Facultat d'Economia i Empresa
Universitat de Barcelona

Centre d'Estudis Jordi Nadal
Universitat de Barcelona

Departament d'Història Econòmica, Institucions, Política i Economia Mundial
Av. Diagonal, 690
08034 Barcelona

SEMINARIS DE RECERCA

DEPARTAMENT D'HISTÒRIA ECONÒMICA, INSTITUCIONS, POLÍTICA I ECONOMIA MUNDIAL

UNIVERSITAT DE BARCELONA

CURS 2022-2023

Jordi Vidal Robert (University of Sidney)

Co-authorized with Sascha O. Beckery (Monash University and U Warwick) and Francisco J. Pino (University of Chile)

Freedom of the Press? Catholic Censorship during the Counter-Reformation

Es prega no citar - Please do not quote

Data: Tuesday, 7 February 2022
Hora: 14:00 a 15:30
Lloc: Aula 1037 (edifici 690), Facultat d'Economia i Empresa, Universitat de Barcelona

Freedom of the Press?
Catholic Censorship during the Counter-Reformation*

Sascha O. Becker† Francisco J. Pino‡ Jordi Vidal-Robert§

First version: October 2018. This version: 2 February 2023

Abstract

The Protestant Reformation in the early 16th century challenged the monopoly of the Catholic Church. The printing press helped the new movement spread its ideas well beyond the cradle of the Reformation in Luther's city of Wittenberg. The Catholic Church reacted by issuing indexes of forbidden books which blacklisted not only Protestant authors but all authors whose ideas were considered to be in conflict with Catholic doctrine. We use newly digitized data on the *universe* of books censored by the Catholic Church during the Counter-Reformation, containing information on titles, authors, printers and printing locations. We classify censored books by topic (religion, sciences, social sciences and arts) and language and record when and where books were indexed. Our results show that Catholic censorship did reduce printing of forbidden authors, as intended, but also negatively impacted on the diffusion of knowledge, and reduced the attractiveness of cities to 'famous people.'

JEL codes: D7; N93; J24
Keywords: Censorship; Counter-Reformation; Political Economy; Elite Human Capital.

---

*We received helpful feedback at the universities of Adelaide, Auckland, Barcelona and Bern, at Banca d'Italia, Bocconi University, the University of Chile, the Central Bank of Chile, Deakin University, the Tinbergen Institute Rotterdam, Trinity College Dublin, UC Louvain, University Carlos III de Madrid, at the universities of Melbourne and Sydney, at the ASSA Meetings, the ASREC meetings, the Australasian Public Choice Conference, the CAGE Research Day the Cambridge INET conference "The Economics of Religion", the CEPR Conference on Economics of Religion in Venice, the Economic History of Religion Conference at Northwestern University, the H-Clio Lab Conference in Santiago de Chile, the Galatina Summer Institute, the SSHA conference in Montreal, the SIOE Conference in Stockholm, the World Economic History Congress, the workshop "Urban Economics and City Growth: Human Capital and Public Infrastructures" at KEDGE Bordeaux, the workshop "Elite human capital and the road to modernity: The East vs the West" in Marseille, and the workshop "The Long Shadow of History: The Role of Geographical, Institutional, Cultural, and Human Factors in Comparative Economic Development" at the University of Tel Aviv. Comments from Jared Rubin and Mara Squicciarini were particularly helpful. Nicolás Campos, Isabel Jacas and Fernando Pino provided excellent research assistance. Funding from Fondecyt Project 11150304, and the Centre for Social Conflict and Cohesion Studies (ANID/FONDAP/15130009) is greatly acknowledged.

†Department of Economics, Monash University and U Warwick. Email: sascha.becker@monash.edu
‡Department of Economics, University of Chile. Email: fjpino@fen.uchile.cl
§Department of Economics, University of Sydney. Email: jordi.vidal-robert@sydney.edu.au

1 Introduction

New media have the potential to fundamentally change access to information, new ideas and discoveries, and can trigger-far reaching economic and societal change.[1]

The earliest form of mass distribution of 'content' came on the back of movable type printing press, which is regarded as one of the greatest innovations in history. Dittmar (2011) shows that European cities where printing presses were established in the 1400s grew 60% faster than otherwise similar cities. It also played a relevant role in the diffusion of Protestantism in Europe. Holborn (1942) argues that, in contrast to the success of the Protestant reform, the failure of the Hussite reform was due in part to the lack of means for spreading the ideas of Hus. Ekelund, Hébert, and Tollison (2006) contend that the invention of the movable type printing press created a new threat to the monopoly of the Catholic Church on matters of faith and morals. Rubin (2014) finds that cities with a press by 1500 were significantly more likely to accept the Reformation. In response to the challenge posed by Protestantism, the Catholic Church censored the printing and diffusion of writings professing the new doctrine but also other texts perceived to be in opposition to Catholic doctrine. It is in this context that the Congregation of the Index and the Index of Forbidden Books (*Index Librorum Prohibitorum*, ILP) were created.[2]

In this paper, we analyze whether censorship during the Counter-Reformation period was effective in reducing the printing of forbidden works, and how this affected the attractiveness of cities to 'famous people'.[3] Using the Index Librorum Prohibitorum (ILP),[4] we create a dataset

[1] Examples include the telegraph (e.g. Steinwender (2018)), radio (e.g. Adena, Enikolopov, Petrova, Santarosa, and Zhuravskaya (2015)), TV (e.g. Gentzkow (2006)), the internet (e.g. Bauernschuster, Falck, and Woessmann (2014) etc.

[2] The Catholic Church did not only target the writings of Protestant Reformers, though, but also other authors they considered as challenging Catholic doctrine and world views. For instance, Galileo Galilei (1564-1642) became famous for the phrase 'eppur si muove' ('and yet it moves'), expressed in 1633 after he was forced to recant his claims that the Earth moves around the Sun, rather than the converse.

[3] A recent literature in economic history recognizes the importance of 'upper-tail human capital' for development, see e.g. Squicciarini and Voigtlander (2015), Xue (2021) and Dittmar and Meisenzahl (2020).

[4] We use the term ILP to collectively refer to all indexes issued by Catholic authorities, both the 'central' ILP issued by the Vatican as well as the country-specific indexes, as discussed further below.

of publishers, authors and works censored by the Catholic Church. Our primary source is the work of J. M. De Bujanda (De Bujanda, 1996), who compiled a comprehensive collection of all Catholic indexes issued in the sixteenth century. We combine these data with the Universal Short Title Catalogue (USTC), a catalogue of all known books printed in Europe between the invention of printing (c. 1450) and 1650. This allows us to construct various measures of censorship, such as the share of censored authors in a given city, and the proportion of forbidden books.

Our analysis proceeds in three steps. First, we analyze whether the ILP was effective in containing the spread of works written by Protestant and other forbidden authors across Europe. Ekelund, Hébert, and Tollison (2006) argue that the ILP was one of the tools used by the Catholic Church to protect its "market power" in the religious market. Despite the failure to suppress Protestantism completely, the ILP might have contributed to the slowdown of its expansion. Our results show that censorship was effective in reducing printing of forbidden authors.[5]

Second, we analyze the impact of the ILP on the diffusion of knowledge. Book censorship comprised not only religious books, but also literature, science, and art. We investigate whether being included in the ILP had an effect on publishers' business, as well as on literary and scientific creation ('thinkers'). We show that cities printing forbidden authors despite their indexation ('defiance') were more likely to attract famous people than cities who did not print these authors. We also pay attention to vernacularization, as recent work by Binzel, Link, and Ramachandran (2022) shows that in the wake of the Protestant Reformation, vernacular works gained prominence and are associated with the attractiveness of cities to famous people, and city growth.

Despite anecdotal evidence, there is, to the best of our knowledge, no work that systemati-

[5]For instance, looking at the effectiveness of the index of Paris 1544 which targeted the French market, we show that after the index was issued, the number of printed books by forbidden authors declined by more than two-thirds, relative to the number of books by non-forbidden authors.

cally analyzes the effect of censorship by the Catholic Church on socioeconomic outcomes.[6]

Our paper contributes to various strands of the literature. First, on the economic history side, while the Reformation has received a lot of renewed attention over the last decade (see Becker and Woessmann (2009), Cantoni (2012), Cantoni, Dittmar, and Yuchtman (2018), Dittmar and Meisenzahl (2020)), its twin sister, the Counter-Reformation, has been under-researched (see Becker, Pfaff, and Rubin (2016)). This is surprising given the centrality of the 16th century in Europe's history. Our paper takes a closer look at the response of the Catholic Church to the Protestant threat.

Second, the role of religion in economic development has fascinated social scientists at least since Max Weber wrote his 'Protestant Ethic' (see Weber ([1930] 2001)).[7] Some religions with their emphasis on reading have had positive effects on human capital acquisition.[8] The mirror image is that other religious denominations without such emphasis on education could be seen as holding back development (see e.g. Squicciarini (2020) showing that Catholic schooling in 19th century France was associated with delayed industrialization). In many cases, also political economy aspects come into play. Benabou, Ticchi, and Vindigni (forthcoming) describe the interaction between scientific knowledge, types of government and religion. They show how theocratic regimes may cause a stagnation of the evolution of knowledge, but they also show how a democratic country can erode discoveries and ideas as a consequence of high inequality levels and the prominent role of religion. These situations do not need to be static. A society can evolve from being tolerant towards scientific knowledge to being intolerant towards it. Chaney (2016) shows how the Muslim state evolved from being tolerant and experiencing intellectual

[6]The closest attempt is Anderson (2015), who shows that *countries* in which the inquisition operated had significantly fewer scientific scholars. However, these countries might differ in various characteristics other than the establishment of the inquisition, and not all of these factors can be easily controlled for, which makes it difficult to infer a causal effect of censorship on the diffusion of knowledge.

[7]See Iannaccone (1998) and Iyer (2016) for two excellent surveys.

[8]Botticini and Eckstein (2012) describe that Jews had a higher degree of human capital because Judaism had an old norm centered on reading and studying the Torah, and requiring the fathers to send their sons to schools. Becker and Woessmann (2010) show that Protestant regions in Prussia had higher school enrolment rates already before the industrial revolution.

achievements to condemning dissenting views. Our research is linked to this literature, as we analyze whether the Catholic censorship that took place in the sixteenth century had an impact on the spread of ideas.

Third, our work relates to the literature on the effectiveness and consequences of censorship. Censorship is common in autocratic regimes and has long been seen as key to their popular support and stability (Ford (1935)). In a similar way, the Catholic Church tried to defend its monopoly in the Western Christian world. Despite the widespread use of censorship in autocratic regimes, direct evidence on its effectiveness is scarce, as pointed out by Chen and Yang (2019), not only in historic context. If anything, studies on censorship in modern times study the 'direct' effects of government interventions on beliefs and economic and political outcomes. The existing literature generally does not study the effectiveness of censorship *per se*, namely whether the censor manages to suppress the production of media (e.g. books) considered dangerous. [9] There are two reasons: one is that the empirical design may randomize censorship. In their recent paper, Chen and Yang (2019) study the impact of Chinese censorship on economic beliefs and political attitudes. In a field experiment, treated Beijing students are given uncensored internet access and are compared to students subject to standard Chinese censoring. Another reason that the effectiveness of censorship *per se* is little studied is that internet shutdowns and blocking of certain websites can be implemented very effectively when autocratic regimes directly control internet infrastructure.

