% of new editions), Scoto (10.5%), and Nicolini (9%). All these publishers are exposed to the Inquisition according to our metric. In the last decade of the sample period (1578–87), the leading firms are Giunta (17%), Gardane (15%), and Rampazetto (11.5%), all not exposed to the Inquisition according to our measure. In the next Section, we confirm these preliminary findings with a differences-in-differences econometric analysis.

## 6. CENSORSHIP AND PUBLICATION RATES

[Table 1](#) presents the first set of estimates quantifying the relationship between censorship and publications by Venetian publishers. The dependent variable is the number of new editions released by the firm in year  $t$ . Column 1 shows a substantial drop in publication rates after 1547 for firms more exposed to the Inquisition. Column 2, our baseline model, distinguishes between the early Inquisition period (1547–58) and the period after the Pauline Index (1559–87). This specification suggests that the early Inquisition period is not associated with a differential propensity to publish between firms more and less specialized in transgressive topics and that the effect of the Inquisition begins only after 1559. This is consistent with the history literature discussed in Section 3, which documented that the Pauline Index was the first list of prohibited books to be effectively enforced in the Venetian

**Table 1.** The inquisition is associated to a drop in publication rates for more exposed firms relative to less exposed firms.

Dep. Variable	(1) New editions	(2) New editions	(3) New editions	(4) New editions— no indexed	(5) New editions— no reprints
Estimation	OLS	OLS	Poisson	OLS	OLS
Inquisition	-4.503* (2.246)				
Early inquisition		0.939 (1.673)	0.226 (0.209)	1.091 (1.688)	0.783 (1.563)
Index		-6.568** (2.676)	-0.909*** (0.326)	-6.301** (2.659)	-6.384** (2.533)
Year effects	Yes	Yes	Yes	Yes	Yes
Firm effects	Yes	Yes	Yes	Yes	Yes
Observations	1377	1377	1377	1377	1377

Notes: robust standard errors clustered at the firm level in parentheses.

$p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . Inquisition = 1 for treated firm after 1547. Early inquisition = 1 for treated firms during 1547–58. Index = 1 for treated firms after 1559. The dependent variable in columns 1–3 is the number of new editions published by the firm in the year. In column 4, the dependent variable only considers books which are not listed in the indexes. In column 5, the dependent variable does not include reprints.

Republic, and that it set the beginning of a stronger censorship period for the Venetian printing press.

Quantitatively, the estimates indicate that the firms more exposed to the Inquisition published 6.6 books per year less after the Pauline Index relative to the other firms in the sample, and the estimate is statistically significant at the 5% level. Assuming the same difference between the two groups of firms before and after 1559, the hypothetical average number of books published by treated firms would have been 13.53 per year after 1559. This implies that the average decline in publication levels after 1559 is 49%.<sup>15</sup> In column 3, we confirm this result using a Poisson model, which accounts for the count nature of the dependent variable. Exponentiation of the coefficient indicates a decline in book publications of roughly 59%, which is slightly larger than the magnitude uncovered by the OLS specification.

In contemporaneous work, [Becker et al. \(2021\)](#) examine the effect of the Catholic Inquisition on the diffusion of knowledge and urban growth across several European cities. In the case of Venice, they also find a negative impact on the publication rates of printers of indexed authors. Our findings complement their analysis in two ways. First, our focus on a single market permits us to identify more precisely the firms affected by the Inquisition and their exposure levels. The micro/case study approach led us to estimate a substantially larger effect of censorship on publication rates. Second, by recovering the detailed composition of the Venetian industry, we are able to investigate the effects of the Inquisition on industry structure, entry dynamics, and the direction of publishing across areas of content. These issues, which are presented below, are not explored by [Becker et al. \(2021\)](#).

### 6.1 Robustness and Extensions

There is the concern that our findings may be mechanically driven by treated firms no longer releasing new editions of indexed work. To address this issue, in column 4, we re-

<sup>15</sup> The average number of books published in the control group after 1559 is 9.03, and the pre-1559 difference between treated and control firms is 4.5 books per year.

estimated our model using a dependent variable which only considers books not listed in the indexes. The estimates are qualitatively and quantitatively very similar to our baseline model. This is consistent with the idea that the direct effect of the ban of listed books only plays a marginal role in explaining the drop in publications which we estimated.

As we clarified above, we follow the standard approach in the literature and measure the output of each firm with the number of new editions published each year. One of the key reasons for using this approach is that comprehensive data on press runs are not available. A potential concern is that different editions may be characterized by large differences in press runs and, therefore, our measure of output may not represent accurately the yearly production of a firm. However, historians have clarified that in the XVI Century press runs were limited and rather homogeneous in their sizes—in the order of 800–1000 copies—and that books of great success were usually printed in multiple editions (Nuovo 2013). As a robustness check, in column 5 of Table 1, we remove the reprints from the dependent variables, identified using information on the publisher, the author and the title of each book provided in Edit16.<sup>16</sup> Results are very similar to our baseline in this specification, supporting the idea that the decline in publications is driven by a drop in new content and not simply by a decline in later editions of existing books. In Supplementary Appendix Table A3, we confirm the robustness of our baseline specification using alternative econometric models and in a variety of empirical checks.

