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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. The Venetian press experienced minimum censorship until 1547, when a sudden change in the balance of European power led to a new relationship between the Republic of Venice and the Papal State. We collect detailed information on indexes of prohibited books and publication activities by the main printers active in Venice during the 1500s. We use these data to construct treatment and comparison groups based on the specialization of each printer in transgressive publications before the inquisition. Differences-in-differences regressions show that censorship had a significant impact on publication levels and industry 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. We also show that censorship led to a change in the direction of publishing, with printers more affected by the inquisition shifting away from vernacular literature and becoming more reluctant to publish new and contemporary authors. 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.

1   Introduction

Less than 15 percent of the world's population enjoys a press free from government intrusion (Freedom House, 2017). State control is especially stringent in countries like China and Iran, which strictly surveil the domestic press and censor regime-threatening information from foreign sources. Even in countries where the press is relatively free, the diffusion of new social media technologies has sparked an intense public debate on how content should be regulated to curtail the spreading of 'fake news' and hate speech while preserving freedom of expression.

Economic research has shown that censorship can have important consequences for citizens' beliefs, political attitude (Enikolopov, Petrova, and Zhuravskaya, 2011; Chen and Yang, 2018) and for policy outcomes (Brunetti and Weder 2003; Qin, Strömberg and Wu, 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, Strömberg and Wu, 2018). Despite this growing research, the effects of censorship on the structure and dynamic evolution of the censored industry has so far attracted little empirical and theoretical attention. This paper fills this gap by combining insights from economic history and the innovation literature.

Our analysis 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 paper examines how the censorship imposed by the inquisition affected printing outcomes of the Venetian book publishers. To do so, we leverage one of the main tools used by the inquisition: the *Index Librorum Prohibitorum* -i.e., the indexes of prohibited books. These

were lists approved by the Roman Church and aimed at censoring production and circulation of heretical publications. Starting from 1547, several of these indexes were prepared by the Venetian government and the Catholic Church, and some were more heavily enforced than others. These historical events provide a unique opportunity to examine the short- and long-term industry responses to censorship.

Our identification strategy uses variations in exposure to the inquisition induced by the 1547 change in Church influence on the Venetian press as a quasi-experiment to examine the impact of censorship on firms' printing strategies. 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. This approach resembles the methodology used in the labor 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, for example, Draca, Machin and Van Reenen, 2011).

We begin with a simple theoretical model that guides our empirical analysis. The framework combines insights from the multi-product oligopoly (Singh and Vives, 1984; Armstrong and Vickers, 2018) and product liability (Hay and Spier, 2005; Daughety and Reinganum, 2013) literatures. We show that censorship, by increasing the costs of publishing books on more transgressive topics, leads to a reduction in publication levels for firms more specialized in these areas. At the same time, censorship has an ambiguous effect on the other firms in the market which, in some circumstances, may obtain a competitive advantage. The model also predicts that the inquisition will be associated to a reduction in the publication of transgressive books, especially for firms more exposed to censorship.

To investigate the empirical validity of these predictions, we combine 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. Our main analysis relies on a sample of 27 publishers that were active in Venice during the 50-year window 1537-1587. We then digitize information on books prohibited by inquisition indexes enforced in Venice and its neighboring regions, and identify the Venetian publishers that printed those books.

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Our difference-in-difference analysis shows a substantial decline in publications, measured by book editions, for firms that before the inquisition printed more books that would be subsequently listed in one of the indexes, relative to firms less exposed to the inquisition. We show that this decline was not driven by differential publishing trends between the treatment and control firms before 1547. 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 by Pope Paul IV in 1559. Quantitatively, we estimate an average relative decline in the publication levels of treated firms of about 50 percent after 1559.

Because of the competitive interaction between treated and control firms in our sample, a natural question in our context is whether the estimated effect is driven by a decline in printing by the firms more exposed to the indexes, or by an increase in printing by those less affected by censorship. To address this issue, we contrast 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. The geographical and political distance between these countries and Rome reduced the impact of the Catholic inquisition on these firms. At the same time, this alternative control group is likely to respond to technology shocks affecting the entire European publishing sector. Using these foreign firms to form a counterfactual, we find 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.

After documenting the impact of the inquisition on publication levels, we examine how this translates into effects on market structure and firm survival. We show that, after the implementation of the 1559 Pauline index, firms more exposed to the inquisition lose significant market share relative to control firms and that this effect is persistent and present decades after 1559. We also document how firms that before 1547 printed more books that would later feature in the indexes, have a shorter survival time relative to control firms. Finally, we examine how entry into the Venetian printing industry changed once censorship was in place. We find that the indexes were associated with greater entry of new firms, but for many of the new entrants, survival was challenging. Together, these findings indicate that the inquisition not only had an impact on book circulation but also dynamic and long-lasting effects on the industrial organization and the survival of the firms operating in the censored sector.

We then turn our analysis to the impact of the inquisition on the direction of creative

efforts. We begin with an examination of how the effects of the inquisition differ across literary fields. We aggregate publications into four macro-categories: literature, religion, education, and other books. Despite the religious origin of the inquisition, we find that its most dramatic effects are on non-religious books. Specifically, we show that after 1559 there is a sharp decline in printing of literature books relative to the publication trends in the other fields. We also show that this decline is driven by the publication of the firms more exposed to the indexes, 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 contemporaneous works of prose, poetry, and drama.

Finally, we examine how the decline in literature publications affected the type of published authors. We find that firms more exposed to censorship became less likely to publish books of contemporary authors relative to the other firms. Importantly, our analysis indicates that the effects of the inquisition extended beyond authors and books directly included in the indexes, as treated firms became more reluctant to publish contemporary authors in literature even if they were not included in an index. We also document a similar drop in the propensity to publish authors (contemporaneous and not) that were not previously published in Venice. This suggests that censorship, by making publishers more risk-averse, may have created barriers to entry for new writers.

The paper is organized as follows. Section 2 provides an overview of the related literature. Section 3 describes the Venetian printing press and the emergence of the inquisition. In Section 4, we derive theoretical predictions on how censorship influences firms' production. Section 5 describes the data and Section 6 describes the empirical approach. Section 7 discusses the effect of the inquisition on publication levels. Section 8 examines its effects on market structure and firm exit and entry. Section 9 studies the heterogenous effect of the inquisition across literary fields. Section 10 investigates how the inquisition changed book authorship. Section 11 concludes.

2 Related literature

This paper is related to various strands of the economics literature. First, it is connected to economic history research on the market for ideas in Renaissance Europe. Comino, Galasso and Graziano (2020) examine how guild statutes shaped the propensity to use patent rights

in Renaissance Venice. Cantoni, Dittmar and Yuchtman (2018) show that the Protestant Reformation led to a reallocation of human and physical capital from religious to secular purposes. Binzel, Link and Ramachandran (2020) examine how the Protestant Reformation accelerated the vernacularization of printing in Europe, which led to greater economic development. Dittmar and Seabold (2020) provide evidence that competition in the printing industry shaped the diffusion of new knowledge - especially for business education and religious ideas -after the development of Gutenberg's printing press. Our paper contributes to this literature by showing that policies restricting circulation of printed knowledge had an effect on market structure and industry dynamics.

Our work is also connected to the economic history literature examining how government policies affect creativity in literature and science. Biasi and Moser (2019) show that a weakening in copyright during WWI encouraged the creation of new science in the U.S.. Iaria et al. (2018) find that a boycott of enemy science during WWI led to a decline in the production of basic science and its application to new technology. Giorcelli and Moser (2020) show that the adoption of French copyright laws in Venice and Milan, as a result of Napoleon's military victory, increased the quantity and quality of new operas. Our paper shows that book censorship shifted the publication of books away from certain fields and created a barrier to entry for new authors.

Our paper is also related to the vast literature on media capture and media power (see Prat, 2015 for a survey). Besley and Prat (2006) show that media market structure affects the ability of the government to influence political outcomes. Qin, Strömberg and Wu (2018) examine the impact of a reform that reduced media competition in China. They find that the change in market structure affected media bias by increasing product specialization. More closely related to censorship, Chen and Yang (2018) conduct a field experiment to study the effect of China's Great Firewall. They show that demand-side factors play an important role in shaping the effect of the Chinese internet censorship policy. Shadmehr and Bernhardt (2015) provide a theoretical analysis of a ruler's media censorship policy when citizens may decide to revolt. They show that the optimal amount of censorship depends on censorship costs, media strength, and revolution payoffs. Our work contributes to this literature by examining an 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.

Finally, our work is related to the literature investigating whether and when public policies have long-term effects on industry dynamics and technological progress. Finkelstein (2004) shows that policies designed to increase the use of pre-existing vaccines substantially increase clinical trials for new vaccines. Acemoglu et al. (2006) show that the introduction of Medicare is not associated with an increase in approval of new drugs targeting diseases that affect the elderly. More specifically, the paper is connected to research on the effects of product liability regulation and consumer safety perception on firm incentives. Viscusi and Moore (1993) and Galasso and Luo (2017; 2020) show that product liability damages and consumer risk perception can serve as demand-pull forces and induce greater R&D investments toward the development of risk-mitigating technologies. Galasso and Luo (2018) identify conditions under which product liability risk can have a significant chilling effect on innovation and industry growth. This is particularly the case when liability damages are large relative to product market profits and are borne by industry players with limited involvement in technology development. Our paper contributes to this literature by suggesting that policies implemented to remove specific 'dangerous' products from the market may impact the competitive interaction of the underlying sector as well as firm creativity.[1]

3 The Venetian press industry and the inquisition

3.1 Venice and its printing industry

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, about half of the population of north-east Italy at that time (Costantini, 1987). The Venetian state included the 'Terraferma' dominion, which encompassed the present-day Italian regions of Veneto and Friuli. 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,

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[1] A related set of studies examines the impact of safety regulation in the pharmaceutical and medical industries. Peltzman (1973) estimates a significant decrease in welfare generated by the FDA safety regulation of new pharmaceutical products. Grennan and Town (2020) find that additional safety testing of new medical devices may increase welfare in Europe. Stern (2017) shows that safety regulation can lead to a second-mover advantage for entry into new medical device markets.

its location and its leadership in international trade.[2] 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; Richardson, 1999).

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 were 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]

3.2 European political powers and the inquisition

The Venetian press experienced a minimum of censorship until the 1540s. Then a change in the European political balance led the Republic to support the inquisition. In the 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 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, Dittmar and Yucthman, 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 king of Spain (as Carlos I) as well as emperor of the Holy Roman Empire. During the

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[2]For the relationship between printing press and geographical location see Dittmar (2011). Puga and Trefler (2014) document how international trade led to a series of institutional changes in the Venetian Republic.