Our context is fascinating because the Catholic Church only had limited control over authors, printers and readers, allowing us to study the effectiveness of censorship *per se* in this crucial period of European history. At the same time, censorship of the Catholic Church is author-specific, allowing us to employ a difference-in-differences design with author fixed effects and city fixed effects to identify the effectiveness of censorship.[10]

[9] A rare exception is Abramitzky and Sin (2014), who document an increase in the number of translations after the collapse of Communism in Eastern Europe, suggesting that under Communism the production of translated books was suppressed, thereby also hampering the flow of ideas.

[10] Going beyond the context of censorship of books or media, Waldinger (2010) provides evidence of the neg-

The rest of the paper is organized as follows. Section 2 presents a detailed historical background, focusing on censorship during the Counter-Reformation. Section 3 explains the data construction. Section 4 analyzes whether censorship was effective in reducing the printing of forbidden authors. Section 5 shows the effect of censorship on printers. Section 6 studies how the movement and location of thinkers is affected by censorship, and section 7 concludes.

2 Historical Background

2.1 Censorship before the Counter-Reformation

The introduction and spread of the printing press across Europe from 1450 opened new ways of diffusion for ideas. Baten and Van Zanden (2008) argue that the increased production of knowledge resulting from the introduction of the press led to an "Industrial Enlightenment", which later, according to Mokyr (2002, 2016), was one of the causes of the Industrial Revolution in the eighteenth century.

The challenge posed by dissenting views generated the need to regulate printing activity from the perspective of the Catholic Church (De Bujanda, 1985). Although censorship was mostly decentralized and not very organised during the second half of the 15th century and beginning of the 16th century (Soen, François, and Vanysacker, 2017), its objective was wider than just to eradicate dissent. Book censorship was a mechanism to shape and control the ideas to which citizens had access (Vega and Esteve, 2010).

European States, the Church, universities, papal nuncios, even local guilds, all participated in it and tried to organise some level of censorship or control over printing between the end of the 15th century and beginning of the 16th century. This fragmented institutionalization of censorship, thanks to an inefficient and unclear legislation over the matter, resulted in uncertain results (Soen, François, and Vanysacker, 2017).

ative effects of the expulsion of Jewish scientists in Germany for PhD student outcomes. Similarly, Xue (2021) show that the persecution of intellectuals in eighteenth-century China had long-lasting effects on literacy.

However, there was heterogeneity regarding the level of fragmentation of institutionalised censorship across different States in Europe. While the Habsburg Netherlands exemplifies a decentralised and fragmented control over book production (Soen, François, and Vanysacker, 2017), Spain would exemplify a more centralised structure. For instance, the Catholic Monarchs (Ferdinand and Isabella) issued a law in 1502 regulating the acquisition of a permit to import and print books. Bishops and archbishops were in charge of issuing such permits (De Bujanda, 2014). Later on, the Spanish Inquisition secured the regulation of censorship by issuing the indexes of forbidden books in Spain.

The beginning of Catholic censorship of printed material can be traced back to the first decades after the introduction of the printing press in Europe. In particular, popes Sixtus IV (1471-1484), Innocent VIII (1484-1492) and Alexander VI (1492-1503) issued some of the first edicts and bulls to control the printing and distribution of books following demand from German bishops (De Bujanda, 1985). For instance, Sixtus IV authorised the rector of the University of Cologne to impose penalties upon those printing and selling heretical books in 1479 (Putnam, 1906; Green and Karolides, 2005); Innocent VIII issued the first general regulation of papal censorship with a bull regulating printing directed to the University of Cologne in 1487 (Putnam, 1906). In 1501, Alexander VI issued the bull *Inter Multiplices* directed to the archbishop of Magdeburg to control printer activity in Cologne, Mainz, Treves/Trier and Magdeburg. He instructed that bishops and inquisitors should be in charge of stopping the printing of forbidden books (Putnam, 1906; Green and Karolides, 2005).

In general, though, censorship in the second half of the 15th century attempted to condemn or forbid individual works or authors, but there was no real attempt to create a set of rules to control printing or create a complete index of forbidden books (Lenard, 2006).

Leo X (1513-1521) continued the work of his predecessors and issued the bull *Exsurge Domine* in 1520 identifying errors in Luther's works, including the Ninety-five Theses. A year later, Charles V issued the *Edict of Worms* that banned the reading or possession of Luther's

works. The decree was also relevant as it emphasised the joint work between the State and the Church regarding Imperial censorship regulations. They worked together against heretics and treason against the State. The Church also secured that control of printing would be under ecclesiastical censors (Putnam, 1906). In 1524, Pope Adrian VI., in the annual bull on Maundy Thursday (Bulla Coenae Domini) issues a wholesale condemnation of Martin Luther 'and his sect' (Reusch, 1883). It would still take more than 40 years though to have the first Index of Forbidden Books (ILP) from a Pope.

2.2 Local Indexes before (and after) the Tridentine Index of 1564

Even though the first ILP appeared in 1564, there were earlier (and later) indexes of prohibited books issued by secular rulers, universities and cities: the posters ('Placards') of Charles V. in the Low Countries (1521-1550) are considered the first attempt to provide a list of forbidden works and make them publicly known via public announcements; those were followed by the indexes from The University of Paris (1544, 1545, 1547, 1548, 1551, 1556), the University of Louvain (1546, 1550, 1558), the cities of Venice (1549, 1554) and Milan (1554), the Portuguese Inquisition (1547, 1551, 1559, 1561, 1564, 1581, 1597), the Spanish Inquisition (1551, 1554, 1559, 1583, 1584), the city of Liege (1568, 1569), Antwerp (1569, 1570, 1571), the Indexes of Rome (1559, 1564, 1590, 1593, 1596), the index of Parma in 1580 and the Munich index in 1582 (Putnam, 1906; De Bujanda, 1985; Lenard, 2006; Soen, François, and Vanysacker, 2017).

What distinguishes these indexes from earlier attempts at censorship is that they provide for systematic listings of forbidden works, authors and printers. They were thus not ad hoc reactions to specific threats but aimed at some degree of comprehensiveness, in a country-specific context.

The University of Paris issued the first 'formal' Index in 1544, followed by the University of Louvain in 1546. Their power emanated from royal or imperial authority. The Index of Paris was updated in subsequent years and in the version of 1556 it contained more than 500 condemnations.

The Index of Louvain, created under instructions of Charles V, and providing a more structured approached to his ad hoc 'placards', covered books in three languages: in Latin, Flemish and French. The University of Louvain was in charge of the censorship and its enforcement. The Inquisition, under Spanish control, influenced the 1550 Louvain index and the 1558 edition expanded the previous version by more than 100 titles.

Other cases, such as the indexes of Spain and Portugal, were prepared and published by the local Inquisition. Even after the publication of the 1564 Roman Index, there were other indexes, such as the Index of Munich in 1582, which reproduced the Roman Index and enlarged it with additional condemned authors (De Bujanda, 1996).

2.3 The Roman Indexes

The first Roman Index published in 1559 by Paul IV caused a strong opposition from printers and booksellers and a lack of consensus among intellectuals. They considered the Index to be too restrictive. It condemned approximately 1,000 writings and more than half of them were writings that did not contain any passage against religion; they were just written by authors who departed from the Catholic faith (De Bujanda, 1985).

The Council of Trent revised the list published in 1559, but it was not possible to reach an agreement before 1564, when a Papal Commission took over the responsibility to write a new index. The commission was aware that the purpose of the Index was not just to prevent heretical books from corrupting faith and the moral of Catholics. The Catholic Church considered that the social order of Christendom, as well as the role of the Church as spiritual, intellectual and political authority was at stake.

Finally, the commission published the Tridentline Index in 1564. In the Italian peninsula, it secured a wider distribution and more general acceptance than the 1559 index, and local indexes (Putnam, 1906). It was the first index to publish a set of rules that provided guidelines on the control of printing and what ideas should be banned. The position of the Roman curia was that

the index was universal and that no formal acceptance or confirmation was required to make the index binding. But this was not the general view. As a consequence there was heterogeneity in the degree of acceptance of the Index across Europe. Belgium, Bavaria and Portugal adopted the regulations of the Tridentine Index under royal edicts, and adopted and extended the Tridentine Index by virtue of new editions of 'local' indexes (Reusch, 1883). France and Germany (outside of Bavaria) did not accept it, with some exceptions. In Spain, in the hands of the Inquisition, none of the Roman Indexes was ever binding, but Spain adopted the Ten Tridentine rules.

2.4 Received Wisdom on the Effectiveness of 16th Century Censorship

What were the consequences of all those Indexes on printing and the distribution of books across Europe, according to received wisdom? There is no Europe-wide empirical study of the effectiveness of censorship. Existing evidence is largely anecdotal. We limit ourselves to highlighting some themes emanating from the literature.

One theme is that the reach of country-specific indexes (e.g. Paris for France) was largely limited to the country in which they were issued. Even the Roman index as such, despite the pretention to apply to the world-wide church, was limited to the Italian peninsula. If anything, it applied in other countries only if and when its content was adopted in a new edition of a local index. We will test this insight by looking at the effectiveness of local indexes in their jurisdiction of origin, compared to neighboring jurisdictions.

A second theme is that the index was likely more effective, by means of enforcement, near the 'index city'. In France, Paris and Lyon were the two main centres of printing. The Indexes of Paris, promoted by the University of Sorbonne, decreased the book-trade of Paris in favour of the printers located in Lyon, Montpellier and other provincial centers, where it was impracticable to enforce the regulations of Paris theologians (Putnam, 1906).[11]

[11]There is also a claim about deviance as result of increased printing in neighboring jurisdiction after certain works were forbidden. As a result of censorship in Paris there was increased printing in Holland, i.e. the Northern part of the neighboring Low Countries (Putnam, 1906), where Protestantism had made an inroad

A third theme concerns the reach of the Catholic Church in Protestant areas. For instance, in the German lands (or more precisely the Holy Roman Empire), printing presses were distributed across a large number of towns. Given how fragmented the Holy Roman Empire was, with its myriads of jurisdictions, it was difficult for the Catholic Church to keep control of, or supervision over, the production of rapidly increasing printing presses. This was despite the repeated efforts by successive popes, Pius V (1566-1572), Gregory XIII (1572-1585) among others and edicts from Maximillian II and Rudolf II (Putnam, 1906). Ultimately, the Catholic Church had to admit that its reach in Protestant areas was fading, and it tried to support printers in Catholic towns.[12]

Yet, there is evidence of increased difficulties that bookmen (i.e. publishers, printers and booksellers) faced to publish books deemed "heretical" in the *Index Librorum Prohibitorum*. Grendler (1975) describes that, in Venice, the government inspected books at the customs house, shops and storehouses. Bookmen in possession of prohibited volumes were fined and the books burned.

In terms of topics, religious books were the main target of censors (also because they comprised a large share of titles published). But the index also targeted scientific and literaturary works. We can measure in how far compliance with censorship varied by subject.