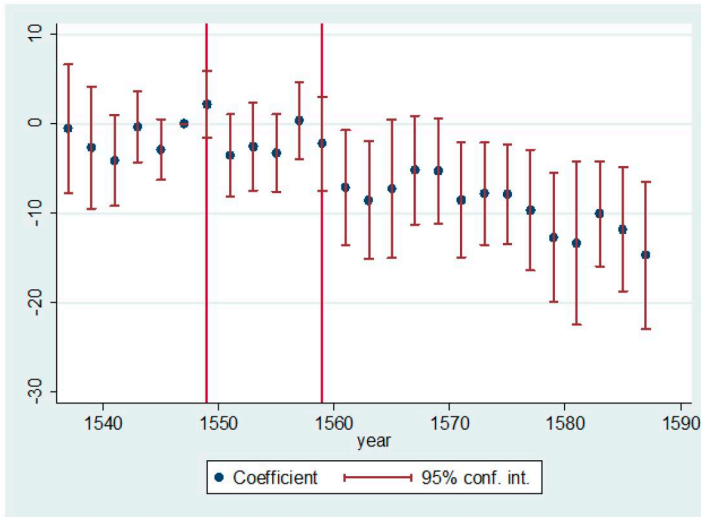
A natural extension of our analysis would be to replace the binary indicator for treated and control firms with a continuous measure, the fraction of books published before the Inquisition that will feature in the indexes. Unreported regressions show small and statistically insignificant elasticities in this alternative model. This suggests that the effect of the Inquisition is not linear in the exposure to the Inquisition. Supplementary Appendix Table A4 examines this issue in greater detail. Overall, the analysis shows that the effect of the Inquisition on publication rates appears fairly homogenous among the treated firms in our sample, and it is not driven by the firms more heavily targeted by the Inquisition. In other words, the extensive margin (being a target of the Inquisition) rather than the intensive margin (the fraction of listed books) seems to be the driver of the effect. This finding is consistent with our theoretical analysis, as the effects of the economic mechanisms discussed in Section 4 are not necessarily linear in the number of banned books. In particular, the impact of regulatory uncertainty is likely to be shaped by expectations on future restrictions. Reputation effects depend on social interactions between printers, authors, and customers and may be triggered by the publication of a small number of prohibited titles.<sup>17</sup>

Overall, the above findings show a decline in book publication for the firms more exposed to the Inquisition which goes far beyond the stop in printing of indexed titles. In light of our theoretical framework, this suggests that the “chilling effect” of censorship dominated the incentives to develop new publishable content for the firms more involved in the commercialization of transgressive books. This supports the idea that publisher specialization, uncertainty in the evolution of censorship, and reputational costs—for which we provide historical evidence in Section 4—were important features of the industry and affected the response of the more exposed firms.

<sup>16</sup> We classify as a “new book” the first occurrence of a combination of author, publisher and title observed in Edit16, while “reprints” are subsequent occurrences. In Supplementary Appendix B, we show that the results are robust to alternative definitions of reprints which require only part of the title to correspond to that of the first edition.

<sup>17</sup> A caveat relates to the forward-looking nature of our measure of exposure. We only consider books published between 1520 and 1547 that subsequently enter one of the Inquisition indexes, which may differ from the total number of prohibited books published by the firm over our entire sample period. While helping with endogeneity concerns, this approach may reduce the power of the continuous measure of exposure.





**Figure 1.** Dynamic effects on yearly new book editions of firms more exposed to the inquisition relative to less exposed firms.

*Notes:* The dependent variable is the number of new book editions printed by the firm in Venice in year  $t$ . The figure plots the coefficients (and 95% confidence intervals) of the interaction terms between dummies for 2-year time windows and the treatment dummy for the firms more exposed to the Inquisition.

## 6.2 Pre-treatment Trend and Time-Specific Treatment Effects

Our empirical model assumes that before the Inquisition the firms in the treatment group have trends similar to those of the control group. To provide support for this assumption, we extend our baseline model to estimate the time-specific differences between treatment and control firms,  $\beta_t$ .

Figure 1 provides a graphical illustration of the estimated coefficients and their 95% confidence intervals. Before the Inquisition, the estimated differences between the treated and control firms are small and statistically insignificant. The results, which show that the decline in publishing did not start until 1559, support the common-trends assumption. The size of the negative effect becomes larger and statistically more significant over time. By 1585, the average decrease relative to control firms was close to 10 books, almost double the effect in 1560. This is consistent with the idea that the effects of the censorship activity became substantial with the Pauline Index of 1559 and that they were amplified during the following decades.

We used the tools developed by [Rambachan and Roth \(2023\)](#) to perform sensitivity analysis that relaxes the assumption of common pre-trends. Intuitively, these empirical tests assume that post-treatment violations of parallel trends cannot differ too much from the deviations measured before treatment. In [Supplementary Appendix Figure A3](#), we plot confidence sets constructed using these tools for some of the coefficients in the last part of the treatment window.