[3]In some cases the Republic granted privileges to authors and printers, which consisted in temporary monopoly rights over a specific book. A 1517 legislative Act established that these privileges could only be granted to new literary works.

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 the Protestant ideas and promulgated the papal bull 'Exsurge Domine' that 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 (1975; p.50) 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.*" The magistracy, which we will refer to as the Venetian inquisition, consisted of three clerical and three lay members. The inquisitor, the patriarch, and the papal nuncio constituted the religious component, and three Venetian nobles constituted the civil component (Grendler, 1975). This swift adjustment in the Venetian approach to heresy, triggered by the change in balance of European power, led to the book censorship in the Republic.

3.3 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 the 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 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 also included books with non-religious subjects, encompassing several vernacular classical authors such as Ariosto, Boccaccio, and Macchiavelli. It was followed by the introduction of legal hurdles for the publication of new books. As explained by Grendler (1975; p.54), 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."*

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 (Fragnito, 2019). For instance, rule VII prohibited immoral and obscene books, without providing a specific definition of obscene or lascivious content. This implies that the same book could be treated very differently by different inquisitors. The Tridentine index also allowed printers to sell expurgated books in the case where content was considered appropriate but for a few 'mistaken' passages. Waiting to be expurgated, the book was 'suspended' (i.e.,– it could not be sold), but the time requested by the expurgation process was highly unpredictable and books could be suspended for several months, if not years.

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). Outside of Rome and Venice, the neighboring cities of Milan and Parma drafted censorship indexes in 1554 and 1580, respectively. The index of Parma included

several books listed in an unofficial list that was previously circulating.

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.

4   Theoretical predictions

In this Section, we develop theoretical predictions on how book censorship affects firms' production decisions and alters their relative market shares. Our simple framework builds on the multi-product oligopoly (Singh and Vives, 1984; Armstrong and Vickers, 2018) and product liability (Hay and Spier, 2005; Daughety and Reinganum, 2013) literatures. Full details are in Appendix A.

As in Singh and Vives (1984), we consider an economy with two differentiated goods – transgressive and safe books – and a competitive numeraire sector. Consumers' utility is separable and linear in the numeraire good and quadratic in the quantity of differentiated products. This gives rise to the following inverse demand functions for the transgressive (T) and safe (S) books:

$$
\begin{aligned}
p_T &= a_T - \beta_T Q_T - \gamma(Q_T + Q_S), \\
p_S &= a_S - \beta_S Q_S - \gamma(Q_T + Q_S).
\end{aligned}
$$

We assume that γ is positive, meaning that book varieties are substitutes.

The transgressive books category captures works related to topics, or published by authors, which are more likely to become targets of the inquisition. History scholars report that while initially the targets of the inquisition were religious publications related to Protestant ideas, later editions of the index greatly expanded the scope of prohibitions, also covering works of poetry, literature and classical authors. As stated by Brown (1891; p. 137): " [....] *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 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." Uncertainty was heightened by the behavior of bishops and local inquisitors who in some cases also prohibited books that were not present in the indexes.

In our model, books are produced by two firms, A and B, that compete á la Cournot. We assume that, absent the inquisition, firm $i \in \{A, B\}$ faces a constant marginal cost, c_j^i, to produce variety $j \in \{T, S\}$. Grendler (1977) suggests that publishers, especially the larger ones, tended to specialize in certain subject matters. 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. Several factors led to such a specialization. It was common for publishers to establish close relationships with authors and to rely on a network of friends and collaborators to decide which books to publish (Pettegree, 2010). Authors relied on publishers they knew and trusted to avoid poor quality editions. Moreover, in some cases there was no clear distinction between the roles of authors and publishers. For example, Francesco Sansovino and Anton Francesco Doni were both prolific authors and prominent publishers.[4] Finally, publishers' expertise in editing and marketing specific categories of books, as well as the ownership of assets specific to the production of particular types of books (as in the case of music, cartography, or greek books), were also important drivers of specialization.

Based on this evidence and without loss of generality, we assume that firm A has a cost advantage in the production of transgressive books, $c_T^A < c_T^B$, while firm B has a cost advantage in the production of safe books, $c_S^B < c_S^A$. This implies that firms are asymmetric in the sense that each possesses a 'core competence' in the production of a particular good and that they are less efficient in the production of the good outside their core competence (Eckel and Neary, 2010).

Following the product liability literature (Hay and Spier, 2005; Daughety and Reinganum, 2013), we assume that in the presence of the inquisition the marginal costs of firm A become $c_T^A + \overline{p}F$ and $c_S^A + \alpha\overline{p}F$, while B's costs become $c_T^B + \underline{p}F$ and $c_S^B + \alpha\underline{p}F$. Intuitively, this specification is consistent with the idea that each book produced by a firm may be found

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[4]The strong ties among authors and publishers emerges in our data as well, especially for the most productive authors. The philosopher Agostino Nifo, author of more than one hundred editions, published his books almost exclusively with the Scoto family. The works of the Flemish composer De Monte Philippe were published by just two firms, Gardane and Scoto. The mix between the roles of author and publisher is exemplified by the case of Paolo Manuzio, who was also author of numerous dissertations and commentaries on classical authors, published in most cases by his family firm.

illegal and lead to a fine equal to F for the publisher. Parameters $\bar{p}$ and $\underline{p}$ are the probabilities of being fined by the inquisition. These probabilities incorporate the possibility of not being discovered by the inquisition and also the uncertainty as to whether a given publication was actually prohibited as discussed above. The parameter $\alpha \in [0,1]$ captures the idea that books in the safe category are less likely to be found illegal, but this probability is not necessarily zero given the uncertainty of the inquisition process due to the inconsistency and the frequent changes in the criteria used to evaluate books. We assume that $\bar{p} > \underline{p}$ as transgressive books are the core competence of firm A, and its larger market share may generate more scrutiny from the inquisitors. In other words, we assume that firm A is more exposed to the inquisition.

Historical evidence shows that the punishments imposed by the inquisition could take different forms and vary across firms. Pecuniary penalties, the most common form of punishment, were not only based on the severity of the violation, but could also depend on other characteristics of the firm, for example, its ability to pay the penalty. Grendler also reports cases of booksellers arrested for possessing prohibited books (Grendler, 1977). In these cases, books were confiscated, thus imposing a pecuniary loss on the bookseller. Another sanction that printers could suffer was excommunication, i.e. being excluded by the Catholic community and deprived by certain rights, such as receiving communion. 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 "*they were lively dread of excommunications*" (Brown, 1891; p. 140).[5]

The model is solved in Appendix A. We show that we can derive predictions that can guide our empirical analysis:

Prediction 1: The inquisition leads to a reduction in the total production of books of firms more exposed to the inquisition and has an ambiguous effect on the total production of other firms. Total production of firms less exposed to the inquisition increases if the probability of being fined by the inquisition differs substantially between the two types of firms.

Prediction 2: The inquisition leads to a reduction in the production of transgressive books by firms more exposed to the inquisition relative to the production of other firms.

Prediction 3: The inquisition has an ambiguous effect on the production of safe books of the more exposed firms relative to the production of other firms.

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[5]The Papacy and the Venetian inquisition repeatedly threatened the Venetian bookmen with '*excommunicatio major late sententiae*' an excommunication that only the pope, not bishops or common priests, could revoke (Brown, 1891, pp. 132-133).

Predictions 1 and 2 follow from the fact that, with the inquisition, marginal costs increase for both firms, but they increase more for firm A. This implies that for the less exposed firm B the presence of the inquisition also generates a competitive advantage that is proportional to the difference in the probabilities of being fined for the two firms. As a consequence, while firm A's production shrinks, firm B's output may either increase or decrease. Firm B increases its production of books after the approval of the index – and it also increases the production of transgressive books compared to A – when the probabilities of being fined are different enough.

Looking at the production of safe books one needs to consider an additional effect. The presence of the inquisition changes the relative costs of transgressive books relative to safe books, thus inducing firms to a shift in production in favour of the latter. This shift is stronger for firm A, for whom the difference in the increase in costs between transgressive and safe books is larger. For this reason, as in Prediction 3, the effect of the presence of the inquisition on the production of safe goods of firm A compared to firm B is uncertain.

5   Data

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. The dataset is the result of a project coordinated by the Central Institute for the Union Catalogue of Italian Libraries and Bibliographic Information (ICCU) and involving nearly 1,600 libraries. Each of the libraries provided detailed information on the manuscripts in their possession to the ICCU, which validated and digitized the information, providing unique identifiers for authors, publishers, and editions of each book. Edit16 includes about 68,000 manuscripts linked to roughly 12,000 authors and about 2,500 publishers. 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 a variety of robustness checks, we complement the data on the books published in Venice with information on books published in several other European cities. This information is obtained from the Universal Short Title Catalogue (USTC), a repository of the 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. Specifically, we match the following indexes: the Roman indexes of 1557, 1559, 1564, 1590, 1593, 1596; the Venetian indexes of 1549 and 1554; and those of Milan of 1554 and Parma of 1580. 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 analysis. We provide examples of the information available Edit16 and in De Bujanda (1996) in Appendix C.

There is one feature of the data that requires 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 have survived, as their circulation and possession was forbidden. This would lead us to over-estimate 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. For example, Grendler (1977) and Frajese (2010) document how theologians, jurists, and scholars (such as Pinelli at the University of Padua) could obtain reading permissions from the Church and access prohibited books for their studies. Our manual match between the books listed in the inquisition indexes and those in Edit16 provides direct quantitative support for this idea, as we were able to match more than 90 percent of the books in the indexes.[6]

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. 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

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[6]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.

published after 1559. Appendix Figure A1 provides a more general illustration of this point, documenting a substantial drop in the publication of new editions of the books listed in the 1559 index. 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' -i.e., revised with great diligence- suggesting that the original text of the book was amended to comply with the regulation.

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). This is apparent from the information provided in Edit16. Take, for example, the firm owned by the Bindoni family. It was founded at the beginning of the 16th century by four brothers – Agostino, Alessandro, Bernardino, and Benedetto– and continued through the 17th century under their first and second generations of heirs.[7]

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.

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 1537-1587, which is the main focus of our analysis (4 firms enter between 1537 and 1539 and 6 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 8, we extend the sample and include firms that enter or exit the industry during the period 1540-75. We leverage this larger sample to examine the extensive margin effects of the inquisition on industry entry and exit.