Finally, the role of enforcement and punishment is only documented in a sketchy fashion. Punishment for heretic authors varied significantly, including the recantation of their work, imprisonment and even death.[13] But in many cases, authors (and printers) did not incur any punishment.

It is safe to say that the existing literature has not studied 16th century censorship using

[12]The bishop of Vienna wrote in 1582 "You can permit the books printed in Munich, Ingolstadt, Cologne and other towns under ecclesiastical influence, but those from Wittenberg, Tubingen ... must be forbidden."

[13]One example is Giordano Bruno, a Dominican friar who supported the ideas of a heliocentric universe and wrote a series of books that captured the attention of the Inquisition. After a period of hiding, he was arrested in Venice and placed on trial, where he recanted his writings. However, he was sent to Rome where he spent eight years imprisoned, faced another trial where he was sentenced to death. In 1600 he was burned at the stake (Thomsett, 2010). His works were later included in the ILP.

large-scale data. The existing evidence is largely anecdotal and of limited regional scope. Our study will attempt to go beyond the anecdotal and provide Europe-wide evidence on the effectiveness of Catholic censorship, and the resulting economic consequences.

3 Data

The data for this paper come from various sources. The dataset of forbidden books during the Counter-Reformation comes from De Bujanda's monumental work "Index des Livres Interdits". In particular, volume X of the collection (De Bujanda, 1996) lists all books included in the indexes prior to year 1600, while volume XI lists books indexed from 1600 onwards. Data of published books for the period of 1450-1600 comes from the Universal Short Title Catalogue (USTC, 2015) which is publicly available at http://www.ustc.ac.uk and has already been used in the literature (Dittmar and Seabold, 2019; Becker and Pascali, 2019). The USTC dataset includes information about the author, the publisher, place and year of publication. This dataset, together with the data on forbidden books, allows us to construct measures of censorship at the city level: the share of authors with at least one publication censored, or the proportion of works censored.

To analyze the diffusion of knowledge we will use two approaches. First, as measures of the diffusion of printing technology we use as dependent variables the existence of a printing press and the number of books published in each city. Second, to measure the effect on the location of thinkers, we collect biographies of famous people.

Data on city-level population are obtained from Bairoch, Batou, and Chèvre (1988). Population is regarded in the literature as a good measure of economic development for pre-modern Europe (De Long and Shleifer, 1993; Acemoglu, Johnson, and Robinson, 2005).

Since a focus of our work is to look at Protestant vs Catholic areas, we draw on city-level on Protestantism from Cantoni (2012) and Rubin (2014). Rubin (2014) includes all European cities in Bairoch, Batou, and Chèvre (1988) (that is, cities that reached 5,000 inhabitants at

some point between 1000 and 1800), while Cantoni (2012) focuses on German cities.

We also include a series of control variables that could be correlated with our outcomes of interest. We include a dummy variable for whether the city hosted a medieval university. Universities are relevant since they increased the demand for knowledge and had an effect on economic growth (see Cantoni and Yuchtman, 2014). We also control for whether the city had a bishop or archbishop by 1517 (the year Martin Luther posted his ninety-five theses in Wittenberg, usually considered as the starting date of Protestantism), and whether the city was an independent Free Imperial City in 1517. Finally, we use variables indicating the geographical advantage of some cities, such as dummy variables for whether the city is a sea or river port. These data come from Rubin (2014).

3.1 Index Librorum Prohibitorum

The original indexes were written in Latin (although there are some versions in French or Flemish), and contained little detail of the author or work condemned. To exemplify how forbidden works and authors were listed, Figure 1a shows a page of the original Spanish index of 1551 (reproduced by De Bujanda), with Martin Luther's condemnation in the first row. Each volume of De Bujanda's collection is devoted to a set of indexes, providing detailed information for each condemnation. Figure 1b shows the analysis of Luther's condemnation in the Spanish 1551's index. We digitized Volume X of De Bujanda's collection, which includes all forbidden authors until year 1600. It contains the author's last name and first name, alternative names, dates of birth and death (approximate, if unknown), and the list of all works condemned, together with a reference to the indexes where they are listed. If all works of an author are condemned, there is an entry called "opera omnia". There is also indication of whether the author's name is a pseudonym, and whether the author is listed because his work is included in a book 'co-authored' by a condemned author. This is typically the case of some classical authors such as Aristotle or Cicero, whose work had a preface written by a Protestant reformer.

De Bujanda's collection of indexes lists 2,953 authors. We identify 835 entries as pseudonyms or alternative spellings of authors, reducing the number to 2,118 unique authors.

We aggregate information of condemnation of individual works to the author level to construct the dummy variable *index*, which takes the value of 1 if an author is mentioned in at least one of the indexes of forbidden books. Even though in theory it would be possible to define this variable at the book level, matching this information to the USTC database is impractical.[14] Therefore, in practice we treat all indexed authors as "opera omnia".[15] We also construct dummy variables for whether an author is mentioned in a specific index.

3.2 Indexed authors in USTC

We identify indexed authors in USTC by linking De Bujanda's list of indexed authors to the USTC database. This exercise is not easy given the authors' alternative spellings of names, pseudonyms, and typos. In turn, USTC can list authors in various categories: primary, secondary, editor and translator. We look for matches in all four categories. We start by looking at exact matches, and then use the Stata command `reclink2` (Wasi and Flaaen, 2015). We manually verify each fuzzy match, checking for alternative spellings with the Consortium of European Research Libraries (CERL) Thesaurus,[16] the Library of Congress Name Authority File,[17] and the Virtual International Authority File (VIAF).[18]

Because of multiple authors, works can have more than 1 author indexed. One example is

[14] Matching author names is already challenging because of typos and variant names. But we successfully deal with this as explained below. When it comes to book titles, though, editions in different cities can vary in length as catalogued in the USTC, making matching across nearly 100,000 editions close to impossible without risking false and missed matches. Furthremore, editions of the same book in different translations posesan additional challenge. Finally, we need to deal with compilations and books that bundle various titles. By focusing on authors we don't deal with these issues. Also, almost 2/3 of authors are opera omnia. I guess we might want to include some of this in the explanation for why using authors and not titles.

[15] 65% of authors are "opera omnia" anyways. An alternative interpretation is that once an author is indexed, all his works are tainted by censorship. Our results comparing opera omnia authors to those who are indexed due to specific works provide support for this interpretation.

[16] https://thesaurus.cerl.org/cgi-bin/search.pl

[17] http://id.loc.gov/authorities/names.html

[18] https://viaf.org/. We thank Eric Chaney for his invaluable support with the VIAF.

Urbanus Rhegius' book *De fide et resurrectione*. Rhegius is listed as primary author, Helius Eobanus Hessus as secondary author, and Johannes Freder as the translator. All three authors appear in the index.

Our vintage of the USTC dataset has 709,986 editions, with publication dates spanning from 1452 to 1650. We were able to identify 95,939 works (13.5%) as written by authors indexed by the Catholic Church.

3.3 A Brief History of Human Time (BHHT)

We use a recent dataset on notable people from all over the world from 3500bc to 2018 ad, the *Brief History of Human Time* (BHHT) dataset (Laouenan, Bhargava, Eyméoud, Gergaud, Plique, and Wasmer (2022)), to identify 'thinkers' or 'famous people' for our period of analysis. To the best of our knowledge, the BHHT database is the most exhaustive dataset on notable people. BHHT is constructed using `Wikipedia` and `Wikidata` records in different languages and ensures a lower level of anglo-saxon bias than other existing datasets. It covers around 2.29 million individuals with information on gender, occupation, place of birth and place of death. We restrict our sample to those individuals who were either born or died in a European town between 1450 and 1650 whenever known. That specific sample contains 32,156 individuals across 7,495 European towns.

Following the practice in the literature (e.g. Dittmar and Meisenzahl (2020)) we take the place of death to capture the last place of work. We will define, then, those individuals who migrated as those who were born and died in different cities.

Based on the location of thinkers, where they were born or died, we construct a panel dataset for the whole period at the town decade level. We also create a panel of cities for each decade between 1450 and 1650 for those towns that printed any book between 1450 and 1650 using the dataset described in 3.1. We then merge both panels at the city decade level to obtain a new panel that contains information on 7,495 European towns and cities that either had printed any

book between 1450 and 1650 or where at least a famous individual was either born or died in the same period. This novel dataset will help us understand whether censorhsip affects location of thinkers.

3.4 A first look at the data: The geography of printing across Europe

The existing literature does not employ comprehensive measures of book production across Europe and instead largely relies on anecdotal evidence about the effectiveness of censorship. Here, we give a first overview of the geography printing across Europe, and where works written by forbidden authors were printed.

Figure 2 illustrates the geography of printing in Europe in the 16th century. It shows the total number of printed editions at the city level in the period 1450-1600, as well as the share of indexed books in each city. We observe that most of the printing of editions happened in Italy and in the Protestant areas of Northern Europe. The share of indexed books printed, however, is spatially distributed throughout Europe, with high shares in the Holy Roman Empire but also in cities in France and England.

4 Was Censorship Effective? Authors

4.1 Empirical Strategy

We are interested in understanding the effect of being indexed on the likelihood of getting printed. To this end, we need to define the unit of analysis at the author level. The most common form of authorship is single authorship. However, some works are genuinely co-authored, or a work by author A gets translated by translator B, making for a team AB. As a result, from an econometric point of view, the most natural way to accomodate single and multiple authorships is to define *author team* identifiers. In other words, author A and author team AB define two different authorship IDs. For simplicity we will use the term author ID as a short form for *author team* ID.

Our unit of analysis is an author ID by city by decade. We restrict the sample to authors who have published at least 25 editions, and to cities with at least 25 editions published.[19] We estimate a difference-in-difference (DiD) model that control for author fixed effects and city fixed effects:

$$y_{ait} = \beta \text{ index}_a \times \text{post}_t + X_{it}\gamma + \nu_i + \mu_a + \eta_t + \varepsilon_{ait} \tag{1}$$

where y_{ait} measures printing (number of editions printed, or an indicator variable for *any* printing) of author (team) a in city i at decade t. The variable index_a denotes whether author a is indexed on a specific index, and post_t is equal to one for all decades following the publication of a specific index. In our benchmark model, we only consider authors indexed in the first issue of an index (e.g. 1544 for Paris).[20] Note that we align decades to the index of interest, e.g. if the index year is 1546, decades are 1546-1555, 1556-1565, etc.[21] As a result, for the Louvain index of 1546, the variable post_t will be equal to one for all decades from 1546 onwards. X_{it} denotes city-by-decade level controls, e.g. the total volume of printing in city i in decade t, or the first year in which an author was printed anywhere (a variable that is not time-varying), interacted with post_t (as the main effect is absorbed by the author fixed effect). Importantly, in all regressions, we include author fixed effects μ_a, city fixed effects ν_i, and decade fixed effects η_t. As a result of author fixed effects, μ_a, the main effect of being indexed is not identified, but of course our difference-in-differences coefficient of interest, β, is.

Our panel is unbalanced because the first and last decade of printing varies by city. Naturally, whenever an author is not printed in a city i at time t, $y_{ait} = 0$. Furthermore, we restrict the sample to plus/minus three decades around the relevant index year. (We probe robustness to different time windows below.)