## 6.3 Heterogeneous Effects

Our baseline analysis has documented an average negative effect of the Inquisition on printing outcomes. [Supplementary Appendix Table A5](#) provides a first look at the heterogeneity in the effect. First, we contrast the firms with more than 50% of their pre-1547 publications

in Latin with those printing predominantly in vernacular languages. The estimates show that the drop in publication is more substantial for firms specialized in vernacular languages. In line with our theoretical discussion and historical evidence presented in Section 4, uncertainty over the scope and evolution of censorship was much larger for more modern vernacular literary work. Moreover, specialization in the editing and marketing of vernacular books may have prevented these firms to switch their production and print in Latin.

[Supplementary Appendix Table A5](#) also examines whether the effect of censorship is mitigated by features of the firm's network of authors. The estimates indicate that firms more targeted by the Inquisition reduce their publications more substantially when the number of distinct authors they publish is below the median. These results are consistent with the idea that the Inquisition induced firms to redirect their creative efforts toward new types of content, and that this was more challenging for firms that relied on a limited number of authors. Results support the idea of stigma by association, as the link between a banned author and a publisher is likely to be perceived as stronger when a printing firm relies on a limited set of authors. These findings are also consistent with the work of [Luo and Zhang \(2021\)](#) who show that features of the network of content creators can shape firms' responses to negative events.

Finally, in [Supplementary Appendix Table A5](#), we investigate an additional source of heterogeneity related to the age of the book at the time of censoring. Specifically, for each indexed book published before 1547, we compute the difference between the year in which the book appears in an index for the first time, and the year in which the indexed edition is published. We then compute the average of this variable at the firm level. The regression shows that censorship had a slightly larger effect on firms whose indexed books were published more recently, relative to those whose indexed books were published less recently. One possible driver of the effect is that firms with more recent indexed books suffered larger financial losses, which reduced their ability to switch to different content and negatively affected their market share and growth prospects. An alternative and complementary channel is that firms with more recent indexed books were more specialized in content areas with greater regulatory uncertainty, such as vernacular literature. These findings also complement the analysis of [Blasutto and De la Croix \(2023\)](#), who argue that censorship of books that circulated for several decades before the Inquisition had lower impact on knowledge availability and cumulative knowledge creation.<sup>18</sup>

## 7. COMPETITIVE INTERACTION AND SPILLOVER EFFECTS

An important caveat in our analysis is that firms in the control group may have increased their publication activity as a result of the Inquisition. Specifically, the negative shock affecting firms targeted by the Inquisition may have created market opportunities for less-exposed firms. This competitive interaction leads to a violation of the Stable Unit Treatment Value (SUTVA) assumption, as the control group would be affected by a positive spillover ([Rubin 2005](#)). More generally, the competitive reaction may lead us to overestimate the negative effect of the Inquisition on treated firms, as the observed decline in book publications by treated firms may not indicate an overall decline in publications at the industry level. In this section, we explore this issue with two different approaches. First, we exploit a control group of foreign firms, which are less likely to be impacted by the Inquisition and unlikely to be

<sup>18</sup> In unreported regressions, we have further examined differences across firms taking into account whether they published authors for which the opera omnia was banned relative to those for which only specific books were prohibited. There is some evidence of larger effects of censorship for firms relatively more involved in the publication of completely banned authors.

direct competitors of Venetian publishers. Second, we directly account for competitive spillovers in the empirical analysis.

### 7.1 Foreign Firms as Control Group

Our first approach is to compare the printing activities of the Venetian firms with those of a control sample of publishers of similar size active in other geographical markets where the Inquisition had limited or no impact. These characteristics of the ideal control group rule out publishers located in other Italian states—where the Inquisition Indexes were effectively enforced (Infelise 1999)—as well as those located in many other European territories where local indexes of prohibited books were adopted. The impact of the Roman Inquisition was much lower in the Germanic territories of the Holy Roman Empire where the Protestant Reformation originated and spread. In these regions, even in those that remained Catholic, the Roman Indexes were not effectively enforced (Burkardt and Schweroff 2010).

Following this reasoning, we contrast the publication rates of Venetian firms with those of some of the most prominent contemporary German and Swiss book publishers. More specifically, to identify the control firms we use the USTC data and focus on the cities of the Holy Roman Empire with the largest publishing activity. We then group the publishers based in these cities into family firms and select those operative for a substantial part of the 16th century. This process led to a sample of 20 foreign publishing firms located in German and Swiss cities.<sup>19</sup> In the majority of cases, the foreign firms we selected were active in cities or territories where the Protestant faith was predominant during the 16th century (Cantoni 2012). According to De Bujanda (1996), no index was implemented in the foreign cities in our sample.<sup>20</sup>

Column 1 of Table 2 contrasts the publication of new editions by the Venetian firms affected by censorship (our treatment group in the baseline regression) with publications by foreign firms. The estimates indicate a drop in publications for Venetian firms of about three books per year after 1559. The coefficient for the earlier Inquisition period is smaller and not statistically significant. Conversely, column 2 compares the Venetian firms less exposed to the Inquisition (our control group in the baseline regression) with the sample of German and Swiss publishers. In this case, we observe a statistically significant increase in the publication of new editions by Venetian firms after 1559 relative to German and Swiss publishers.