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[7] The Sessa family had a similar story. The progenitor, Giovanni Battista, started publishing books at the end of the 15th century. His son, Melchiorre I 'the old', succeeded him in running the business in the early XVI century. Married to Veronica Barone, Melchiorre I had six children, four of whom – Giovanni Battista II 'the young', Giovanni Bernardo, Melchiorre II 'the young', and Bernardo – entered the business and continued publishing books, helped also by their mother Veronica, well into the 17th century.

6 Empirical approach

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, for each firm in our sample, we identify the books published before 1547 that will be listed in one of the inquisition indexes of prohibited books drafted in Rome, Venice, and nearby regions. We then classify firms into the treatment or comparison group depending on whether the prohibited books they publish before the inquisition are a large fraction of their total pre-inquisition production. This approach resembles the methodology used to estimate the effect of minimum wage policies on firm outcomes, using information on the pre-policy distribution of wages to identify the firms more affected by a reform (see, for example, Draca, Machin and Van Reenen, 2011).

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 to 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, this was a sudden policy change driven by the unexpected death of Henry VIII and the defeat of the Schmalkaldic league in 1547. 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. For example, firms with stronger political connections may try to delay the enactment of an index and adjust their production to avoid fines. This would lead to an over-estimation of the effect of the index on firm production if political connections also affect firm publication levels through other channels.

Our analysis uses indexes from Rome, Venice, and other cities. As we explain in Section 3, 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:

$$Y_{f,t} = \alpha + \beta Inquisition_{f,t} + \gamma X_{f,t} + \delta_t + f_f + \varepsilon_{f,t} \tag{1}$$

where the dependent variable, $Y_{f,t}$, captures publication activities by firm f in year t.

The treatment variable, $Inquisition_{f,t}$ 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: $treated_f \times after47_t$ where $after47_t$ is equal to one for each year after 1547 and $treated_f$ is an indicator capturing firms for which the fraction of prohibited books published before the inquisition exceeds a specific cut-off. In our baseline analysis, we set this cut-off at the first tercile of the distribution, which leads us to classify 18 out of the 27 firms in our sample as treated. With this threshold, prohibited books account for about 3 percent of the publications of treated firms during the period between 1500 and 1547, on average. For control families these books account to 0.02 percent of their 1500-47 production, on average. We examine alternative threshold cutoffs, and we discuss these in detail below.

The term $X_{f,t}$ captures a series of time-varying publisher controls. The terms δ_t and f_f are year and firm fixed effects. The coefficient β 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

$$Y_{f,t} = \alpha + \beta_1 EarlyInquisition_{f,t} + \beta_2 Index_{f,t} + \gamma X_{f,t} + \delta_t + f_f + \varepsilon_{f,t} \tag{2}$$

where $EarlyInquisition_{f,t}$ is equal to one for treated firms in the period 1547-1558 and $Index_{f,t}$ 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.

Following a standard approach in the literature, we measure production at the book-edition level (Binzel et al., 2020; Dittmar and Seabold, 2020). Unfortunately, comprehensive data on press runs are not available. Nuovo (2013, p. 111) suggests that it was common to print between 800 and 1,000 copies of each book and that press runs exceeding 1,500 copies were rare. Books of great success were typically printed in multiple editions. Take, for example, the book 'Trasformationi' by Ludovico Dolce – a translation of 'Metamorphoses' by Ovid – published by Gabriele Giolito in 1553. The manuscript was in high demand and Giolito printed

five additional editions of the book in the following years (Nuovo, 2013, p. 111). Moreover, focusing on the publication of new editions rather than on press runs is of independent interest as a new edition can be considered as the introduction of a new variety. In this respect, our approach captures the contribution of each firm to the stock of creative knowledge available in the Venetian Republic.

Table 1 provides summary statistics. On average, each firm in our sample publishes about 7 new editions per year during the period 1537-1587. The dummy $Inquisition_{f,t}$ is equal to one for about 55 percent of the sample. In appendix Table A1, we provide the complete list of the firms in our sample, distinguishing between treatment and control groups. The Table also shows the lifespan of the firm and the list of family members involved in the printing activities during the sample period. In Figure 1, 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 percent of the new editions released each year. After 1559, the year in which the Pauline index was enacted, there is 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 findings with a differences-in-differences econometric analysis.

7   Inquisition and publication rates

Table 2 presents the first set of estimates quantifying the relationship between the inquisition 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). The specification confirms the idea that the effect of the inquisition begins after 1559.

As discussed in Section 3, the Pauline index was the first index of prohibited books effectively enforced in the Venetian Republic, which initiated a series of additional censorship initiatives by the Roman Church and the Venetian government. The early inquisition period, despite being characterized by substantial uncertainty on censorship regulation, does not seem to be associated with a differential propensity to publish between firms more and less specialized in transgressive topics.

Quantitatively, the estimates indicate that firms more exposed to the inquisition published 6.7 books per year less after the Pauline index relative to the other firms in the sample, and the estimate is statistically significant at the five-percent 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 13.1 per year after 1559. This implies that the average decline in publication levels after 1559 is 51 percent.[8] 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 58 percent, which is in line with the magnitude uncovered by the OLS specification.

Appendix Table A2 confirms these results, using alternative econometric models (such as negative binomial) and in a variety of robustness checks. To address the concern that our baseline findings are not driven by a few outlier large firms, we show that results are similar in a weighted OLS model, in which observations are weighed by the pre-47 publication level of the firm. The effect is slightly larger in this specification but not statistically different from our baseline regression. We also show that our baseline estimate is robust to dropping the two firms that publish more during our sample period (owned by the Bindoni and Scoto families) and those that publish less (owned by the Imberti and Lorio families). Overall, the analysis confirms a break in publication rates after 1559 for the firms more exposed to the inquisition.

Our analysis exploits several indexes of prohibited books released during our sample period. In Table A2 we re-estimate our model using only the books listed in the Pauline index to distinguish between treated and control firms. Results are robust but less precisely estimated. The fact that the estimates are not sharper when we leverage only the 1559 index supports the idea that the index represents the beginning of a new censorship regime, but it was not the only piece of legislation affecting the industry.

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[8]The average number of books published in the control group after 1559 is 9.8, and the pre-1559 difference between treated and control firms is 3.3 books per year.

To distinguish between treatment and control groups, we rely on a threshold cut-off that classifies as treated the firms in the top two terciles of the distribution of the fraction of prohibited books published before the inquisition. Columns 4 and 5 of Table 2 provide robustness to this approach. In column 4, we use a larger treatment group, which includes all firms that publish at least one book before 1547 and will later be included in one of the inquisition indexes. This leaves as control firms only those that will have no book published before the inquisition listed in an index (about 25 percent of the sample). Results are similar to our baseline with this approach. Column 5, instead, uses a more restrictive approach, which includes in the treatment group only firms for which the fraction of prohibited books published before the inquisition exceeds the 40th percentile. Also in this case, results appear qualitatively and quantitatively similar to our baseline estimates, indicating that our findings are robust to local variations of the threshold cut-off.

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 (0.02 with p-value=0.31 in the early period and -0.06 with p-value=0.34 after the index). This suggests that the effect of the inquisition is not linear in the exposure to the inquisition. Appendix Table A3 examines this issue in greater detail. We first show that results are robust to dropping from the sample firms for which the exposure variable is between the 33rd and 53rd percentiles. By dropping this intermediate quintile, the regression exploits a sharper difference between control and treatment groups and only considers firms for which prohibited publications account either for a very small or a very large fraction of their pre-inquisition books. We then examine the effect of the inquisition, dropping the firms with the largest level of exposure (top 20 percent of the sample). Results are similar, if anything slightly stronger, in this specification. This indicates that the drop in publications that we estimated is not driven by the firms for which the fraction of prohibited books published before the inquisition is the most extreme. We confirm this insight, focusing only on treated firms (above the 33rd percentile of exposure) and contrasting those in the top quartile of the distribution with the other firms. In this regression, the coefficients are small and statistically insignificant, suggesting that the drop in publication rates of firms with the highest fractions of listed books is similar to the one of firms with more moderate levels of exposure.

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Overall, this 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 is consistent with the evidence discussed in Section 4, which indicates that the penalties imposed on transgressive firms were not necessarily linked to the severity of the violation, particularly in the case of non-monetary punishments such as excommunication or arrest.[9]

7.1 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, β_t.

Specifically, we estimate

$$Y_{f,t} = \alpha + \beta_t treated_f \times period_t + \gamma X_{f,t} + \delta_t + f_f + \varepsilon_{f,t} \tag{3}$$

where $treated_f$ is an indicator capturing firms in the treatment group and $period_t$ are dummies capturing five-year intervals. The period 1548-53 is the baseline period.

Figure 2 provides a graphical illustration of the estimated coefficients and their 95-percent 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 censorship activity began with the Pauline index of 1559, and that its effect was amplified during the following decades through a series of additional indexes and regulations.

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[9]An additional caveat relates to the forward-looking nature of our measure of exposure. We only consider books published before 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.

7.2 Competitive interaction and foreign firms as control group

We have shown that the publication levels of firms more exposed to the inquisition (treatment group) declined relative to publications by less exposed firms (control group) after 1559. 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, as suggested by Prediction 1 of our theoretical model, the negative shock affecting firms targeted by the inquisition may have created market opportunities for less-exposed firms that led to an increase in their publication levels. This competitive interaction deserves attention in our context, because it may lead us to overestimate the negative effect of the inquisition on treated firms. In other words, the observed decline in book publications by treated firms may not indicate an overall decline in publications at the industry level.

One way to address this concern 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 the inquisition was active and several editions of local indexes of prohibited books were adopted – i.e., Spain, Portugal, France or the Low Lands (see De Bujanda, 1996). 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) argue that this occurred because Protestant texts and vernacular Bibles were so widespread that it was not possible to effectively enforce the Papal indexes.[10]

Following this reasoning, we contrast the publication rates of Venetian firms with the publication rates of some of the most prominent contemporaneous 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

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[10]The low interference from Rome in the cities of the Holy Roman Empire was further reduced after the 1555 Peace of Augsburg, which introduced the 'cuius regio, eius religio' principle allowing local rulers to impose Lutheranism in their territories. Cantoni (2012, online appendix) provides evidence of Luther's works published in Protestant and Catholic cities of the Holy Roman Empire. For instance, 52 editions of Luther's books were published by 1556 in the Catholic city of Erfurt.

part of the 16th century. This process leads to a sample of 20 foreign publishing firms located in German and Swiss cities. 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.[11]

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.