[19] In Appendix B we show that our results are robust to increasing the sample to authors who have published at least 10 editions.

[20] In alternative specifications, we consider authors indexed in any of the issues of the index. These results, shown in Table B.3 in the Appendix, yield similar estimates.

[21] Results are similar if we use standard decades 1550-1559, 1560-1569, etc.

We start by looking at the impact of each index, one by one. For each index, we define sample cities as cities within 500km of the index city.[22] For instance, when considering the Paris index of 1544, we restrict the sample to cities within 500km from Paris, to test whether the Paris index was effective in reducing printing of forbidden material in proximity to Paris. Similarly, we ask whether the Venice index of 1549 was successful within a certain radius around Venice and so forth. Our focus on every single index, one by one, is motivated by the existing (anecdotal) literature covered above, which argues that indexes were de facto 'country-specific' in scope, including the Roman (Tridentine) Index.

4.2 Results

Table 1 shows our main regression results that inform as about the effectiveness of indexation to reduce printing of indexed authors. We control for city and author fixed effects, as well as for decade fixed effects, and for the total number of works printed in a city in a given decade. The dependent variable is a dummy taking the value of 1 if the author is printed. Each column is a separate regression considering the publication of an index. The indexes are in chronological order, so that Paris 1544 is the first and Munich 1582 is the last. Panel A considers a window of three decades around the publication of the index, while Panels B and C restrict the sample to two and one decade around the publication of the index, respectively. In all cases the sample cities are those cities within 500km from the index city, as described in section 4.1.

Overall, the results in Table 1 suggest that indexation is effective, i.e. that being indexed reduces the likelihood of being printed. The effect is statistically significant throughout the 3 panels for the indexes of Paris, Louvain, Venice and Parme (columns 1,2,4 and 8). For the Spanish and Roman indexes (columns 5 and 6) we find statistically significant effects when we analyze editions printed around two and three decades of the publication of the index.[23] For

[22] For the Spanish index, we use the shortest distance between any city and Valencia, Valladolid, Sevilla, Toledo and Granada. The Spanish Index was not produced in a single city, thus we consider all cities where the Index was published.

[23] As discussed, we use the 1559 Roman index. Our results are similar if we instead consider the Tridentine

the Munich index (column 9) we find statistically significant results for Panels B and C. For the Antwerp index (column 7) we only find a significant effect in panel C. Finally, we do not find statistically significant results for the Portuguese index (column 3).

The estimated diff-in-diff coefficients are sizable: For the Paris index, indexed authors reduce the likelihood of being published by 0.015 after the publication of the index, which translates to a 23 percent decrease in the probability of being published.

Table 2 shows results for the intensive margin, i.e. the number of printed editions. The results here go in the same direction of Table 1 but are more mixed, with the indexes of Venice, Parme and Munich showing siginifcant results in all 3 panels. Taken the results of Tables 1 and 2 together, we can conclude that the index was more effective both in reducing the likelihood of an indexed author to be published and the number of editions printed.

Robustness

In principle, authors may get printed less over time because their work ages and reader interest decreases over time. However, such vintage effects should apply to indexed and non-indexed authors alike and be taken care of by our difference-in-difference setting. Yet, we probe the important issue of vintage effects even further, in Tables B.1 and B.2 in the Appendix. We replicate Tables 1 and 2, adding the year in which an author was first printed anywhere, interacted with the Post dummy, as an additional control. The main effect of 'year first printed' is constant within author and hence absorbed by the author fixed effect. But the interaction with the Post dummy is identified. In case there were important differences in vintage effects for indexed and non-indexed authors following indexation, we would expect the main DD coefficient to be affected. However, coefficient estimates are very close to those in Tables 1 and 2.

We use authors indexed in the first edition of an index as 'indexed authors', while those indexed in later editions of the same index are part of the control group. In Table B.3, instead, the treatment group is composed of all authors indexed in any edition (1st or later ones) of an

Index of 1564.

index. Results are very similar to those in Table 2.

In our main dataset we have restricted the sample to authors who have published at least 25 editions. Table B.4 in the Appendix shows results when we include authors with at least 10 editions. Overall we see very similar results to those in our main specification. Even though coefficients are smaller in magnitude, the effect is remarkably similar. For instance, the effect for the Paris index is 24 percent, similar to the one found in Table 1.

Why are some indexes more effective than others?

We produce two possible explanations. First, notice that both the likelihood of being printed and the number of printed editions before the publication of the index are already low for the case of the Spanish, Roman and Portuguese indexes. For the Spanish index, we believe that this is the result of the effectiveness of the Spanish Inquisition well before the Spanish index came into existence. In fact, the Spanish Inquisition was instituted in 1478, on demand of the Spanish King, to protect the Catholic faith against heretics. To the extent that the Spanish Inquisition already prosecuted authors and printers of forbidden material before the Spanish Index came into being, it is no surprise that we do not find a difference-in-difference effect for Spain.[24] Results for the Portuguese index look similar but may be affected by the fact that large parts of Spain are within the 500km circle around Lisbon, and we just saw the high degree of compliance, both pre and post index, in the Spanish case. Note that this observation of Spain being a special case is also underlined by the fact that the top 10 Protestant authors were barely ever printed in Spain.[25]

Second, notice that the 500km circle, which we use for uniformity across indexes, may be less adequate in some cases. For instance, the 500km circle around Paris covers parts of England and the Low Countries, and hence areas outside the French jurisdiction. Similarly, for the Portuguese and the Munich index, the 500km circle encompasses a substantial number of

[24] See e.g. the Inquisitorial persecution of Erasmus' works in 1520s and 1530s, Griffin (2005, pp. 2-3)

[25] There were also economic incentives not to print certain books in Spain before 1550. The cost of paper and an incipient industry did not attract buyers (Griffin, 2005).

cities outside Portugal and Bavaria, respectively. We will look at the role of jurisdiction and proximity in the following subsection.

Pre-trends and event study

The validity of our DiD estimates hinges on the assumption of parallel trends, i.e. that indexed and non-indexed authors were equally likely to get printed before the introduction of the index. To assess this, and also to check whether the index had an immediate or a gradual effect on the printing of forbidden authors, we implement an event-study type model, where we re-estimate equation 1, replacing the DiD term with an interaction of index$_a$ and a full set of decade dummies:

$$y_{ait} = \sum_{t=-\delta}^{\delta} \beta_t \text{ index}_a \times \text{decade}_t + X_{it}\gamma + \nu_i + \mu_a + \eta_t + \varepsilon_{ait} \tag{2}$$

The results are shown in Figure 3, where we plot the coefficients on the interaction terms, taking the decade before the introduction of the index as the reference point.

The figures show that in the decades prior to the publication of the index, indexed authors were as likely to get printed as non-indexed ones in most of the indexes analyzed. For the cases of the Roman and Parme indexes, there is a slightly higher probability of being published before the index was issued. The opposite is the case for the Antwerp and Munich indexes, where being indexed was associated with a smaller probability of being published before the publication of the index. These results show that there is no systematic trend for indexed authors before indexes were published. After its publication, indexed authors are increasingly less likely to get printed in all indexes. Figure B.1 in the Appendix replicates these results using 5-year intervals instead of decades. The figures reveal a similar pattern, with the publication of the index having a negative and significant effect for the indexes of Paris, Louvain and Venice. The other indexes display a negative effect, but not statistically significant. With the exception of Parme, the parallel trends assumption holds for all indexes.

In which cities was the index more effective?

Table 3 looks at different dimensions of heterogeneity in the effectiveness of the index. First, to the extent that the index city is the seat not only of the authorities issuing a given index, but also more likely to hold more powers of enforcement than a city far away, we would expect an index to be more effective in closer geographic proximity to the index city. To test for this, we extend the DiD framework and split the main DiD term $\text{index}_a \times \text{post}_t$ into two parts: $\text{index}_a \times \text{post}_t \times \textit{near}_i$ and $\text{index}_a \times \text{post}_t \times \textit{far}_i$, where $\textit{near}_i$ takes the value of 1 if city i lies within 250km of an index city, and $\textit{far}_i$ those above 250km in distance.

Panel A of Table 3 shows the results of this exercise.[26] With the exceptions of Rome and Parme, the point estimates for the 'DD near' coefficient are larger than those for 'DD far'. While the difference between them is generally not statistically significant, the size pattern is consistent with the idea that proximity to index cities matters. This pattern could be in place due to reasons that our data do not allow us to formally test, but that we try to speak to below: first, printers nearby an index city may be better informed about indexation; second, conditional on printers being up-to-date about indexed works, they may be more compliant nearby index cities, as authorities are more likely to enforce indexation.

One might also argue that religiosity is an important factor for compliance of Christian printers and readers when being told that certain works should no longer be printed and read. Obviously, there are no survey data from the 16th century telling us about beliefs of individuals. But we can proxy the degree of religiosity of a location by looking at which municipality names honor a Christian saint, such as St. Etienne in France, or St. Peter(-Ording) in North Germany. We compute the number of municipalities with names honoring a saint as the share of all municipalities within a 20 km radius around each printing city, and split the set of printing cities in those above and below the median in terms of saint share. Notice that this measure does not

[26] In what follows we exclude Portugal and Spain from the analysis, since there was very little printing of indexed books even before the publication of the indexes.

use proximity or jurisdiction in any way. Panel B of Table 3 shows that compliance is generally stronger in printing cities surrounded by more municipalities with names honoring saints (the only exception being Parme, which shows similar point estimates for the DD coefficient in cities above and below the median density of saint share). This suggests that the intrinsic motivation of printers in more religious places to 'do the right thing' might be an important factor in explaining our main results.

Finally, the historical narrative we reported earlier about the 'local' reach of indexes is primarily concerned with political jurisdictions. We stressed that, for instance, both the Spanish King and the Spanish Inquisition insisted on their independence from Roman interference, and would only recognize works indexed on the Roman index to the extent that they themselves scrutinized these works and added them to the Spanish edition of the index. We reported similar anecdotal evidence for other jurisdictions which issued their own 'local' indexes to give legal power to what was and was not considered heretic.

If that is indeed the case, we would expect stronger compliance with a local index in its own jurisdiction, and less so in neighboring jurisdictions. In Panel C of Table 3 we test for this by including an interaction with a dummy taking the value of 1 if the city is within the political jurisdiction of the index. Thus, for the Paris index we consider French cities as being 'inside' the political jurisdiction of the Paris index. The results show larger point estimates (and also larger effects) in cities within the same jurisdiction of the index city than outside that jurisdiction.

Indexation of Protestant Reformers vs other authors, and the role of "Opera omnia"

To the extent that the most salient threat to the authority of the Catholic Church during the 16th century came from the Protestant movement, it is interesting to ask whether indexation was equally effective in containing the printing of Protestant authors and non-Protestant authors.

Table 4 shows estimates from various regression specifications that try to address this important aspect. Similar to Table 3, in Panel A we include interactions of the DD term with a

dummy taking the value of 1 if the indexed author is a known Protestant reformer.[27] Thus, the group of "other authors" could include lesser known Protestant reformers.