There is the concern that spillovers may still be present even when we use foreign firms as control group, because of international competition among publishers. Historical accounts suggest that competition was mostly within-city rather than intra-city. As explained by Dittmar and Seabold (2019), books at the time were heavy and costly to transport on roads, and also fragile and susceptible to water damage when transported by boat.<sup>21</sup>

Among the cities in our control group, the one with stronger ties to the Venetian printing press was Frankfurt, which was the home of the most prominent book fair in Europe at the time. The fair was attended by several Venetian publishers and it influenced their publication

<sup>19</sup> The sample of foreign firms may appear small relative to the number of publishers active in Venice. This is because the average firm publication level, size, and lifespan tend to be smaller in German and Swiss cities relative to the Venetian industry. For example, according to USTC, in aggregate the publishers in Mainz released fewer than 50 new editions per year during the 16th century. In comparison, in Venice, the number of yearly new editions was above 250 for most of the century.

<sup>20</sup> The 20 firms are geographically distributed as follows: Augsburg (2 firms), Basel (5), Frankfurt (4), Leipzig (1), Köln (3), Mainz (1), Strasbourg (2), Wittenberg (1), and Zurich (1). Two firms (linked to the families Gutknecht and Neuber) were dropped from the sample as we observed an unusual data pattern during the early inquisition period. Results are robust to including these outlier firms but the coefficients on the early inquisition period are less precisely estimated. In unreported regressions, we also checked the robustness of our results to the inclusion of firms active in Vienna during the sample period.

<sup>21</sup> Dittmar and Sebold (2019) also cite Edwards: “It was normally cheaper ... to reprint a work in a distant town than to send a large shipment from the place of original publication” (1994: 29).

**Table 2.** Publication levels of the Venetian firms more (less) exposed to the inquisition decline (increase) relative to a control group of foreign firms.

Dep. Variable	(1) New editions	(2) New editions	(3) New editions	(4) New editions
Venetian exposed X period 1547–58	– 1.002 (1.453)		– 0.656 (1.677)	
Venetian exposed X after 1559	– 3.053** (1.078)		– 3.343** (1.224)	
Venetian not exposed X period 1547–58		– 1.881 (1.459)		– 1.577 (1.694)
Venetian not exposed X after 1559		3.462*** (1.080)		3.207** (1.223)
Year effects	Yes	Yes	Yes	Yes
Firm effects	Yes	Yes	Yes	Yes
Sample	Treated Ven. and foreign firms	Control Ven. and foreign firms	Treated Ven. and foreign firms (drop Frankfurt)	Control Ven. and foreign firms (drop Frankfurt)
Observations	1827	1368	1695	1236

Notes: OLS regressions with robust standard errors clustered at the firm and city level in parentheses.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . In columns 1 and 3 the sample includes treated firms (Venice) and foreign firms; columns 2 and 4 the sample includes control group (Venice) and foreign firms. In columns 3 and 4 firms active in Frankfurt are dropped from sample of foreign firms.

choices and the timing of book releases (Nuovo 2013). Columns 3 and 4 of Table 2 in the article confirm our result, dropping from our control group the four sample firms located in Frankfurt, which are those for which competition is likely to be more severe.

Finally, an advantage of using foreign firms as control group is that these firms were not only geographically distant from Venice, but were also located in European areas speaking a different language. In Section 8 below, we show that the effect of the Inquisition was predominantly concentrated in books published in vernacular languages, which are those less likely to be produced abroad. Building on this insight, in Supplementary Appendix Figure A4, we provide event study graphs that contrast Venetian and foreign firms dropping from the dependent variable the publications in Latin, which we expect to be easier to sell across markets with different local languages. These figures confirm the findings from Table 2, and provide additional support to the difference in differences model by showing similar publication trends for the Venetian and foreign firms in the period preceding the Inquisition.

## 7.2 Controlling for Spillover Effects

Above we have considered the presence of spillovers using a control group where violations of the SUTVA assumption are less likely to manifest. This is a common approach used in studies examining the impact of policies affecting differentially firms within a single or in related markets (see e.g., Fowlie et al. 2012). An alternative approach to study economic environments in which spillovers are present is to directly model such spillovers, and use the theory to obtain some guidance on how to account for them in the empirical analysis. In the context of economic history, this is the approach followed by Dewitte et al. (2022) that builds and estimates a structural model of occupational and location choices. While a full structural analysis of the Venetian printing press is outside the scope of our article, we conduct a second empirical exercise which follows Rotemberg (2019) and builds on the idea

that firms in our sample offer differentiated products and that the competitive effects of the Inquisition may vary depending on the submarket in which they operate.

To group firms into submarkets, we rely on the language and on the content of the books published by the firm before 1547. The language in which books were written shaped competition as not all customers could read in Latin and therefore substitute vernacular content with Latin content. In terms of content, we distinguish religious texts from other Latin books as their usage in religious ceremonies reduces their likelihood of being replaced by other Latin books, and thus less likely to be considered substitute by consumers. This approach leads us to group publishers into three submarkets: those specialized in books written in vernacular Italian, those specialized in non-religious books in Latin, and a final group of publishers specialized in religious books written in Latin.