Column 1 of Table 3 contrasts the publication of new editions by the Venetian firms affected by the 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 3 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.

Our baseline analysis in Table 2 estimated a difference of about 6 new book editions after 1559 between the Venetian firms more exposed to the inquisition and those less exposed. Under the assumption that the publications of Venetian and foreign firms would have trended identically in the absence of the inquisition, the coefficients in Table 3 allow us to decompose this aggregate effect. Specifically, the regressions imply that roughly half of the difference (about 3 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.

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[11] 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) are dropped from the sample as we observed an unusual data pattern during the early inquisition period. For both families we noticed an unrealistically large number of publications (in the hundreds) for a couple of years, when the baseline publication level for these families was less than 10 books a year. We do not know if these outlier observations are driven by incorrect data entry in USTC or other family-specific shocks. Results are robust to including these firms but the coefficients on the early inquisition period are less precisely estimated.

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 choices and the timing of book releases (Nuovo, 2013 p. 282). Columns 3 and 4 confirm our result, dropping from our control group the four sample firms located in Frankfurt.

A natural concern with our analysis is that trends in publication of new editions in Venice may differ from those in German and Swiss cities. To address this issue, in appendix Table A4, we replicate the analysis of Table 3, matching, whenever possible, each Venetian firm with one foreign firm, minimizing differences in publishing trends during the first period of our sample. The estimates from this smaller matched sample are in line with our baseline results and, if anything, provide stronger evidence that changes in publication rates for Venetian firms began after 1559.

8   Survival and market structure

We now turn to the impact of the inquisition on market structure and firm survival. 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 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 3.5 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 (those that are more heavily exposed to the inquisition) have a market share that is 5.2 percentage points smaller than other firms in the last decade of the sample.

Column 3 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 1540-1575. 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 7 firms to our sample; the new firms all exited between 1559 and 1575. 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 exposure to the inquisition 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.[12]

In appendix Table A5, we examine changes in entry rates of new firms during our sample period. As in our regression analysis, we contrast the early inquisition phase (1537-1559) and the period after the Pauline index (1560-1587). 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 difference is statistically significant at the 10 percent level. At the same time, we also show that 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. The increase in the entry of firms with short survival span appears quite substantial, as the number of new short-lived entrants almost doubles after 1559.[13]

Overall, these findings, together with those presented in Section 7, indicate that the inquisition had not only a short-term impact on the circulation of prohibited books, but also dynamic and long-lasting effects on the industry. It affected market shares, firm survival, and entry patterns. Our analysis shows that the firms more exposed to the inquisition reduced their publication rates, lost market shares, and experienced shorter survival. At the same

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[12]In an unreported panel regression, we confirmed the negative effects on survival using a proportional hazard model with exponential distribution. Unfortunately, we were not able to push this analysis further as we experienced convergence issues with variants of this specification (e.g., Weibull distribution), which are common for this class of models.

[13]A concern with these illustrative statistics is that the lower survival rate of new entrants after 1559 may be driven by the plague that affected Venice in 1575-76 and had a profound impact on the Venetian population and the economy of the country. To address this issue, we replicated Table A5 only including the years up to 1575 and found very similar qualitative and quantitative results.

time, the censorship appears to have created market opportunities for firms less specialized in transgressive topics, and for new market entrants. Our theoretical model suggests that the incumbent firms more exposed to the inquisition are likely to withdraw from the more transgressive literary areas. This is consistent with our finding that entrants tend to have low survival rates after the inquisition, as they may have attempted to serve the riskier segments of the market. In the next section, we examine this issue in greater detail, analyzing the effect of the inquisition across different types of literary work.

9   Heterogeneity across publishing fields

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 publishing fields. This analysis helps us 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. Examples of these publishing fields include 'Art and Architecture,' 'History and Chronicles,' and 'Funeral Orations'.[14] We manually classify each of these detailed fields into four macro-categories. Our first macro-field, which we name 'Literature', includes classic and contemporaneous 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 percent of the publications in our sample, Religion and Education for about 25 percent each, and the Residual category includes 20 percent of the sample.

We use the 35 USTC fields and their grouping into macro-categories to examine the

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[14]To retrieve book subjects we merged Edit16 with USTC, exploiting a unique book identifier (CNCE) common across the two datasets.

differential impact of the inquisition on the publication rates across genres. We begin with an analysis in which the unit of observation is the field-year, which exploits all the 35 fields provided by USTC. Appendix Figure A2 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. 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 5 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 5 new publications per year, and this appears constant across the sample period.

This finding is confirmed in Table 5, where we present a series of differences-in-differences regressions. The unit of observation is the field-year. In column 1, we show a drop in the literature fields after 1547 of about 2 editions a year relative to the other fields. No statistically significant difference is registered if we examine the fields in the other prominent macro-categories of religion and education as documented in columns 2 and 3. In column 4, we re-examine the change in literature publications, distinguishing between the early inquisition period (1547-58) and the period after the Pauline index (1559-85). Consistent with the analysis presented in the previous sections of the paper, the decline appears to be driven by the time window after 1559. There is no significant difference between publications in literature fields and other fields before 1559 but after that the estimates indicate a statistically significant drop of about 3.5 books per field-year.

Our analysis leverages the disaggregated field classification provided by USTC. The benefit of this approach is that it allows the inclusion of detailed field-specific effects, which capture time invariant unobservables of narrow publication areas.[15] A possible concern is that some of these fields are quite small and may only include a handful of titles. To address this issue, column 5 shows that our finding is robust to using a more aggregate approach in which there are only four observations per year, one for each of the macro-categories. This regression confirms a decline in publications in the literature category after 1559 relative to the other publishing categories, with a magnitude of about 25 books per year.

We have documented a decline in the publication of books in literature fields relative to fields associated to other genres. This suggests that the inquisition impacted not only the

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[15] This approach is similar in spirit to the use of the narrowest technology classification in the patent literature (e.g., Moser and Voena, 2012).

level but also the direction of publishing. Before discussing the implications of this result, we now re-introduce firms into our analysis to explore whether the effect is driven by those more exposed to the inquisition's censorship. To this end, Table 6 presents a series of regressions in which the unit of observation is a firm-field-year. Column 1 focuses on the USTC fields in the literature macro-category and includes family-fields effects as well as year effects. The difference-in-difference 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 to 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 difference in literature publications between the two groups of Venetian firms in our sample.

Appendix Table A6 provides a set of robustness for these findings. First, it confirms that the decline in literature publications is driven by families more exposed to the inquisition, using a Poisson model. Second, it shows robustness to regressions at the firm level rather than at the firm-field level. After 1559, firms more exposed to the inquisition publish fewer literature books relative to firms less exposed, and this appears driven by books written in vernacular rather than those written in Latin.[16]

The regressions presented in this section are consistent with the idea that censorship led

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[16] A caveat to our analysis is that it was performed by dropping the books for which USTC does not provide a subject field. These observations account for about 10 percent of the books in our sample. To address this issue, we re-estimated the main regressions presented in this section, creating a new subject field for the books for which classification was not available. We included this field in the residual macro-category. Results are qualitatively and quantitatively robust to this alternative treatment of the missing values.

to a change in the direction of publishing, with printers shifting away from vernacular literature. The effect appears to be driven by the firms more exposed to the inquisition. Together, these findings indicate that literature, and in particular vernacular literature, was a leading censorship target and a challenging field to operate in during the inquisition. This is supported by the work of historians. Grendler, for example, emphasizes how *"Italian literature lost much of its vitality when vernacular authors accustomed to writing in free, mocking and even slanderous ways during the epoch of Aretino shifted to safer topics in the 1560. All authors became careful self-censors"* (Grendler, 1975; p.287).

Our empirical findings are also in line with the theoretical predictions of the conceptual framework developed in Section 4. Our model suggests that the inquisition would lead to a reduction in publication of transgressive books by the firms more exposed to the inquisition, relative to other firms (Prediction 2). It also highlights an ambiguous effect on the production of safe books by the more exposed firms relative to other firms (Prediction 3). This is exactly what we document in Table 6, once we take vernacular literature as the most transgressive area.

As highlighted by Grendler (1975; p.54), 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"*. 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. One reason for this is that the inquisition may have had contrasting effects across religious books. While, 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, as suggested, for example, by Ottone (2003). The fact that our empirical findings are sharper when we contrast literature with the other non-religious field is consistent with this idea.[17]

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[17]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 Sebolt (2020), is unlikely to provide sufficient variation in our setting.

10 Inquisition and book authors

In this section, we examine whether the inquisition led to a change in the type of authors who were published in the literature fields, thus generating barriers to entry into the creative profession. In our setting, this can take place if the censorship reduced firms' propensity to publish less established authors, whose legitimacy against the inquisition may have been perceived as more uncertain.

To perform this analysis, we collect additional information for each of the 2,764 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. This variable is constructed from the bibliographic information provided in Edit16. We classify authors as contemporaneous if they were alive during the XVI century.[18] For each author, we also identify the first book they published in Venice, as well as the first book they published with each of the 27 firms in our sample. Finally, we generate a dummy variable to capture authors who had at least one book included in any of the inquisition indexes used in our analysis.

In Table 7, we present a series of book-level probit regressions. Each regression 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, distinguishing between the books by authors who have at least one of their works included in an inquisition index (column 2) and those 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 their propensity to publish 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 contemporaneous authors even if they are not listed in inquisition indexes.

Columns 4 and 5 focus on books by authors who are not listed in indexes. The first

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[18]More specifically, we consider contemporaneous authors who died after 1500 and were born after 1450.

regression shows that, after 1559, the firms more exposed to the inquisition are associated with a higher propensity to avoid authors who were not previously published in Venice. In column 5, we examine the propensity to publish authors new to the focal firm but not necessarily to other Venetian firms. In this case, the effects of the inquisition appear much smaller. The coefficients have smaller magnitude and marginal statistical significance.

Appendix Table A7 confirms these findings, using regressions at the family level rather than at the book level. After 1559, the publication of literature books involving contemporary authors and authors never published in Venice declines substantially for firms more affected by the index relative to the other firms, both in absolute and relative terms.

Overall, these results indicate that the effects of censorship extended beyond authors and books directly included in the indexes. Firms more exposed to the inquisition appear more reluctant to publish contemporary authors in literature, even writers not listed in any inquisition index. This suggests that censorship, by making publishers more risk-averse, may have created barriers to entry for new writers. In turn, this may have affected the incentives to develop new literary works and the dissemination of new ideas in the Venetian Republic.[19]

11   Concluding remarks

Guided by a simple theoretical framework, this paper examines how the book censorship implemented by the Catholic inquisition affected printing outcomes in Renaissance Venice. 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 shifting away from vernacular literature. Finally, we find that the firms more exposed to the inquisition became more reluctant to publish new and contemporary authors.