The findings indicate that indexation was effective for both indexed leading Protestant Reformers and other indexed authors. There is no clear clear pattern in the relative magnitude of the two coefficients, compared to the pre-indexation means of the dependent variables.

Panel B of Table 4 shows results when we include interactions of the DD term with a dummy for whether the author was indexed for all his works (*opera omnia)*. Notice that the Paris index did not include opera omnia condemnations, and in the Munich index all condemnations were opera omnia. The results show that the indexes were effective in both types of authors, with similar point estimates. The only exception is Louvain, were opera omnia condemnations were significantly more effective, reducing the likelihood of being printed by almost 30 percent. Taken together, these results provide support for the assumption that what mattered was to be mentioned in the index. Thus, authors mentioned just for a single work or opera omnia were equally affected by the index.

5 Was Censorship Effective? Printers

5.1 Empirical Strategy

Our dataset allows us to also look at the effect of censorship on the printing industry. We follow Dittmar and Seabold (2019) in identifying printing firms by also following printers' widows and heirs. Appendix D contains the details of the process of cleaning names to construct our dataset of printers. To make this process tractable, as we include printers in all Europe, we restrict our sample to the most prolific printers. We only consider printers in a city with more than 20 works recorded in USTC and with at least 5 books by the printer.

We estimate an equation similar to equation 1, but now constructing measures at the pub-

[27]The source for this is en.wikipedia.org/wiki/List_of_Protestant_Reformers.

lisher level and including publisher fixed effects:

$$y_{pit} = \beta \text{ index}_p \times \text{post}_t + X_{it}\gamma + \nu_i + \mu_p + \eta_t + \varepsilon_{pit} \tag{3}$$

The variable index_p is a dummy for whether publisher p printed a (soon to be) indexed book *before* the index was issued. Given that this is analysis is a more aggregated version of the author-level regressions, we expect to find that the publication of the index led to a reduction in the number of editions printed by publishers of indexed authors, likely driven by a decrease in the number of indexed or Protestant authors.[28] This reduction might have also led to the closing of some printing houses.

5.2 Results

The results are shown in Table 5. Panel A shows the effect of being indexed on the likelihood of printing any edition after the publication of the index. In Panel B the dependent variable is the number of editions printed, in Panel C it is the number of indexed editions printed, while in Panel D it is the number of Protestant editions printed.

When looking at the likelihood of printing, we find a negative and significant effect on all indexes but Venice and Rome, where the effect is negative but not statistically significant. The effect ranges from 30% to 50%, when significant. We also find large and significant reductions in the number of printed editions (Panel B), the number of printed indexed books (panel C) and the number of printed Protestant books (Panel D). Taken together these results suggest that the index not only shifted printing from indexed to non-indexed authors, but also induced some printers to close their businesses altogether.

[28] It is important to remember that not all Protestant authors are indexed, and that not all indexed books were written by Protestants.

Pre-trends and event study

We implement an event study similar to the one presented in equation 2 to assess the validity of our empirical strategy. The dependent variable is a dummy for whether a publisher p printed an edition in decade t and city i. The results are shown in Figure 4, where we plot the coefficients on the interaction term of $index_p$ and decade dummies , taking the decade before the introduction of the index as the reference point. We have excluded the Roman index from the figures as we do not find significant effects in any of the outcomes analyzed (Table 5).

The figures show no statistically significant pre-trends for the Paris, Louvain, Venice and Antwerp indexes. Thus, the parallel trends assumption holds for all indexes. For the Parme and Munich indexes we see positive pre-trends, suggesting that printers of indexed books were more likely to print editions in the vecinity of where these indexes were issued.

6 The Effects of Censorship: Location of Thinkers

6.1 Empirical Strategy

The previous sections have shown that Catholic censorship influenced the likelihood of censored authors being printed. We hypothesize that Catholic censorship was detrimental to freedom of thought by influencing printed works and their geographical distribution and, therefore, it could have influenced the preferences of famous people ('thinkers') when deciding where to settle and work. Squicciarini and Voigtlander (2015), Xue (2021), Dittmar and Meisenzahl (2020), and others have highlighted the importance of 'upper-tail' human capital for early-modern economic growth. Additionally, Serafinelli and Tabellini (2022) show evidence that the location of famous people (*creative talent*) is associated with places that promoted economic and political freedoms. We look at the relationship between the number of indexed books that a particular city prints, and the immigration and death of famous people. We want to check whether the suppression of free thinking (i.e. accepting and implementing the ILP) affected

attractiveness to upper-tail human capital.

We use the following regression specification:

$$ln(1+\text{famous\_people}_{it}) = \psi_i + \kappa_t + \sum_{\tau=t-1}^{t+1} \xi_\tau ln(1+\text{indexed\_books\_printed}_{i\tau}) + X'_{it}\theta + u_{it} \quad (4)$$

We focus on two outcomes: first, we use the number of famous people who migrate *to* a city i. These are people being born in another city j who come to city i to work. As place of work we use the place of death, assuming that in our period of interest the idea of 'retirement' was not yet born and people died during their work life. We expect that famous people react to 'defiance', the printing of forbidden books with a certain lag, so our best guess is that a decade may pass before we see effects of defiance in the number of migrants coming to a city. Our specification allows us to test this idea, as we include one lead, one lag, and the contemporaenous effect. The lead coefficient serves as a specification check. Our second outcome is the number of famous people who die in city i. That is the sum of immigrants coming to city i pluus the number those born in city i who also die in city i. Throughout, we control for the total number of books printed in a decade to account for total printxing activity.

We can adapt this specification in several ways. For instance, we can look at the type of forbidden books printed in a city. Are famous people primarily attracted by the availability of (forbidden) religious books? Or by (forbidden) scientific books? Do other types of books matter?

6.2 The Location of Thinkers

6.2.1 The BHHT dataset (BHHT)

To measure the number of famous people, we use the *A Brief History of Human Time (BHHT)* dataset in Laouenan, Bhargava, Eyméoud, Gergaud, Plique, and Wasmer (2022) and limit our

analysis to Europe between 1450 and 1650. [29]

The BHHT dataset contains information on more than 2.29 million individuals. We are interested in the subsample of individuals who were born or died in the period 1450-1650 in Europe. With these constraints, we obtain a dataset of 32,156 'thinkers'.

We construct a panel dataset at the decade-town level for the period 1450-1650, where we account for all 'thinkers' who were born or died in European towns between 1450-1650. We merge this panel dataset with a panel dataset where observations are at the town-decade level for European towns that at least printed a book during the same period.

The output panel is composed of European cities in which at least a book was printed or where a 'thinker' was either born or died between 1450 and 1650. This leaves us with a total of 7,495 European towns across 20 decades.

Table 6 shows summary statistics of the cities where at least a book was printed or where at least a thinker was either born or died between 1450 and 1650. Our sample consists of 7,495 European towns, built upon the dataset of famous people obtained from the BHHT mentioned above. The data in the table shows the average of 'thinkers' that died in a town in a decade and the average of printed editions (and the ones that were indexed) in a town in a given decade across the whole sample of 7,495 towns for 20 decades (149,900 observations).

From all printed editions, we observe that on average Religious, Arts and Social Sciences editions are the ones that were printed more often. Similarly, editions on the same topics were more frequently indexed. However, the ratio of indexed to printed editions in Science is similar to the ratio for Religious editions and higher than the ratio for Social Science editions.

From the distribution of 'thinkers' that died in a town in a given decade, we observe a similar average of dead individuals in a given decade for Academic, Cultural, Religious and Politics occupations.

[29] In the Appendix we also show results when we restrict our sample to the area of the Holy Roman Empire in 1500 comparing the BHHT dataset and the *Deutsche Biographie* dataset.

6.3 Defiance attracts famous people

Table 8 shows that the larger the number of forbidden books printed in a city, conditional on the total number of books printed which is one of the control variables, the more famous immigrants come to the city in the subsequent decade. In terms of magnitude, a one percent increase in the number of forbidden books printed in the previous decade is associated with a 0.041 percent increase in the number of famous people, as can be seen in both columns 1 and 2. In column 1, which presents results from the richer specification described in equation (4), both the contemporaneus effect and the lead effect are statisticaly insigficant and only the lag effect is. The point estimate of the lag in the more parsimonious specification, where lead and contemporaneous effects are dropped, is virtually identical in column 2. In column 3, we therefore focus on lagged terms only, but now split the number of forbidden books printed into categories: religion, science, arts, social sciences with‘ other’ being the omitted category. We also control for the (small) number of books with missing category. Interestingly, the strongest predictive power comes from forbidden religious books printed in the previous decade. At the same time, arts books have a negative effect on the attractiveness of a city to famous people.

In columns 4 to 6, the outcome is the number of famous people who die in a city, which is the sum of locally born thinkers who die, as well as immigrant thinkers who die in the city. Results are quite similar to those for immigrants alone, showing that immigrant thinkers and local thinkers alike are attracted to, or convinced to stay, by the same factors.

In Table 9, we look at different groups of famous people. Since Table 8 suggested similar results for deaths of immigrant thinkers and all thinkers, we now focus on deaths of all thinkers, independent of whether locally born or immigrants. In Table 9 , we use the total number of forbidden books printed as the treatment. Column 1 replicates column 5 of Table 8. In subsequent columns, we use look separately at famous people in different categories, as provided in the BHHT data set: academics, famous people in culture, religion, politics and business (see Table 7 for summary statistics and examples of famous by occupation). The strongest effect of

availability of forbidden books in a city is on academics. To a lesser extent, business people are also attracted. [30]

A potentially relevant dimension is vernacularization, which has been studied by Binzel, Link, and Ramachandran (2022) and shown to influence the attractiveness of cities to famous people. In Table 10, we split forbidden books into those in Latin, and those in the vernacular. Notice that, as in all other tables, also here we control for the total number of books printed in a city, those in Latin, as well as those in the vernacular, i.e. we show the role of *forbidden* books in Latin or vernacular, *conditional on* the role played by printing in Latin and vernacular overall. Our results show that printing of forbidden books in the vernacular is the key driver for the attractiveness of cities to famous people. Table 11, looking at locations of death only, splits up results by group of famous people as we did in Table 9 before. Forbidden books in the vernacular exert the strongerst positive effect on the attractiveness of citiers for famous people in academia, politics and culture. Forbidden books in Latin have no effect, except for a *negative* effect on the attractiveness to famous people in politics.

In the Appendix, we use an alternative source of biographic data to probe the robustness of our results. Since the BHHT are drawn from Wikipedia biographies, a worry is that the selection of famous people might be biased by the tastes of Wikipedia volunteers. While have no way to probe this for Europe as a whole, in the German lands, we have access to the Deutsche Biographie which was curated by academics at the Bavarian Academy of Sciences. We show, in Appendix Table A.2 that results are extremely similar when we use this alternative data source in the subset of German cities.

We conclude that defiance to the Catholic Church in the form of printing of material classified as forbidden attracts famous people who seem to appreciate unlimited access to ideas in print. It is particularly material printed in the vernacular that attracts famous people, further highlighting the role played by the move to vernacular in the aftermath of the Protestant

[30] In Appendix TableA.2, we look at not only primary occupations, but also secondary occupations of famous people, and results are very similar.