The regressions we present in [Supplementary Appendix Table A6](#) build on this categorization and include controls for potential spillovers generated by competitors targeted by the Inquisition. The coefficients for these indirect effect variables are consistent with the findings we obtained above in the analysis of foreign firms, and show a positive effect on competing firms not affected by the Inquisition. The magnitude of the effect also appears in line with the one estimated using the sample of German and Swiss firms and suggests an increase of about 2–3 books a year for Venetian firms not exposed to the Inquisition when their competitors are exposed.

### 7.3 Discussion

In [Table 1](#), we estimated a difference of about six new book editions after 1559 between the Venetian firms exposed to the Inquisition and those less exposed. The empirical exercises conducted in this Section allow us to decompose this aggregate effect. Specifically, the regressions imply that roughly half of the difference (about three books) is due to a decline in publication by the Venetian firms more exposed to the Inquisition and that the other half of the effect is driven by an increase in publications by the Venetian firms less affected by the indexes. This finding has two important implications. From an empirical perspective, it implies that comparing censored and non-censored firms in the same industry may overestimate the negative causal effect of censorship on the censored as the estimate includes a positive effect on the firms not affected by the ban. From a theoretical perspective, the result is consistent with the idea that in the presence of heterogeneous technological and customer preferences censorship can be a source of competitive advantage for the firms less affected by the regulation. We discuss more in detail this theoretical channel in the mathematical model presented in [Supplementary Appendix A](#), which also specifies conditions under which this effect emerges.

## 8. CENSORSHIP AND THE DIRECTION OF CREATIVE EFFORT

To this point, we have examined the effect of book censorship on Venetian publishers, distinguishing between those more and less exposed to the Inquisition. In this section, we explore how this effect varies across submarkets delineated by publishing fields. This analysis helps us to uncover the impact of the Inquisition on the direction of creative efforts. To conduct this exercise, we use the comprehensive list of subjects provided by the USTC database. Specifically, the dataset classifies each book into one of 35 unique fields that delineate literary genres. We manually classify each of these detailed fields into four macro-categories. Our first macro-field, which we name “Literature,” includes classic and contemporary works of prose, poetry, and drama. “Literature,” “Poetry,” and “Drama” are examples of USTC subjects in this group. Our second category is “Religion.” This includes religious books and

publications used in religious services. Some of the relevant USTC subjects are “Funeral Orations,” “Bibles” and “Religious Books.” The third category comprises “Educational” books. We include in this macro-field publications related to science, mathematics, and other academic disciplines. Examples of subjects in this category are “Astrology and Cosmography,” “Science and Mathematics,” and “Educational Books.” Our final category includes the “Residual” publications. This group encompasses music and other specialty areas such as “Heraldic Works” and “Culinary Arts.” The Literature macro-category accounts for about 30% of the publications in our sample, Religion and Education for about 25% each, and the Residual category includes 20% of the sample. [Supplementary Appendix Figure A5](#) provides a first look at the field-level data and shows a substantial decline in the publication of new editions in the fields related to literature, relative to those belonging to the other macro-categories.<sup>22</sup> The decline substantially exceeds the drop one would expect looking at the proportion of banned books in the Literature category.<sup>23</sup>

To further investigate the effect of censorship on the direction of creative efforts, we use the 35 USTC fields and their grouping into macro-categories to examine the differential impact of the Inquisition on the publication rates across genres. [Table 3](#) presents a series of regressions in which the unit of observation is a firm–field–year. Column 1 focuses on the fields in the literature macro-category and includes family-fields as well as year effects. The difference-in-differences estimator indicates a decline in new editions in literature fields for firms more exposed to the Inquisition relative to those less exposed. The coefficient on the early Inquisition period is small and statistically insignificant. The coefficient for the period following the Pauline Index is negative and significant at the 0.01 level, indicating an average decline of about 0.3 books per year in each of the literature fields.

Columns 2–4 repeat the analysis for the three other macro-categories of religious fields (column 2), educational fields (column 3), and the residual category (column 4). The publication rates between the firms more and less exposed to the Inquisition differ much less in these macro-categories. This is especially the case for books in educational fields and those in the residual category, where the coefficient for the period after 1559 is about a third of the one estimated in the literature fields and is not statistically significant. For publications in religious fields, the estimates indicate an average per-field decline of about 0.2 books for the more exposed families, but the coefficient is not statistically significant. In columns 5 and 6, we focus on the literature fields and distinguish between books published in Latin and those published in vernacular languages. These regressions indicate that vernacular texts account for essentially all the differences in literature publications between the two groups of Venetian firms in our sample. [Supplementary Appendix Table A7](#) provides a set of robustness for these findings.

The regressions presented in this section are consistent with the idea that censorship led to a change in the direction of publishing, with printers reducing the supply of vernacular literature. This finding resonates with the reduction in the share of revolutionary books due to the “reallocation of talent” found by [Blasutto and De la Croix \(2023\)](#). In our analysis, the change in the direction of publishing appears to be driven by the firms more exposed to the Inquisition. As we described in Section 4, vernacular literature was the field where uncertainty over what would be banned was the highest, as assessing lascivious and immoral

<sup>22</sup> Specifically, the figure shows that, on average, in each literature field there are roughly 10 new editions released each year during the first part of our sample period. After 1559, we observe a decline, leading to about five new titles a year per field. At the same time, in fields that do not belong to the literature macro-category, we observe an average of five new publications per year, and this appears constant across the sample period.