Our analysis supports the idea that censorship may have effects that go beyond the removal of specific works of authorship from the market. These policies may have long-term dynamic impacts on market structure, industry evolution, entry into creative professions, and on the direction of creative efforts. This may be particularly the case in creative sectors

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[19]In a related study, Luo and Zhang (2020) leverage the Harvey Weinstein scandal to show that risk-mitigation can change the composition of workers and managers employed in creative projects.

where firms tend to specialize in certain topics and genres. A welfare analysis of the effect of the Venetian inquisition is outside the scope of our paper. In general, an estimate of the social impact of a censorship policy requires an assessment of the costs and benefits associated with reducing the circulation of certain types of creative work. Recognizing the dynamic effects documented in our paper is crucial to conducting these types of evaluations (Filkenstein, 2004).

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Figure 1: New editions published by Venetian printers
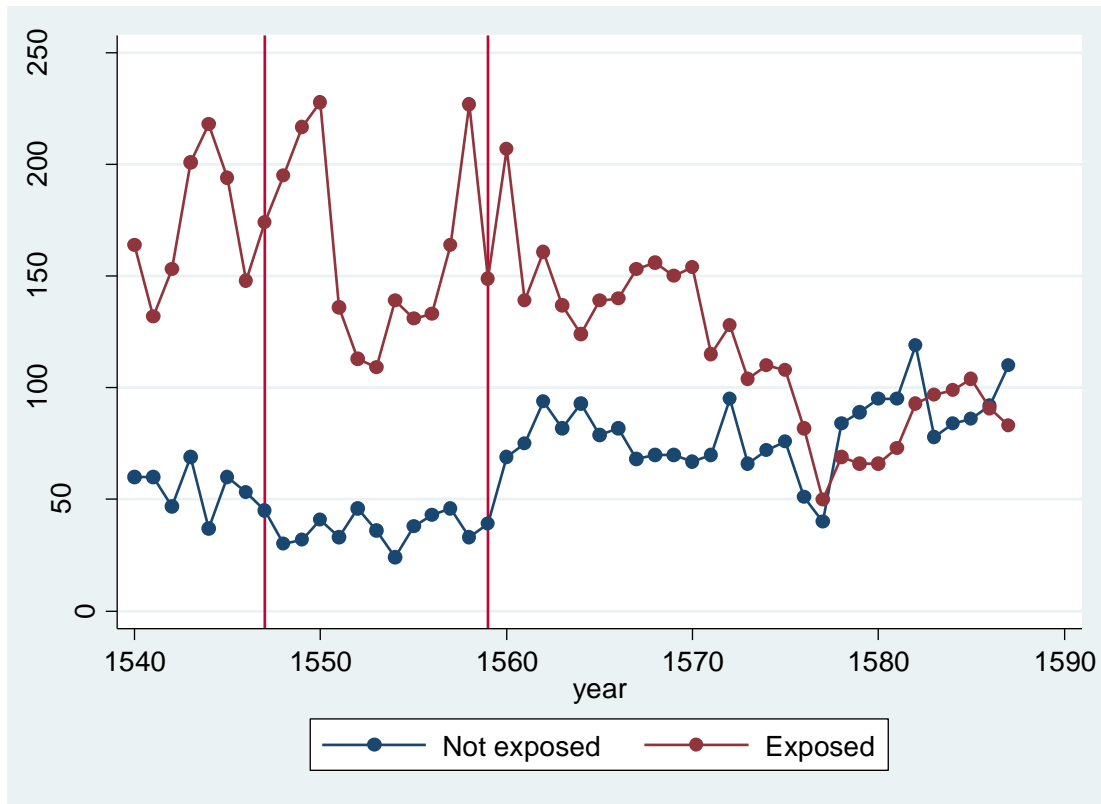
NOTES: Total new editions released each year by firms exposed to the inquisition and those less exposed to the inquisition. Exposed firms are those with a fraction of prohibited books published before the inquisition above the first tercile of the distribution.

Figure 2: Dynamic effects of the inquisition

NOTES: The regression corresponds to equation (3) in the paper. The figures plot the coefficients (and 95% confidence intervals) of the interaction terms between dummies for five-year time windows and the treatment dummy for the firms more exposed to the inquisition.

Table 1: Summary Statistics

	obs.	mean	sd	min	max
New editions	1,377	7.391	9.731	0	64
Inquisition	1,377	0.552	0.497	0	1
Early inquisition	1,377	0.152	0.358	0	1
Index	1,377	0.400	0.490	0	1

NOTES: Unit of observation is a firm-year. The time window covered is 1537-1587. New editions = number of new editions published by the firm in Venice in year t. Inquisition=1 after 1547 for firms exposed to the inquisition. Early inquisition=1 for firms exposed to the inquisition during 1547-1558. Index=1 after 1559 for firms exposed to the inquisition. A firm is classified as exposed to the inquisition if the ratio between the books published in 1500-47 that will be listed in indexes and the total number of books published by the firm in the same time window is in the top 2 terciles of the sample.

Table 2: Inquisition and publication rates

	(1)	(2)	(3)	(4)	(5)
Dep. Variable	New editions	New editions	New editions	New editions	New editions
Estimation	OLS	OLS	Poisson	OLS	OLS
Inquisition	-4.564*				
	(2.283)				
Early Inquisition		1.093	0.226	0.567	-0.024
		(1.622)	(0.209)	(1.563)	(1.795)
Index		-6.710**	-0.889***	-6.106**	-6.188**
		(2.751)	(0.325)	(2.935)	(2.685)
Year effects	YES	YES	YES	YES	YES
Firm effects	YES	YES	YES	YES	YES
Observations	1377	1377	1377	1377	1377
Treated firms	fraction of pre-47 books in indexes > 33rd percentile	fraction of pre-47 books in indexes > 33rd percentile	fraction of pre-47 books in indexes > 33rd percentile	fraction of pre-47 books in indexes > 0	fraction of pre-47 books in indexes > 40th percentile

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 1547-1558. Index=1 for treated firms after 1559.

TABLE 3: Foreign firms as control

	(1)	(2)	(3)	(4)
Dep. Variable	New editions	New editions	New editions	New editions
Venetian exposed X period 1547-58	-0.991 (1.452)		-0.648 (1.676)	
Venetian exposed X after 1559	-2.861** (1.078)		-3.148** (1.224)	
Venetian not exposed X period 1547-58		-2.022 (1.461)		-1.716 (1.696)
Venetian not exposed X after 1559		3.817*** (1.080)		3.558** (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	1878	1317	1746	1185

NOTES:OLS regressions with robust standard errors clustered at the firm level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. In colums (1) and (3) the sample includes treated firms (Venice) and foreign firms; colums (2) and (4) the sample includes control group (Venice) and foreign firms. In colums (3) and (4) firms active in Frankfurt are dropped from sample of foreign firms.

Table 4: Inquisition, industry structure and survival

Dep. Variable	(1) Share	(2) Share last dec.	(3) Exit year	(4) Exit year	(5) Exit year
Early Inquisition	0.005				
	(0.009)				
Index	-0.035**				
	(0.015)				
Exposed firm		-0.052**	-38.707**	-27.855*	-0.641
		(0.023)	(15.561)	(13.779)	(1.986)
Year effects	YES	NO	NO	NO	NO
Firm effects	YES	NO	NO	NO	NO
Sample	full	full	full	extended	exit before 1560
N. Observations	1377	27	27	34	12

NOTES: Robust standard errors clustered at firm level in parentheses. * p<0.10 , ** p<0.05, *** p<0.01. In colum (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 1547-1558. 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 exinting between 1559-75; sample exit before 1560: only includes firms active during 1540-47 and exiting before 1560.

Table 5: Effects of the inquisition across publishing fields

Dep. Variable	(1) New editions	(2) New editions	(3) New editions	(4) New editions	(5) New editions
Literature X after 1547	-2.402** (0.924)				
Religion X after 1547		1.019 (0.766)			
Educational X after 1547			-0.027 (1.058)		
Literature X period 1547-58				0.819 (1.258)	7.303 (6.623)
Literature X after 1559				-3.624*** (1.161)	-25.772** (5.041)
Year effects	YES	YES	YES	YES	YES
Field effects	YES	YES	YES	YES	YES
Unit of observation	field-year	field-year	field-year	field-year	macrofield-year
Observations	1836	1836	1836	1836	204

Notes: OLS models with robust standard errors clustered at the field level in parentheses. * p<0.10 , ** p<0.05, *** p<0.01. Literature X after 1547=1 for literature fields after 1547; Religion X after 1547=1 for religious fields after 1547; Educational X after 1547=1 for educational fields after 1547. Literature X period 1547-58=1 for literature fields during 1547-1558; Literature X after 1559=1 for literature fields after 1559.

Table 6: Inquisition, firms and publishing fields

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	0.043	0.10	0.086	-0.001	0.029	0.014
	(0.057)	(0.141)	(0.057)	(0.023)	(0.047)	(0.023)
Index	-0.312***	-0.218	-0.118	-0.106	-0.257***	-0.055*
	(0.074)	(0.213)	(0.095)	(0.078)	(0.065)	(0.032)
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	11016	22032	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 1547-1558. Index=1 for treated firms after 1559.

Table 7: Inquisition and authorship - book level regressions

Dep. Variable	(1) Contemporary author	(2) Contemporary author	(3) Contemporary author	(4) Author new to Venice	(5) Author new to the firm
Estimation	Probit	Probit	Probit	Probit	Probit
Early Inquisition	-0.406	-0.403	-0.320	-0.113	-0.359
	(0.284)	(0.510)	(0.356)	(0.345)	(0.289)
Index	-0.716***	-0.269	-1.069***	-0.581**	-0.399*
	(0.244)	(0.421)	(0.333)	(0.271)	(0.240)
Year effects	YES	YES	YES	YES	YES
Firm Effects	YES	YES	YES	YES	YES
Sample	Literature books	Literature books (with author listed in an index)	Literature books (with author not listed in any index)	Literature books (with author not listed in any index)	Literature books (with author not listed in any index)
Observations	2629	861	1593	1646	1655

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. Author new in Venice=1 if the author had not published previously in Venice. Author new to the firm=1 if the author had not published previously with the firm. Early inquisition=1 for treated firms during 1547-1558. Index=1 for treated firms after 1559.