Reformation (Binzel, Link, and Ramachandran (2022)).

7 Conclusions

Censorship is ubiquitous today. Freedom House's Freedom of the Press Report classifies only 31% of countries as free from censorship. While there is an ample literature studying the effect of media on beliefs, as well as on economic and political outcomes today, there is far less work on the effects of censorship, as pointed out by Chen and Yang (2019).

Yet, censorship goes back hundreds of years, and was equally widespread centuries ago. The printing press, invented in 1450, changed the media landscape forever. While, before the press, written material had to be handcopied to reach wider distribution, suddenly hundreds and thousands of copies of printed works could be produced, leading to widespread distribution of printed material. The adoption of the press helped the Protestant movement take roots (Rubin (2014)), challenging the the monopoly of the Catholic Church. To quell the rise of Protestantism, the Catholic Church launched an attack on the freedom of the press and on freedom of expression.

Our paper shows that censorship, via Indexes of Forbidden Books, was effective in reducing printing of books considered heretic by the Catholic Church. We show this using a difference-in-difference setup at the author level, in a dataset at the city-by-decade-by-author level. We uncover important heterogeneity: censorship is more effective geographically closer to the 'index city', suggesting that either information about censorship, or enforcement of censorship, or both, are stronger closer to the place where the index was issued. We also find that printing cities in proximity to a larger share of locations venerating Catholic saints to be more compliant with censorship. Finally, the Catholic is a supranatural institution without legal power outside the Papal States. Consistent with this, indexes are only effective in the political jurisdiction in which they are issued.

It is important to remember that while the Index of Forbidden Books may have been trig-

gered by the challenge of Protestantism, censorship does not only target Protestant reformers, but any author the Catholic Church considers as being in opposition with church doctrine. Indeed, our results show that not only did the printing of books written by indexed Protestant reformers go down, but also that of Catholic dissenters. That could be seen as a success on two fronts: containing the further spread of the Protestant movement, and reducing the risk of further challenges of Catholic doctrine. Yet, our results also suggest that censorship had consequences beyond containg the printing of heretic material. Cities that complied with censorship were less attractive to famous people: fewer sons and daughters of the city went on to become famous, and the city attracted fewer famous immigrants than cities that defied censorship of the Catholic Church. Also, defiant cities grew faster.

In summary, while the Catholic Church seems to have managed to push back against dissenting ideas, it came at the cost of losing creative people who moved away from areas where new ideas were suppressed. Censorship was thus a mixed blessing for the Catholic Church and we have all reason to suspect that also today censorship may help quell dissent, but at the cost of losing creative minds.

References

ABRAMITZKY, R., AND I. SIN (2014): "Book Translations as Idea Flows: The Effects of the Collapse of Communism on the Diffusion of Knowledge," *Journal of the European Economic Association*, 12(6), 1453–1520.

ACEMOGLU, D., S. JOHNSON, AND J. A. ROBINSON (2005): "The Rise of Europe: Atlantic Trade, Institutional Change, and Economic Growth," *The American Economic Review*, 95(3), 546–579.

ADENA, M., R. ENIKOLOPOV, M. PETROVA, V. SANTAROSA, AND E. ZHURAVSKAYA (2015): "RADIO AND THE RISE OF THE NAZIS IN PREWAR GERMANY," *The Quarterly Journal of Economics*, 130(4), 1885–1940.

ANDERSON, R. W. (2015): "Inquisitions and Scholarship," *Social Science History*, 39(4), 677–702.

BAIROCH, P., J. BATOU, AND P. CHÈVRE (1988): *La Population des Villes Européennes, 800–1850*. Librairie Droz.

BATEN, J., AND J. L. VAN ZANDEN (2008): "Book production and the onset of modern economic growth," *Journal of Economic Growth*, 13(3), 217–235.

BAUERNSCHUSTER, S., O. FALCK, AND L. WOESSMANN (2014): "Surfing alone? The internet and social capital: Evidence from an unforeseeable technological mistake," *Journal of Public Economics*, 117, 73–89.

BECKER, S. O., AND L. PASCALI (2019): "Religion, Division of Labor and Conflict: Anti-Semitism in Germany over 600 Years," *American Economic Review*, 109(5), 1764–1804.

BECKER, S. O., S. PFAFF, AND J. RUBIN (2016): "Causes and consequences of the Protestant Reformation," *Explorations in Economic History*, 62, 1–25.

BECKER, S. O., AND L. WOESSMANN (2009): "Was Weber Wrong? A Human Capital Theory of Protestant Economic History," *The Quarterly Journal of Economics*, 124(2), 531–596.

BECKER, S. O., AND L. WOESSMANN (2010): "The Effect of Protestantism on Education before the Industrialization: Evidence from 1816 Prussia," *Economics Letters*, 107(2), 224–228.

BENABOU, R., D. TICCHI, AND A. VINDIGNI (forthcoming): "Forbidden Fruits: The Political Economy of Science, Religion, and Growth," *The Review of Economic Studies*.

BINZEL, C., A. LINK, AND R. RAMACHANDRAN (2022): "Language, Knowledge, and Growth: Evidence from Early Modern Europe," *Working Paper*.

BOTTICINI, M., AND Z. ECKSTEIN (2012): *The Chosen Few: How Education Shaped Jewish History, 70-1492*. Princeton University Press.

CANTONI, D. (2012): "Adopting a New Religion: the Case of Protestantism in 16th Century Germany," *The Economic Journal*, 122(560), 502–531.

CANTONI, D., J. E. DITTMAR, AND N. YUCHTMAN (2018): "Reformation and Reallocation: Religious and Secular Economic Activity in Early Modern Germany," *The Quarterly Journal of Economics*, 133(4), 2037–2096.

CANTONI, D., AND N. YUCHTMAN (2014): "Medieval Universities, Legal Institutions, and the Commercial Revolution," *The Quarterly Journal of Economics*, 129(2), 823–887.

CHANEY, E. (2016): "Religion and the Rise and Fall of Islamic Science ," *Unpublished Manuscript*.

CHEN, Y., AND D. Y. YANG (2019): "The Impact of Media Censorship: 1984 or Brave New World?," *American Economic Review*, 109(6), 2294–2332.

DE BUJANDA, J. M. (ed.) (1985): *Index des Livres Interdites*, vol. I, Index de l'Université de Paris, 1544, 1545, 1547, 1548, 1551, 1556. Centre d'études de la Renaissance, Éditions de l'Université de Sherbrooke, Librairie Droz.

——— (ed.) (1996): *Index des Livres Interdites*, vol. X, Thesaurus de la littérature interdite au XVIe siècle. Auteurs, ouvrages, éditions avec addenda et corrigenda. Centre d'études de la Renaissance, Éditions de l'Université de Sherbrooke, Librairie Droz.

——— (ed.) (2014): *Index des Livres Interdites*, vol. V, Index de l'Inquisition Espagnole, 1551, 1554, 1559. Centre d'études de la Renaissance, Éditions de l'Université de Sherbrooke, Librairie Droz.

DE LONG, J. B., AND A. SHLEIFER (1993): "Princes and Merchants: European City Growth before the Industrial Revolution," *The Journal of Law and Economics*, 36(2), 671–702.

DITTMAR, J. E. (2011): "Information Technology and Economic Change: The Impact of The Printing Press," *The Quarterly Journal of Economics*, 126(3), 1133–1172.

DITTMAR, J. E., AND R. R. MEISENZAHL (2020): "Public Goods Institutions, Human Capital, and Growth: Evidence from German History," *The Review of Economic Studies*, 87(2), 959–996.

DITTMAR, J. E., AND S. SEABOLD (2019): "New Media and Competition: Printing and Europe's Transformation After Gutenberg," *Journal of Political Economy*.

EKELUND, R. B., R. F. HÉBERT, AND R. D. TOLLISON (2006): *The Marketplace of Christianity*. MIT Press.

FORD, G. S. (1935): *Dictatorship in the Modern World*. University of Minnesota Press.

FREEDOM HOUSE (1997): *Freedom of the Press Report*.

GENTZKOW, M. (2006): "Television and Voter Turnout," *The Quarterly Journal of Economics*, 121(3), 931–972.

GREEN, J., AND N. J. KAROLIDES (2005): *The Encyclopedia of Censorship*. Facts On File.

GRENDLER, P. (1975): "The Roman Inquisition and the Venetian Press, 1540-1605," *The Journal of Modern History*, 47(1), 48–65.

GRIFFIN, C. (2005): *Journeymen-Printers, Heresy, and the Inquisition in Sixteenth-Century Spain*. Oxford University Press.

HOLBORN, L. W. (1942): "Printing and the Growth of a Protestant Movement in Germany from 1517 to 1524," *Church History*, 11(2), 123–137.

IANNACCONE, L. R. (1998): "Introduction to the Economics of Religion," *Journal of Economic Literature*, 36(3), 1465–1495.

IYER, S. (2016): "The New Economics of Religion," *Journal of Economic Literature*, 54(2), 395–441.

LAOUENAN, M., P. BHARGAVA, J.-B. EYMÉOUD, O. GERGAUD, G. PLIQUE, AND E. WASMER (2022): "A cross-verified database of notable people, 3500BC-2018AD," *Scientific Data*, 9(290).

LENARD, M. (2006): "On the Origin, Development and Demise of the Index Librorum Prohibitorum," *Journal of Access Services*, 3(4), 51–63.

MOKYR, J. (2002): *The gifts of Athena. Historical origins of the knowledge society*. Princeton University Press.

——— (2016): *A Culture of Growth: The Origins of the Modern Economy*. Princeton University Press.

PUTNAM, G. H. (1906): *The Censorship of the Church of Rome*. Putnam's Sons.

REUSCH, F. (1883): *Der Index der verbotenen Bücher: Ein Beitrag zur kirchen- und literaturgeschichte, v. 1*. M. Cohen & Sohn (Fr. Cohen).

RUBIN, J. (2014): "Printing and Protestants: An Empirical Test of the Role of Printing in the Reformation," *The Review of Economics and Statistics*, 96(2), 270–286.

SCHICH, M., C. SONG, Y.-Y. AHN, A. MIRSKY, M. MARTINO, A.-L. BARABÁSI, AND D. HELBING (2014): "A network framework of cultural history," *Science*, 345(6196), 558–562.

SERAFINELLI, M., AND G. TABELLINI (2022): "Creativity over Time and Space," *Journal of Economic Growth*, 27(1), 1–43.

SOEN, V., W. FRANÇOIS, AND D. VANYSACKER (eds.) (2017): *Church, Censorship and Reform in the Early Modern Habsburg Netherlands*. Collège Érasme.

SQUICCIARINI, M. P. (2020): "Devotion and Development: Religiosity, Education, and Economic Progress in 19th-Century France," *American Economic Review*, 110(11), 3454–91.

SQUICCIARINI, M. P., AND N. VOIGTLANDER (2015): "Human Capital and Industrialization: Evidence from the Age of Enlightenment," *The Quarterly Journal of Economics*, 130(4), 1825–1883.

STEINWENDER, C. (2018): "Real Effects of Information Frictions: When the States and the Kingdom Became United," *American Economic Review*, 108(3), 657–96.