<sup>23</sup> Religious books account for 46% of the indexed books published by the firms in our sample. Literature accounts for 37% of the banned books, while Educational books and the Residual category represent 10% and 7% of the prohibitions, respectively.

**Table 3.** The drop in publication of firms more exposed to the inquisition is the strongest for vernacular literature.

Dep. Variable	(1) New editions literature	(2) New editions religion	(3) New editions educational	(4) New editions others	(5) New editions literat. vernacular	(6) New editions literat. latin
Early inquisition	0.042 (0.059)	-0.016 (0.134)	0.084 (0.056)	-0.001 (0.022)	0.027 (0.049)	0.014 (0.024)
Index	-0.316*** (0.073)	-0.214 (0.217)	-0.122 (0.087)	-0.093 (0.072)	-0.256*** (0.063)	-0.060* (0.033)
Year effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm-field effects	Yes	Yes	Yes	Yes	Yes	Yes
Unit of observation	Firm- field-year	Firm- field-year	Firm- field-year	Firm- field-year	Firm- field-year	Firm- field-year
Observations	9639	5508	11,016	22,032	9639	9639

Notes: OLS regressions with robust standard errors clustered at the firm-field level in parentheses.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . Early inquisition = 1 for treated firms during 1547–58. Index = 1 for treated firms after 1559.

content in literary books was more subjective than identifying religious texts violating the Church's dogmas (Brown 1891). Moreover, specialization in the editing and marketing of vernacular literature books may have prevented these firms to switch to other categories. In this respect, the finding is in line with the predictions of our theoretical framework.<sup>24</sup>

As highlighted by Grendler, the change in direction affected a large and important area of publishing. Vernacular literature encompassed “poetry, drama, collections of letters, dialogues on various topics, courtesy books, vernacular grammars, and vernacular classics like Dante, Petrarch, Boccaccio, and Ariosto. Into this group fall most of the works of the most popular and prolific sixteenth-century authors, like Pietro Aretino, Anton Francesco Doni, et al” (1975: 54). Grendler (1975) also argues that the Inquisition led to an increase in the publication of religious books, especially devotional books read by clerics and laymen, rather than those for professional theologians. Our analysis does not provide much support for this claim.<sup>25</sup>

## 9. MARKET STRUCTURE, SURVIVAL, AND ENTRY

We now turn to the impact of censorship on market structure and firm survival.

### 9.1 Market Shares

To begin, in column 1 of Table 4, we re-run our baseline analysis, scaling the dependent variable to capture the effect on market shares constructed as the ratio between the new editions published by the firm in the focal year and the total number of new editions published

<sup>24</sup> The Supplementary appendix mathematical model shows more precisely how censorship may affect the relative profitability of the publishing submarkets, which in turn may impact the structure and the evolution of the industry.

<sup>25</sup> One reason for this is that the Inquisition may have had contrasting effects across religious books. On the one hand, censorship may have disincentivized the printing of heretical titles, on the other hand, the inquisition may have incentivized the publication of those supporting the Church's orthodoxy. Distinguishing between heretical and non-heretical religious editions is challenging, as we expect the two groups of books to have similar (and sometimes identical) titles, especially in the case of Missals and Bibles. An analysis of the statistical distribution of words in titles, as in Dittmar and Sebald (2019), is unlikely to provide sufficient variation in our setting.

**Table 4.** The Venetian firms more exposed to the inquisition lose market share and have shorter lifespan relative to less exposed firms. The literature fields experience an increase in short-lived entrants.

Dep. Variable	(1) Share	(2) Share last dec.	(3) Exit year	(4) Exit year	(5) Exit year	(6) Short-lived entrants
Early Inquisition	0.004 (0.009)					
Index	-0.034** (0.014)					
Early Inquisition X Literature						0.021 (0.024)
Index X Literature						0.051** (0.022)
Exposed firm		-0.049** (0.023)	-38.533*** (13.315)	-30.236** (12.630)	-0.641 (1.986)	
Year effects	Yes	No	No	No	No	Yes
Firm effects	Yes	No	No	No	No	Yes
Sample	Full	Full	Full	Extended	Exit before 1560	Field-year panel
No. of observations	1377	27	27	34	12	1530

Notes: Robust standard errors clustered at firm level in parentheses.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . In column 1 the dep. variable is market share. In column 2 the dep. variable is market share in the last decade of the sample. In columns 3–5 the dep. variable is the exit year. Regressions 2–5 also control for market share in the first decade and entry year. Early inquisition = 1 for treated firms during 1547–58. Index = 1 for treated firms after 1559. Exposed firms = 1 for treated firms. Sample full: baseline sample of 27 firms; sample extended: also includes firms exiting between 1559 and 1575; sample exit before 1560: only includes firms active during 1540–47 and exiting before 1560. In column 6, the sample comprises field-year observation for the full period. In this column, we also control for the number of books published by incumbent firms in vernacular. The dependent variable is the number of entrants publishing in vernacular and surviving less than 3 years. Literature = 1 for USTC fields related to literature.

in Venice by all the firms in our sample. Confirming the insights of our previous analysis, the regression shows that after the implementation of the Pauline Index, the firms more exposed to the Inquisition reduced their yearly market share by 3.4 percentage points relative to the control group. In column 2, we confirm the idea of a decline in market share in a simpler, cross-sectional model, where the dependent variable is the market share of the firm in the last decade of the sample period (1577–87). The regression controls for the market share of the firm in the first decade of the sample (1537–47) and for the first year of activity of the firm. Treated firms in this regression have a market share that is 4.9 percentage points smaller than other firms in the last decade of the sample.