APPENDICES TO "Censorship, industry structure, and creativity: evidence from the Catholic inquisition in Reinassance Venice"

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Appendix A: Theoretical Model

As in Singh and Vives (1984) we consider an economy with two differentiated goods and a competitive numeraire sector. Consumers utility is separable and linear in the numeraire good and quadratic in the quantity of differentiated products. This utility gives rise to the following inverse demand functions for the transgressive (T) and safe (S) books:

$$p_T = a_T - \beta_T Q_T - \gamma(Q_T + Q_S),$$
$$p_S = a_S - \beta_S Q_S - \gamma(Q_T + Q_S).$$

We assume that γ is positive meaning that book varieties are substitutes.

Books are produced by two firms, A and B, that compete *á la* Cournot. We assume that each firm produces both varieties and we denote q_j^i the quantity of variety $j = T, S$ produced by firm $i = A, B$. Marginal costs are constant and are denoted by C_j^i, $i = A, B$ and $j = T, S$. The overall number of books of variety j produced in the economy is the sum of the production of the two firms: $Q_j = q_j^A + q_j^B$.

Firm i chooses q_T^i and q_T^i to solve the following profit maximization problem

$$\max_{q_T^i, q_S^i} \sum_{j \in \{S,T\}} (a_j - \beta_j(q_j^i + q_j^{-i}) - \gamma(q_j^i + q_j^{-i} + q_{-j}^i + q_{-j}^{-i}) - C_j^i)q_j^i$$

From the system of first order conditions we can derive the equilibrium quantities:

$$
\begin{aligned}
q_T^A &= \frac{\left(a_T - a_S + C_T^B - C_S^B - 2(C_T^A - C_S^A)\right)\gamma + \beta_S\left(a_T + C_T^B - 2C_T^A\right)}{3(\gamma\beta_T + \gamma\beta_S + 3\beta_T\beta_S)} \\
q_T^B &= \frac{\left(a_T - a_S + C_T^A - C_S^A - 2(C_T^B - C_S^B)\right)\gamma + \beta_S\left(a_T + C_T^A - 2C_T^B\right)}{3(\gamma\beta_T + \gamma\beta_S + 3\beta_T\beta_S)} \\
q_S^A &= \frac{\left(a_S - a_T + C_S^B - C_T^B + 2(C_T^A - C_S^A)\right)\gamma + \beta_T\left(a_S + C_S^B - 2C_S^A\right)}{3(\gamma\beta_T + \gamma\beta_S + \beta_T\beta_S)} \\
q_S^B &= \frac{\left(a_S - a_T + C_S^A - C_T^A + 2(C_T^B - C_S^B)\right)\gamma + \beta_T\left(a_S + C_S^A - 2C_S^B\right)}{3(\gamma\beta_T + \gamma\beta_S + \beta_T\beta_S)}.
\end{aligned}
\tag{1}
$$

We use these formulas to examine how the inquisition activity can changed firms' production levels.

No inquisition

Absent the inquisition, we assume that the marginal cost of firm i producing variety j is $C_j^i = c_j^i$. We assume that firm A has a cost advantage in the production of books of type T, $c_T^A < c_T^B$, while firm B has a cost advantage in the production of safe book, $c_S^B < c_S^A$. Equilibrium quantities

1

can be obtained from (1) imposing $C_j^i = c_j^i$. Simple comparisons between the production of the two firms reveal that the market share of firm A is larger than that of firm B in the case of transgressive books while it is smaller in the case of safe books.[1]

Inquisition

We now extend the setting to consider the effect of an index of prohibited books and censorship by the inquisition. We assume that, in this new environment, the marginal costs of production increase for the two firms depending on how exposed they are to the censorship activity.

Following the product liability literature (Hay and Spier, 2005; Daughety and Reinganum, 2013), we assume that the marginal costs of firm A become $C_T^A = c_T^A + \overline{p}F$ and $C_S^A = c_S^A + \alpha\overline{p}F$, while B's costs become $C_T^B = c_T^B + \underline{p}F$ and $C_S^B = c_S^B + \alpha\underline{p}F$, where F is the fine, and $\overline{p}$, $\underline{p}$, and α determine the probabilities of being punished by the inquisition.

We assume that $\overline{p} > \underline{p}$ as books of type T are the core competence of firm A, and its larger market share may generate more scrutiny from the inquisitors. The parameter $\alpha \in [0,1]$ captures the idea that books in the safe category are less likely to be found illegal, but this probability is not necessarily zero given the uncertainty of the inquisition process.

Equilibrium quantities under the index – $q_T^A(F)$, $q_S^A(F)$, $q_T^B(F)$, $q_S^B(F)$ – can be calculated from (1) using the appropriate marginal costs.

Effect of the inquisition on the overall production

In this section, we look at the effect of the index on the overall production of books $-$ transgressive and safe $-$ of the two firms. Let us denote $Q^i = q_T^i + q_S^i$ the overall production of books of firm i absent the inquisition and let $Q^i(F)$ denote the same variable once the inquisition is in place. We compute the difference between $Q^A(F) - Q^B(F)$ and $Q^A - Q^B$. Simple algebra reveals that the difference is

$$-\frac{F\left(\overline{p} - \underline{p}\right)\left(\alpha\,\beta_T + \beta_S\right)}{\gamma\,\beta_T + \gamma\,\beta_S + \beta_T\beta_{\,S}}$$

which is negative because $\overline{p} > \underline{p}$. This means that the inquisition causes a reduction in the overall production of books of firm A compared to that of firm B.

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[1] While firm cost heterogeneity maps well into our empirical setting, this assumption is innocuous for our main comparative statics results.

We now consider each firm separately. Looking at firm A and computing $Q^A(F) - Q^A$ we have

$$-\frac{F\left(2\overline{p} - \underline{p}\right)\left(\alpha\,\beta_T + \beta_S\right)}{3(\gamma\,\beta_T + \gamma\,\beta_S + \beta_T\beta_S)}$$

which again is negative. This implies that the index causes a reduction in the overall production of books of firm A.

Considering the effect of the index on firm B we have that $Q^B(F) - Q^B$ equals

$$\frac{F\left(\overline{p} - 2\underline{p}\right)\left(\alpha\,\beta_T + \beta_S\right)}{3(\gamma\,\beta_T + \gamma\,\beta_S + \beta_T\beta_S)}$$

which can be either positive or negative. This means that the inquisition $-$ which increases the production costs of firm B as well $-$ can lead to either an increase or a decrease in the overall production of books of firm B. Looking more closely to the above expression one can notice that firm B produces more under the inquisition when $\overline{p} > 2\underline{p}$. This condition implies that the expected fines of the exposed firm A are significantly larger than those of firm B. In this case, despite the increase in costs, the non exposed firm benefits from a major comparative gain compared to the competitor and induces it to produce more than what it does when censorship is not in place.

Therefore, under condition $\overline{p} > 2\underline{p}$ the reduction in the overall production of firm A compared to B is due to both a decrease in production of firm A and to an increase in production of firm B.

Effect of the inquisition on the production of transgressive books

We now consider the impact of the index on the production of each variety separately. We start considering production of books of type T. The results are qualitatively the same as in the case of the overall production of books of the previous section.

Comparing the difference between the production of transgressive books of firm A and firm B once censorship is in place with the same difference before inquisition (i.e. computing the difference between $q_T^A(F) - q_T^B(F)$ and $q_T^A - q_T^B$) we have

$$-\frac{F\left(\overline{p} - \underline{p}\right)\left(\beta_S + \gamma\left(1 - \alpha\right)\right)}{\gamma\,\beta_T + \gamma\,\beta_S + \beta_T\beta_S}$$

this expression is negative and it implies that, comparatively, firm A reduces the production of transgressive books with respect to B due to the regulation.

Effect of the inquisition on the production of safe books

Computing the difference between $q_S^A(F) - q_S^B(F)$ and $q_S^A - q_S^B$ we obtain

$$-\frac{F\left(\overline{p} - \underline{p}\right)\left(\alpha\,\gamma + \alpha\,\beta_T - \gamma\right)}{\gamma\,\beta_T + \gamma\,\beta_S + \beta_T\beta_S}$$

which can be either positive (when $\alpha < \frac{\gamma}{\gamma + \beta_T}$) or negative (when $\alpha > \frac{\gamma}{\gamma + \beta_T}$). When looking at safe books one needs to consider that the inquisition entails an additional effect: it changes the relative costs of transgressive relative to safe books thus inducing firms to a shift in production in favour of these latter. This shift is stronger for firm A – for whom the difference in the increase in costs between transgressive and safe books is larger – and it is more intense the smaller α. Overall, as a consequence of this shifting effect, the impact of the inquisition on the production of safe goods of firm A compared to firm B is uncertain.

APPENDIX B: Additional Figures and Tables

Figure A1: effectiveness of the Pauline Index
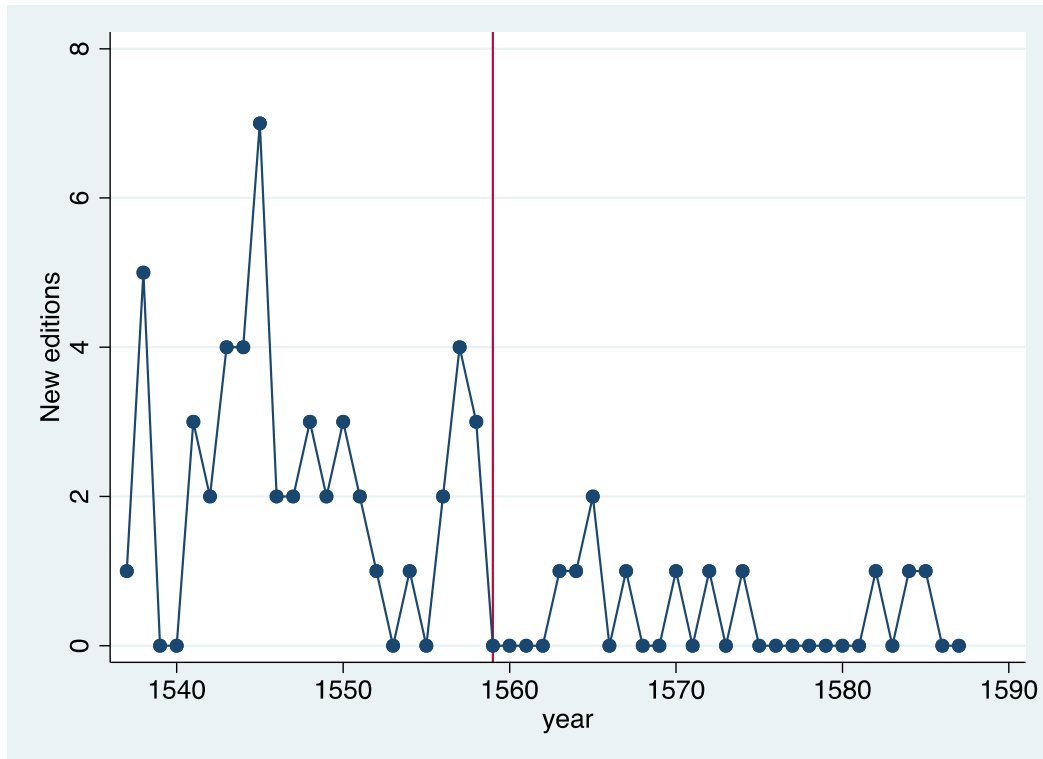
NOTE: The figure plots the editions of books listed in the Pauline index released each year in Venice. The red line corresponds to 1559, the year in which the Pauline index was enacted.