THOMSETT, M. C. (2010): *The Inquisition: A History*. McFarland and Company.

VEGA, M. J., AND C. ESTEVE (eds.) (2010): *Reading and Censorship in Early Modern Europe*. Universitat Autònoma de Barcelona.

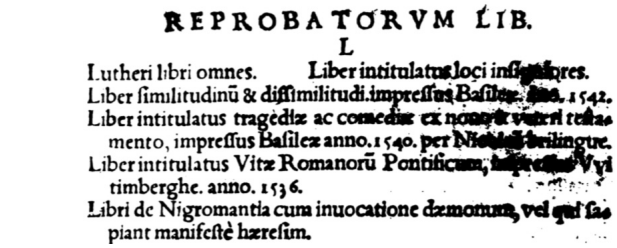
WALDINGER, F. (2010): "Quality Matters: The Expulsion of Professors and the Consequences for PhD Student Outcomes in Nazi Germany," *The Journal of Political Economy*, 118(4), 787–831.

WASI, N., AND A. FLAAEN (2015): "Record linkage using Stata: Preprocessing, linking, and reviewing utilities," *The Stata Journal*, 15(3), 672–697.

WEBER, M. ([1930] 2001): *The Protestant Ethic and the Spirit of Capitalism*. Routledge Classics.

XUE, M. M. (2021): "Autocratic Rule and Social Capital: Evidence from Imperial China," *Unpublished Manuscript*.

Figures

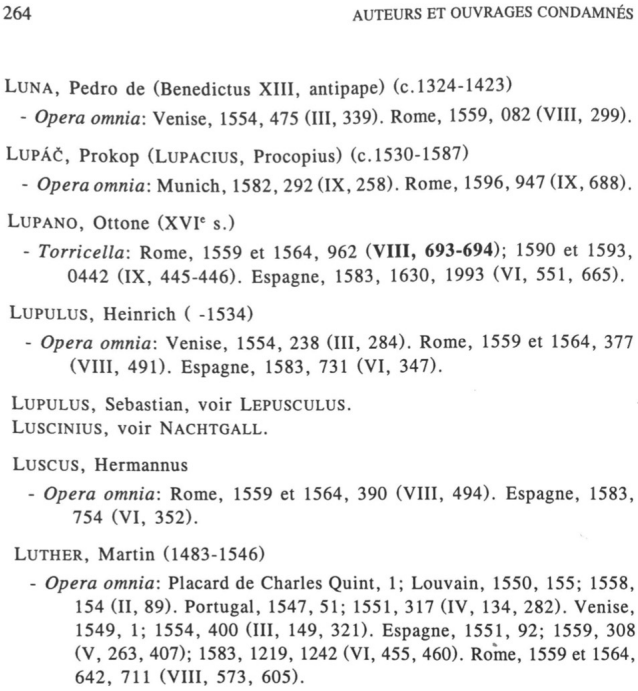


REPROBATORVM LIB.

L

Lutheri libri omnes. Liber intitulatus loci inſignes.
Liber ſimilitudinū & diſſimilitudi. impreſſus Baſileæ. anno. 1542.
Liber intitulatus tragediæ ac comediæ ex nouo & veteri teſta-
mento, impreſſus Baſileæ anno. 1540. per Nicolaū Gerbelium bilingue.
Liber intitulatus Vitæ Romanorū Pontificum, impreſſus Vvi
timberghe. anno. 1536.
Libri de Nigromantia cum inuocatione dæmonum, vel qui ſa-
piant manifeſtè hæreſim.

(a)



264 AUTEURS ET OUVRAGES CONDAMNÉS

LUNA, Pedro de (Benedictus XIII, antipape) (c.1324-1423)
- *Opera omnia*: Venise, 1554, 475 (III, 339). Rome, 1559, 082 (VIII, 299).

LUPÁČ, Prokop (LUPACIUS, Procopius) (c.1530-1587)
- *Opera omnia*: Munich, 1582, 292 (IX, 258). Rome, 1596, 947 (IX, 688).

LUPANO, Ottone (XVI^e s.)
- *Torricella*: Rome, 1559 et 1564, 962 (**VIII, 693-694**); 1590 et 1593, 0442 (IX, 445-446). Espagne, 1583, 1630, 1993 (VI, 551, 665).

LUPULUS, Heinrich (-1534)
- *Opera omnia*: Venise, 1554, 238 (III, 284). Rome, 1559 et 1564, 377 (VIII, 491). Espagne, 1583, 731 (VI, 347).

LUPULUS, Sebastian, voir LEPUSCULUS.
LUSCINIUS, voir NACHTGALL.

LUSCUS, Hermannus
- *Opera omnia*: Rome, 1559 et 1564, 390 (VIII, 494). Espagne, 1583, 754 (VI, 352).

LUTHER, Martin (1483-1546)
- *Opera omnia*: Placard de Charles Quint, 1; Louvain, 1550, 155; 1558, 154 (II, 89). Portugal, 1547, 51; 1551, 317 (IV, 134, 282). Venise, 1549, 1; 1554, 400 (III, 149, 321). Espagne, 1551, 92; 1559, 308 (V, 263, 407); 1583, 1219, 1242 (VI, 455, 460). Rome, 1559 et 1564, 642, 711 (VIII, 573, 605).

(b)

Figure 1: (a) Original condemnation in the Spanish index of 1551. All Luther's books are condemned in row 1. (b) De Bujanda's (1996) listing of condemned authors and works.

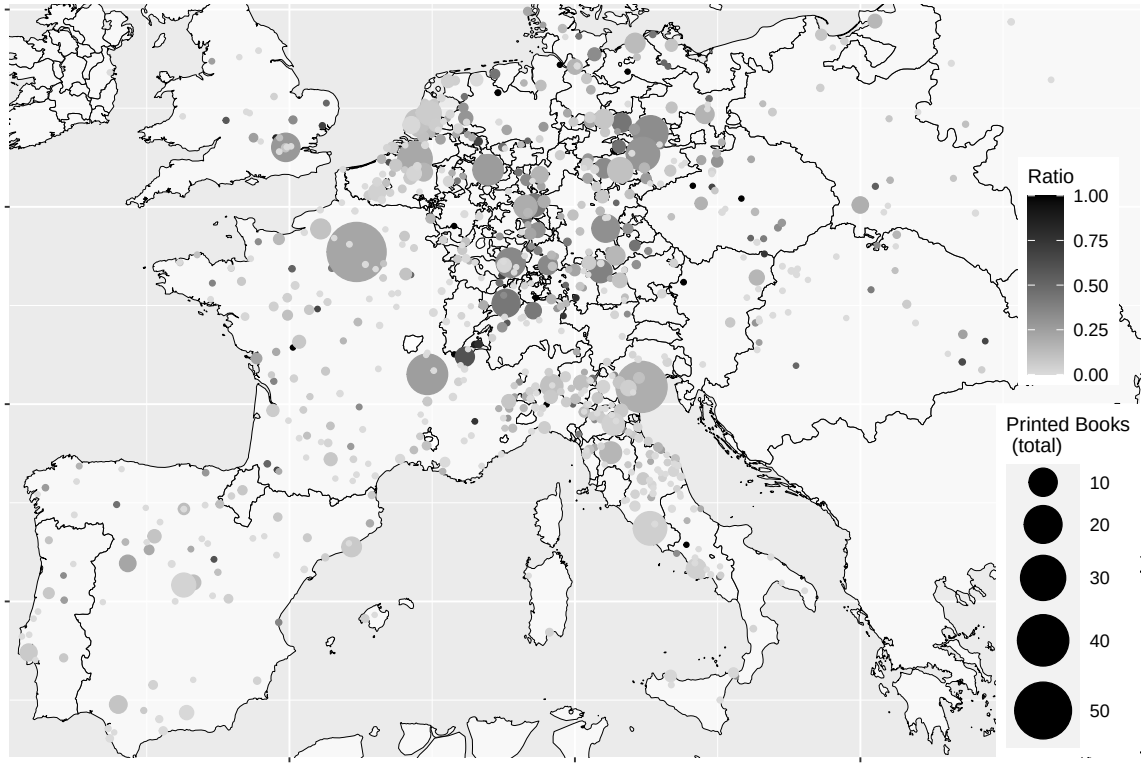
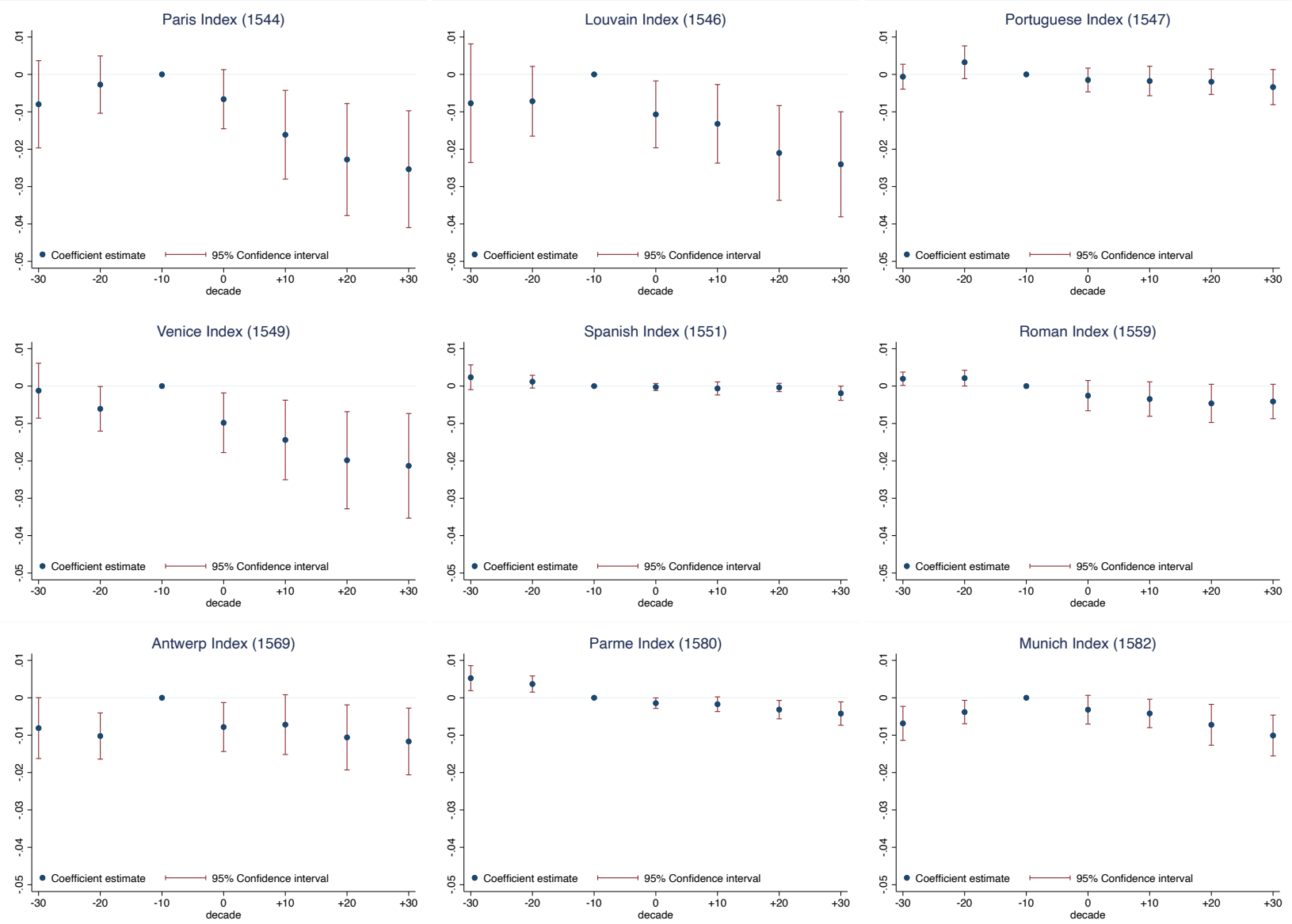