## 9.2 Survival

Column 3 in Table 4 leverages this simple cross-sectional model to examine the effect of the Inquisition on firm survival defined as the last year in which a book published by the firm is recorded. Because our main data source (Edit16) is truncated at 1600, we complement our data with information from Griffante et al. (2006) on publishers' activity beyond the end of the 16th century. The regression shows that the lifespan of firms more exposed to the Inquisition is about 38 years shorter than the lifespan of those less affected by the indexes.

By construction, our sample includes firms that were active for the entire time period 1540–75. In column 4, we expand the sample to include all firms that were active in Venice in 1540 and after the implementation of the index in 1559. This adds seven firms which



existed between 1559 and 1575 to our sample. Results are similar in this extended sample, confirming that the lifespan appears shorter for firms more exposed to the indexes. Column 5 focuses on 12 additional firms that were active during the period 1540–47 but exited before 1559, the year in which the Pauline Index was implemented. This regression suggests that the effect of future exposure to the Inquisition on survival is small and statistically insignificant in this sample. Together, columns 4 and 5 indicate that publishing books that will be listed in the indexes appears strongly associated with lower survival when we focus on firms in existence when the indexes were enforced, but not for those that exit before 1559. This lends credence to our identification strategy.

### 9.3 Entry

In [Supplementary Appendix Table A8](#), we examine changes in entry rates of new firms. We contrast the period before (1537–59) and the period after the Pauline Index (1560–87). Overall, we observe a large number of entrants, but only a few of them were able to survive for a prolonged period. On average, there are 5.5 new firms entering the market each year up to 1559, and 7 new firms entering each year after the index. The increase in entry frequency appears to be driven by firms with short survival (less than 3 years). There is no significant difference in entry rates for firms that survive at least three years while the number of new short-lived entrants almost doubles after 1559.

The data also show that entry and exit are highly correlated, a feature that has been documented also in modern industries ([Dunne et al. 1988](#)). Consequently, the high entry rates are associated with much more modest changes in net entry. Specifically, we compute a net entry rate of about one firm per year during the entire sample period, with no significant difference between the period before and after the Inquisition.

[Supplementary Appendix Table A8](#) suggests that censorship may have created market opportunities not only for the incumbents less specialized in transgressive topics, but also for new market entrants. At the same time, the fact that most entrants tend to have low survival span is consistent with the idea that they engaged in riskier business opportunities, publishing content with high likelihood of censorship, or serving niche markets too small to guarantee sustainable profits. If this is the case, the results presented in Section 8 suggest that we should observe greater entry of short-lived firms in the area of vernacular literature. To corroborate this interpretation, we construct a measure of annual entry for each of the 35 USTC fields and examine differences in entry rates between literature and the other macro-categories. We focus on short-lived entrants (surviving less than 3 years) and on their publication in vernacular. An entrant is allocated to a field based on the edition it published during the first year of activity (or on their most prevalent field, in the case of multiple editions in the year of entry). Column 6 of [Table 4](#) shows an increase in short-lived entrants in literature fields after the Inquisition relative to other fields using a difference-in-differences approach. This supports the idea that new short-lived entrants appear focused in the most transgressive fields. Consistently with the previous analysis, when we distinguish between the different phases of the Inquisition, we observe an increase in entry after the Pauline Index but not in the earlier Inquisition period.

Overall, the findings in this section indicate that the Inquisition not only had a short-term impact on the production of prohibited books, but also dynamic and long-lasting effects on the industry.<sup>26</sup> It affected market shares, firm survival, and entry patterns. Our analysis shows

<sup>26</sup> These dynamic effects complement those examined by [Dewitte et al. \(2022\)](#) and [Becker et al. \(2021\)](#) who stress the long-term impact of the reallocation of talent across locations, and by [Blasutto and De la Croix \(2023\)](#) who highlight the persistent effects of the change in the stock of knowledge used in the cumulative innovation process.

that the firms more exposed to the Inquisition reduced their publication rates, lost market shares, and experienced shorter survival. This suggests that resources and capabilities of incumbent firms may become less valuable once a censorship policy is in place. Censorship also appears to have created opportunities for new entrants. This finding is consistent with empirical studies on product liability that have documented a positive association between risk and entry of small firms in hazardous sectors (Ringleb and Wiggins 1990; Galasso and Luo 2021). This consistency across empirical settings has important implications for the law and economics literature, as theoretical studies of product liability typically do not consider its effects on entry (see Daughety and Reinganum 2018 for a survey).