Figure A2: Literature fields vs other fields
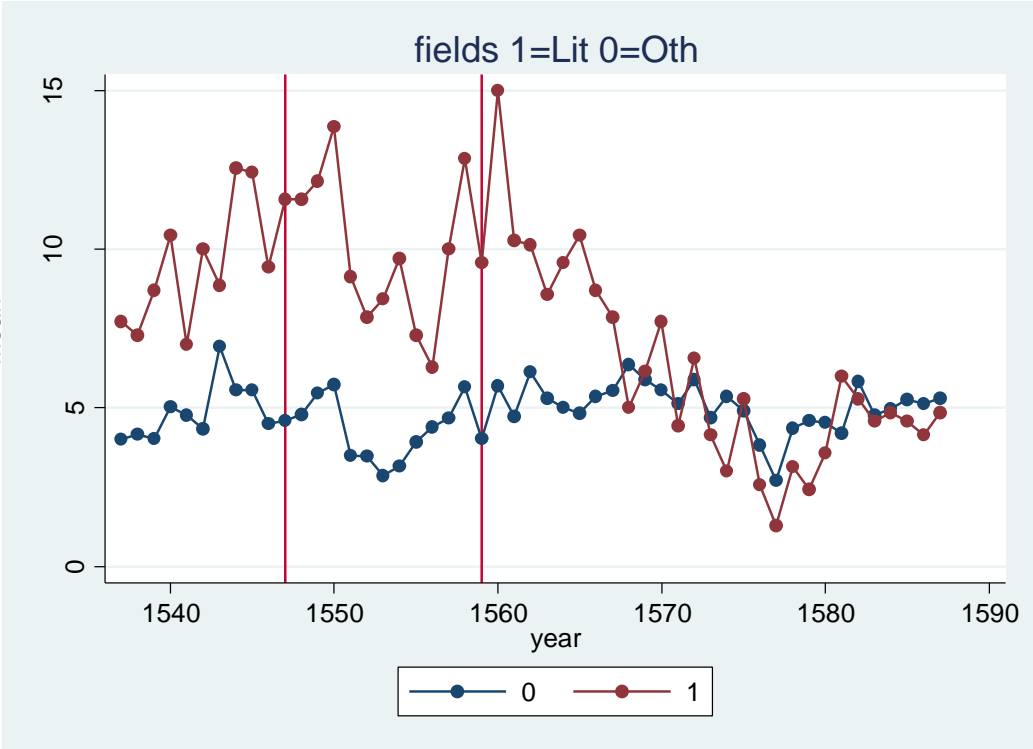
NOTE: The figure plots the yearly average number of new editions per field (USTC classification). 1: Literature fields; 0: other fields. Red lines correspond to years 1547 and 1559.

Table A1: Sample firms, members and period of activity

Family	TREATED FIRMS — Family members involved (1537-87)	First pub in Edit16	Exit	Family	TREATED FIRMS — Family members involved (1537-87)	First pub in Edit16	Exit
Arrivabene	Giorgio, Cesare, Andrea, Cornelio.	1501	1598	Torresano	Andrea il vecchio, Federico, Giovanni Francesco, Bernardino, Girolamo. Also with the emblem: Biblioteca Aldina.	1501	1589
Bindoni	Alessandro, Francesco il vecchio, Benedetto, Agostino, Bernardino, Marco, Stefano, Candido, Francesco il giovane, Gaspare il vecchio, Giovanni Antonio, Gaspare il giovane.	1504	1602	Tramezzino	Francesco, Michele il vecchio, Venturino, Michele il giovane.	1532	1592
Comin	Comin da Trino. Also with the emblems: Al segno del Nettuno and Al segno della Croce	1539	1580	Valgrisi	Vincenzo, Pietro, Guglielmo, Felice, Giovanni.	1539	1603
Giolito	Giovanni il vecchio, Gabriele, Giovanni Francesco, Giovanni il giovane, Bonifacio, Giovanni Paolo, Chiara.	1505	1642	Viani	Bernardino il vecchio, Alessandro, Bernardino il giovane, Vincenzo.	1501	1582
Liechtenstein	Peter, heirs of Peter.	1501	1585	Zanetti	Bartolomeo, Cristoforo, Francesco, Bonifacio, Pietro, Luigi, Alessandro, Antonio, Fiorenza. Also with the emblem: Tipografia della Congregazione dell'orologio.	1535	1593
Lorio	Lorenzo, Jacopo, Giulio, Camillo, Lorio.	1514	1585				
					CONTROL FIRMS		
Manuzio	Aldo, Paolo, Antonio, Aldo. Also with the emblems: Accademia Veneziana, Al segno di Aldo and Biblioteca Aldina	1501	1599	Farri	Giovanni, Domenico, Onofrio, Giovanni Antonio, Pietro, Ottavio. Also with the emblem: Al segno della Carità.	1540	1647
Marcolini	Francesco, P.M.L. Also with the emblem: Accademia dei Pellegrini.	1534	1577	Francesco da Salò	Francesco da Salò il vecchio, Francesco il giovane.	1527	1600
Navò	Curzio Troiano, Fabio.	1537	1599	Gardane	Antonio, Angelo, Alessandro.	1538	1685
Nicolini	Giovanni Antonio, Pietro, Stefano, Cornelio, Giovanni Maria, Domenico.	1512	1610	Giunta	Lucantonio, Filippo, Bernardo, Giuntino, Filippo, Iacopo, Tommaso, Benedetto, Lucantonio (il giovane), Cosimo.	1501	1688
Paganini	Paganino il vecchio, Alessandro, Paganini il giovane, Pietro.	1501	1610	Imberti	Gerardo, Domenico, Giovanni Domenico.	1529	1662
Ruffinelli	Venturino, Giacomo, Giovanni Angelo, Diego, Tommaso. Also with the emblem: Al segno del Nettuno.	1534	1588	Pinzi	Filippo il vecchio, Donnino, Aurelio, Filippo il giovane, Camillo. Also with the emblem: Al segno del Mappamondo.	1501	1581
Scoto	Bernardino, Ottavioano il vecchio, Ottaviano il giovane, Barndino, Girolamo, Giovanni Maria.	1501	1641	Rampazetto	Francesco il vecchio, Giovanni Antonio, Francesco il giovane.	1540	1615
Sessa	Giovanni Battista il vecchio, Melchiorre il vecchio, Giovanni Battista il giovane, Melchiorre il giovane, Luigi, Giovanni Bernardo, Francesco, Veronica.	1500	1629	Valvassori	Giovanni Andrea, Florio, Luigi.	1520	1593

NOTE: sources Edit16 and Griffante et al. (2006)

Table A2: Robustness of the baseline regression

	(1)	(2)	(3)	(4)	(5)
Dep. Variable	New editions	New editions	New editions	New editions	New editions
Estimation	weighted OLS	OLS	OLS	Neg. Binomial	OLS
Early Inquisition	0.860	1.551	1.266	0.143	-0.049
	(2.177)	(1.607)	(1.622)	(0.149)	(2.054)
Index	-8.133**	-5.528**	-7.330**	-1.059**	-5.008*
	(3.697)	(2.480)	(2.996)	(0.115)	(2.910)
Year effects	YES	YES	YES	YES	YES
Firm effects	YES	YES	YES	YES	YES
Sample	full	largest firms dropped	smallest firms dropped	full	full - treated firms identified with Pauline index
Observations	1377	1275	1275	1377	1377

NOTES: robust standard errors clustered at the firm level in parentheses. * p < 0.10, ** p < 0.05, *** p < 0.01. Column (1): observations weighted by pre-47 publication level of the firm; Col (2): dropped the largest two firms (Bindoni and Scoto); Col (3): dropped the smallest two firms (Imberti and Lorio); Col (4) negative binomial model; Col (5): treated and untreated defined on the basis of the Pauline index only (treated if fraction of pre-47 books in index >33rd percentile). Early inquisition=1 for treated firms during 1547-1558. Index=1 for treated firms after 1559.

Table A3: Effects across different inquisition exposure levels

	(1)	(2)	(3)
Dep. Variable	New editions	New editions	New editions
Early Inquisition	1.544	-0.352	1.806
	(1.901)	(1.866)	(2.654)
Index	-5.687**	-7.767**	-1.007
	(2.668)	(3.063)	(2.794)
Sample	Dropped firms with exposure between 33rd and 53rd percentile	Dropped firms with largest exposure (top 20%)	Only firms above 33rd percentile - treated firms in top quartile
Year effects	YES	YES	YES
Firm effects	YES	YES	YES
Observations	1122	1071	969

NOTES: OLS regressions with robust standard errors clustered at the firm level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Early inquisition=1 for treated firms during 1547-1558. Index=1 for treated firms after 1559.

Table A4: Foreign firms as control with matching on pre-trends

Dep. Variable	(1) New editions	(2) New editions	(3) New editions	(4) New editions
Venetian exposed X period 1547-58	-0.058 (1.186)		0.399 (1.153)	
Venetian exposed X after 1559	-2.669** (0.875)		-2.610** (0.963)	
Venetian not exposed X period 1547-58		0.045 (1.715)		0.677 (1.660)
Venetian not exposed X after 1559		5.524*** (0.973)		5.528*** (1.117)
Year effects	YES	YES	YES	YES
Firm effects	YES	YES	YES	YES
Sample	Exposed Ven. and foreign firms	Not exposed Ven. and foreign firms	Exposed Ven. and foreign firms (drop Frankfurt)	Not exposed Ven. and foreign firms (drop Frankfurt)
Observations	1115	809	1064	758

NOTES: OLS regressions with robust standard errors clustered at the firm level in parentheses. * p < 0.10, ** p < 0.05, *** p < 0.01. In colums (1) and (3) the sample includes exposed firms (Venice) and foreign firms; colums (2) and (4) the sample includes not exposed group (Venice) and foreign firms. In colums (3) and (4) firms active in Frankfurt are dropped from sample of foreign firms. Matching: for each Venetian firm, i, we use a propensity score matching to identify the nearest neighbor foreign firm with the smallest distance from firm i in terms of publishing during the first fifteen years of the sample.

Table A5: Entry rates

	1537-59	1560-87	equality t-test
Entrants per year	5.5	7	p=0.06
Surviving at least 3 years	3.77	4	p=0.71
Surviving less than 2 years	1.73	3	p<0.01

Table A6: Inquisition and publishing fields - Robustness

Dep. Variable	(1) New editions literature	(2) New editions literature	(3) New edtions literat. vernacular	(4) New editions literat. latin
Estimation	Poisson	OLS	OLS	OLS
Early Inquisition	0.208	0.299	0.203	0.096
	(0.196)	(0.611)	(0.483)	(0.268)
Index	-1.195***	-2.185**	-1.802**	-0.383
	(0.318)	(0.821)	(0.745)	(0.339)
Year effects	YES	YES	YES	YES
Firm effects	YES	YES	YES	YES
Unit of observation	firm-field-year	firm-year	firm-year	firm-year
Observations	6987	1377	1377	1377

NOTES: robust standard errors clustered at the firm level in parentheses. * $p<0.10$, ** $p<0.05$, *** $p<0.01$. Early inquisition=1 for treated firms during 1547-1558. Index=1 for treated firms after 1559.

Table A7: Authorship analysis - firm level regressions

Dep. Variable	(1) New editions by contemporary authors	(2) New editions: ratio contemporary authors/other authors	(3) New editions by authors new in Venice	(4) New editions: ratio authors new in Venice/other authors
Estimation	OLS	OLS	OLS	OLS
Early Inquisition	0.264	-0.074	-0.033	-0.007
	(0.519)	(0.096)	(0.143)	(0.068)
Index	-1.678**	-0.136**	-0.522***	-0.110*
	(0.760)	(0.061)	(0.150)	(0.066)
Year effects	YES	YES	YES	YES
Firm effects	YES	YES	YES	YES
Observations	1377	462	1377	462

Notes: robust standard errors clustered at the firm level in parentheses. * $p<0.10$, ** $p<0.05$, *** $p<0.01$. Early inquisition=1 for treated firms during 1547-1558. Index=1 for treated firms after 1559. Columns (2) and (4) considers only cases in which at least 2 literature books are published.

APPENDIX C: Information on publishers, editions, authors and prohibited editions - Examples

C.1: Examples of publisher data (Edit16)

Bindoni, Agostino

Date di attività:	1523 - 1558
Date in banca dati:	Venezia [1524?] - 1558;
Notizie:	Tipografo attivo a Venezia, originario dell'Isola Bella del Lago Maggiore. Si trasferì a Venezia con i fratelli Alessandro, Bernardino e Benedetto. Stampò sia da solo che in società con Benedetto e con Bernardino, e con Luca Bini. Non si conoscono sue edizioni dopo il 1558. Ebbe 5 figli, tra cui Stefano e Marco, entrambi tipografi.
Indirizzo:	Nella contrata de Santo Paterniano
	Augustinus Bindonus; Agostino Bindoni; Augustinus de Bindonis; Augustino de Bindoni; Augustinus Bendonus; Agostino de Bindoni; Agostino Milanese

Farri, Domenico

Date di attività:	1555 - 1602
Date in banca dati:	Venezia 1555 - 1600;
Notizie:	Tipografo attivo a Venezia, figlio di Cristoforo e fratello di Giovanni e Giovanni Pietro. N. nel 1519, lavorò dapprima con i fratelli a San Zulian, da solo a San Moisè e a San Antonin, in società con Giovanni Bonadio a Santa Sofia. Fu processato per stampa di testi privi d'imprimatur o con privilegi a favore di altri tipografi. Ebbe 11 figli: Onofrio, Giovanni Antonio, Pietro, Ottavio, Benedetto, Girolamo, Luchina, Silvia, Camilla, Pantasilea e uno di cui non si conosce il nome. M. il 1.2.1604. Gli successero i figli Onofrio, Giovanni Antonio e Pietro.
Insegna:	Grifone

C.2: Examples of data on editions (Edit16)

Titolo:	Cortigiana.
Pubblicazione:	In Vinegia : appresso Gabriel Giolito de Ferrari e fratelli, 1550.
Descrizione fisica:	76 [i.e. 75], [1] c. ; 12°
Impronta:	s-re a.ai e.pa MoLe (3) 1550 (R)
Lingua:	Italiano
Luoghi:	*1.*Venezia
Paese:	Italia
Autori:	1.Aretino, Pietro <1492-1556>
Editori:	1.Giolito De Ferrari, Gabriele & fratelli
Fonti:	BOGIO, CCBIT, INAUR
Stato:	Massimo
Identificativo:	CNCE 2471

Titolo:	Il primo libro de balli a quattro voci, accomodati per cantar et sonar d'ogni sorta de istromenti. Di d. Giorgio Mainerio parmeggiano maestro di capella della S. Chiesa d'Aquilegia.
Pubblicazione:	Venezia : Angelo Gardane, 1578.
Descrizione fisica:	4 fasc. ; 4°obl.
Note:	S, A, T, B.
Lingua:	Italiano
Luoghi:	*1.*Venezia
Paese:	Italia
Genere:	Musica a stampa
Autori:	1.Mainerio, Giorgio <ca. 1535-1582>
Editori:	1.Gardane, Angelo
Fonti:	RISM, URFM
Stato:	Minimo
Identificativo:	CNCE 44707

C.3: Examples of author data (Edit16)

Nome:	**Aretino, Pietro <1492-1556>**
Notizie:	Letterato e poeta, autore di commedie e scritti satirici, nato ad Arezzo nel 1492 e morto a Venezia nel 1556. Usò lo pseudonimo di Partenio Etiro.
Nome su edizioni:	Pietro Aretino
Fonti:	IBI, BOGIO, FRI, EI, DBI, DEI, IBN, ADCAM, CG, BNF, NUC (Aretino, Pietro); BMSTC, BLC (Pietro, Aretino); JO (Petrus Aretinus); NBG (Aretin, Pierre L'); BU (Aretin , Pierre); DAG (Bacci, Piero/Aretino, Piero).;
Stato:	Massimo
Identificativo:	CNCA 846

Nome:	**Mainerio, Giorgio <ca. 1535-1582>**
Notizie:	Compositore. Nato a Parma intorno al 1535, morto ad Aquileia nel 1582. Sacerdote, fu mansionario e maestro di cappella del Duomo di Aquileia.
Nome su edizioni:	Giorgio Mainerio parmeggiano
Fonti:	DBI, DEUMM, FET, GRV, IBI, RISM, EIT, AP, NUC, BNF, BMSTC, IN, S ML, ENMUS (Mainerio, Giorgio);
Stato:	Massimo
Identificativo:	CNCA 11753

C.4: Examples of prohibited editions (De Bujanda, 1996)

VENEZIA

BASCARINI, Niccolò et MAGNO, Marco Antonio:
VALDÉS, J., *Alphabeto christiano*, 1545 (III, 204; VI, 162; VIII, 364).

BENALI, Bernardino:
FORESTI, J.F., *Supplementum chronicarum*[E], 1483, 1486 (IV, 525).

BERTANO, Giovanni Antonio:
SANSOVINO, F., *Concetti politici*[E], 1578 (IX, 426).
SIRINO, G., *Come acquistar si debbe la divina gratia*, 1574 (V, 510; VI, 648).

BEVILACQUA, Niccolò:
DELLA CASA, G., *Poemata*, 1558 (VIII, 282).

Héritiers de:
SIMEONI, G., *Figure de la Bibbia*, 1574 (IV, 482).

BEVILACQUA, Simone:
BOIARDO, M.M., *Orlando innamorato*[E] (t. III), 1495 (IV, 545).

BINDONI, Agostino:
GELLI, G.B., *Capricci del bottaio*, 1550 (III, 234).
- *Circe* (ita.), 1550 (V, 469).
TRICASSO DA CERASARI, P., *Chyromantia* (ita.), 1538 (VIII, 305).
— Dubia:
SIRINO, G., *Come acquistar si debbe la divina gratia*, 1558 (V, 510; VI, 649).

BINDONI, Alessandro:
GRAPALDI, F.M., *De partibus aedium lexicon*[E], 1516 (IV, 536).
— Et BIONDO, Girolamo:
GRAPALDI, F.M., *De partibus aedium lexicon*[E], 1517 (IV, 536).

BINDONI (DE BENDONI), Bernardino:
BENEDETTO DA MANTOVA, *Trattato del beneficio di Gesu Crista*, 1543 (III, 198; V, 546; VI, 666; VIII, 385).

BETTINI, L., *Oracolo della renovatione della chiesa* (G. Savonarola), 1543 (VIII, 576).
MAINARDI, A., *Facetie*, 1538, 1549 (VIII, 215).
— Et PAGANO, Matteo:
MAINARDI, A., *Facetie*, c.1555 (VIII, 215).

BINDONI, Francesco et PASINI, Maffeo:
ALESSANDRI, C.B.O., *Nova Phenice*, 1526 (IX, 90).
Bible. N.T. (ita.), 1538 (VIII, 329).
MAINARDI, A., *Facetie*, 1525, 1548 (VIII, 215).
OCHINO, B., *Prediche*, 1541 (IV, 411; V, 526; VI, 624).

BINDONI, G., voir BINDONI, Agostino.
BIONDO, Girolamo, avec BINDONI, A.
BOLANUS, Franciscus, avec SANTRITTER, J.L.

BONELLI, Giovanni Maria:
DELLA BARBA, P., *Discorsi filosofici sopra il sogno di Scipione*, 1553 (IX, 164).

BONIBELLO, Marco Antonio:
GELLI, G.B., *Circe* (ita.), 1595 (V, 469).

BONIBELLO, Michele:
FIORAVANTI, L., *Capricci medicinali*, 1595 (VI, 647).

BOSELLI (BOSELLO), Pietro:
TRACHELAO STATIO, F., *Propedeumata oratoria*, 1556 (VI, 323; VIII, 469).
— Avec GRIFFIO, G.

BRUCIOLI, Alessandro:
— Dubia:
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