## 10. CENSORSHIP AND BOOK AUTHORS

In this section, we examine whether the censorship, in addition to the change in the direction of publishing, also led to a change in the type of authors who were published in the literature fields. To perform this analysis, we collect additional information for each of the 2764 books in the literature category that were published between 1537 and 1587 by the firms in our sample. First, we identify whether or not the book was published by a contemporary author. Using the information provided in Edit16, we classify authors as contemporary if they were alive during the XVI century.<sup>27</sup>

In Table 5, we present a series of book-level probit regressions. Each specification includes effects for the year in which the book was published and for the firm publishing the book. The dependent variable in the first column is an indicator equal to one for books with contemporary authors. The estimates indicate that, after 1547, the books published by the firms more exposed to the Inquisition are less likely to have a contemporary author relative to those published by firms less exposed to censorship. The effect is larger and statistically significant for books published after 1559. In columns 2 and 3, we run similar regressions splitting the sample into books by authors who have at least one of their works included in an Inquisition Index (column 2) and books by authors not listed in any of the indexes (column 3). This split-sample exercise indicates that there is no difference between the two groups of firms in the probability of publishing contemporary authors listed in the indexes. Conversely, the analysis shows that, after 1559, books published by the firms more heavily exposed to the Inquisition are substantially less likely to have contemporary authors not listed in Inquisition Indexes.<sup>28</sup>

In Supplementary Appendix Table A9, we conduct a variety of additional exercises to facilitate the interpretation of these findings focusing on books by non-indexed authors. Our analysis suggests that the effect is not driven by a different propensity to publish books of contemporary authors who, at the time of the Inquisition, were already embedded in a printing relationship with a Venetian firm. On the contrary, our analysis shows that, after 1559, the firms targeted by the Inquisition appear less likely to publish the first book of a contemporary author entering the Venetian market. This is consistent with our theoretical framework, which emphasizes the crucial role of the author–publisher network, and its associated switching costs, in shaping the specialization of firms. We also find that the effect is stronger for the most prominent new authors, that is, those with a sizable number of publications outside Venice. This further corroborates the idea of tainted printer reputation, as this appears

<sup>27</sup> More specifically, we consider contemporary authors who died after 1500 and were born after 1450.

<sup>28</sup> Similarly to what we observed when looking at the direction of creative effort, the reduction in the publications of contemporary authors in the field of literature is in line with the analysis in Blasutto and De la Croix (2023) according to which censorship altered the path of knowledge development.

**Table 5.** The books published by the firms more exposed to the inquisition are less likely to have a contemporary author relative to those published by less exposed firms.

Dep. Variable	(1) Contemporary author	(2) Contemporary author	(3) Contemporary author
Estimation	Probit	Probit	Probit
Early Inquisition	- 0.406 (0.284)	- 0.403 (0.510)	- 0.320 (0.356)
Index	- 0.716*** (0.244)	- 0.269 (0.421)	- 1.069*** (0.333)
Year effects	Yes	Yes	Yes
Firm effects	Yes	Yes	Yes
Sample	Literature books	Literature books (with author listed in an index)	Literature books (with author not listed in any index)
Sample size	2629	861	1592

Notes: Robust standard errors in parentheses.

$p < 0.10$ ,  $** p < 0.05$ ,  $*** p < 0.01$ . Contemporary author = 1 if the author was alive in the XVI century. Early inquisition = 1 for treated firms during 1547–58. Index = 1 for treated firms after 1559.

more relevant for authors with greater bargaining power that probably had more options in choosing their publisher when entering the Venetian market.<sup>29</sup>

Overall, these results indicate that the effects of censorship extended beyond authors and books directly included in the indexes. The firms more exposed to the Inquisition appear less likely to publish contemporary authors in literature, especially those not listed in Inquisition Indexes. This suggests that censorship may have shaped entry decisions for new writers which, in turn, may have affected the incentives to develop new literary content and the dissemination of new knowledge in the Venetian Republic.

## 11. CONCLUDING REMARKS

This article examines how the book censorship implemented by the Catholic Inquisition affected printing outcomes in Renaissance Venice. The historical case study provides a unique opportunity to examine the effects of censorship over an extended period of time, which is something challenging to study with contemporary data. There are three main empirical findings. First, our analysis of firm-level data from the 1500s shows that censorship had a significant impact on publication levels and market structure, with the firms more heavily targeted by the Inquisition losing market shares to those less affected by censorship. These effects appear long lasting and associated to changes in survival and entry patterns. Second, we show that censorship led to a change in the direction of publishing, with printers reducing their supply of vernacular literature. Finally, we find that the firms more exposed to the Inquisition became less likely to publish new contemporary authors.

The printing press in the Renaissance was the first instance of a major information and communication technology which reduced substantially the cost of disseminating new information. While modern creative industries differ from our empirical setting across several dimensions, our theoretical analysis suggests that in many business environments, the ban of creative content may impact the structure of censored industries, their evolution, and the

<sup>29</sup> These results are also broadly consistent with the findings of Becker et al. (2021) who show that authors were attracted by “defiant cities”—proxied by the number of prohibited books that were published—which were supposedly guaranteeing them the “freedom of thought.”

direction of creative efforts. It is important for managers and policymakers to recognize these dynamic effects and the threats and opportunities they generate.

## SUPPLEMENTARY MATERIAL

[Supplementary material](#) is available at *Journal of Law Economics, & Organization* online.

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## DATA AVAILABILITY

The data underlying this article are available in its online [supplementary material](#).

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