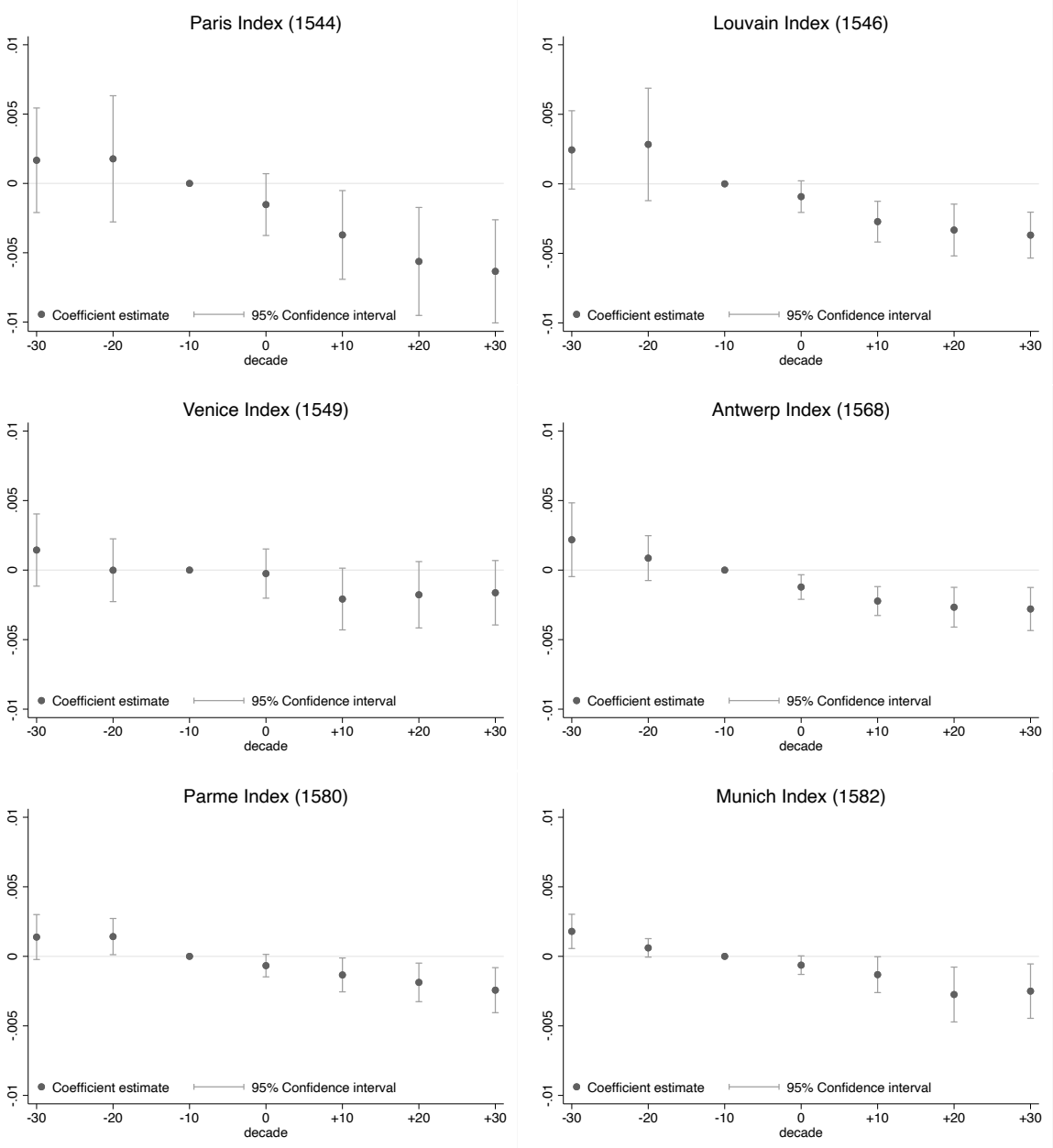
Figure 2: The geography of printing: Number of editions and share of indexed books

Figure 3: The effect of being indexed on getting printed: Event Study



Notes: Each figure shows coefficients from regressions based on equation 1, replacing the DiD term with an interaction of index$_a$ and a full set of decade dummies. The reference point is the decade prior to the publication of the index. Data: Universal Short Title Catalogue (USTC) and Index Librorum Prohibitorum (ILP).

Figure 4: The effect of being indexed on printers: Event Study



Notes: Each figure shows coefficients from regressions based on equation 2. The reference point is the decade prior to the publication of the index. Data: Universal Short Title Catalogue (USTC) and Index Librorum Prohibitorum (ILP).

Tables

Table 1: The effect of being indexed on getting printed: being printed at all

Outcome:	Being printed at all								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Paris	Louvain	Portugal	Venice	Spain	Rome	Antwerp	Parme	Munich
	1544	1546	1547	1549	1551	1559	1569	1580	1582
	Panel A. 30-year time window around the index								
Indexed X Post	-0.015***	-0.013**	-0.003	-0.014***	-0.002**	-0.005*	-0.004	-0.006***	-0.003
	(0.006)	(0.005)	(0.002)	(0.005)	(0.001)	(0.003)	(0.003)	(0.002)	(0.002)
Mean Dep. Var. (indexed, pre)	0.066	0.063	0.009	0.057	0.008	0.015	0.041	0.026	0.038
Observations	1,510,705	1,741,754	246,283	1,404,067	558,580	908,962	1,843,314	1,756,988	2,518,688
	Panel B. 20-year time window around the index								
Indexed X Post	-0.014**	-0.012**	-0.003	-0.012**	-0.001*	-0.005*	-0.004	-0.004***	-0.003*
	(0.006)	(0.005)	(0.002)	(0.005)	(0.001)	(0.003)	(0.003)	(0.001)	(0.002)
Mean Dep. Var. (indexed, pre)	0.076	0.077	0.012	0.065	0.009	0.022	0.054	0.027	0.051
Observations	1,079,075	1,246,649	180,269	1,002,905	403,701	647,445	1,325,358	1,272,039	1,835,697
	Panel C. 10-year time window around the index								
Indexed X Post	-0.012**	-0.012**	-0.002	-0.012**	-0.000	-0.003	-0.007**	-0.002**	-0.004**
	(0.005)	(0.005)	(0.002)	(0.005)	(0.000)	(0.002)	(0.004)	(0.001)	(0.002)
Mean Dep. Var. (indexed, pre)	0.094	0.108	0.019	0.088	0.012	0.029	0.076	0.033	0.068
Observations	644,906	738,849	111,716	601,743	248,822	388,467	804,863	776,934	1,127,316
Author FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
City FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Decade FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Controls‡	✓	✓	✓	✓	✓	✓	✓	✓	✓

Notes: The table shows regressions based on equation 1. Data: Universal Short Title Catalogue (USTC) and Index Librorum Prohibitorum (ILP). Standard errors, clustered at the city-author level, are presented in parentheses. ***, ** and * indicate statistical significance at the 99%, 95% and 90%, respectively.
‡ Controls include the total number of works printed in the city in the given decade.

Table 2: The effect of being indexed on getting printed: number of printed works

Outcome:	Number of Printed Works								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Paris	Louvain	Portugal	Venice	Spain	Rome	Antwerp	Parme	Munich
	1544	1546	1547	1549	1551	1559	1569	1580	1582
	Panel A. 30-year time window around the index								
Indexed X Post	-0.138*	-0.120	-0.010	-0.137*	-0.005*	-0.026	-0.008	-0.030**	-0.016*
	(0.083)	(0.088)	(0.007)	(0.081)	(0.003)	(0.018)	(0.013)	(0.015)	(0.009)
Mean Dep. Var. (indexed, pre)	0.436	0.370	0.023	0.434	0.017	0.067	0.134	0.110	0.161
Observations	1,510,705	1,741,754	246,283	1,404,067	558,580	908,962	1,843,314	1,756,988	2,518,688
	Panel B. 20-year time window around the index								
Indexed X Post	-0.122	-0.084*	-0.007	-0.063*	-0.003*	-0.024	-0.004	-0.020*	-0.021**
	(0.076)	(0.050)	(0.005)	(0.034)	(0.001)	(0.018)	(0.010)	(0.010)	(0.010)
Mean Dep. Var. (indexed, pre)	0.474	0.366	0.020	0.317	0.012	0.098	0.165	0.105	0.235
Observations	1,079,075	1,246,649	180,269	1,002,905	403,701	647,445	1,325,358	1,272,039	1,835,697
	Panel C. 10-year time window around the index								
Indexed X Post	-0.081	-0.049*	-0.003	-0.061**	-0.002	-0.018	-0.024*	-0.009**	-0.023***
	(0.064)	(0.027)	(0.003)	(0.030)	(0.001)	(0.014)	(0.014)	(0.004)	(0.008)
Mean Dep. Var. (indexed, pre)	0.509	0.392	0.025	0.422	0.024	0.135	0.271	0.126	0.314
Observations	644,906	738,849	111,716	601,743	248,822	388,467	804,863	776,934	1,127,316
Author FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
City FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Decade FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Controls‡	✓	✓	✓	✓	✓	✓	✓	✓	✓

Notes: The table shows regressions based on equation 1. Data: Universal Short Title Catalogue (USTC) and Index Librorum Prohibitorum (ILP). Standard errors, clustered at the city-author level, are presented in parentheses. ***, ** and * indicate statistical significance at the 99%, 95% and 90%, respectively.
‡ Controls include the total number of works printed in the city in the given decade.

Table 3: The effect of being indexed on getting printed: Heterogeneity by city characteristics

Outcome:	Being printed at all						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Paris	Louvain	Venice	Rome	Antwerp	Parme	Munich
	1544	1546	1549	1559	1569	1580	1582
	Panel A. Distance +/- 250 km of Index City						
Indexed X Post X (Dist $\leq$ 250km)	-0.023***	-0.023***	-0.023***	-0.004**	-0.007	-0.006***	-0.004
	(0.007)	(0.007)	(0.008)	(0.002)	(0.004)	(0.002)	(0.003)
Indexed X Post X (Dist $>$ 250km)	-0.013**	-0.007	-0.009*	-0.006	-0.001	-0.006***	-0.002
	(0.005)	(0.005)	(0.004)	(0.003)	(0.003)	(0.002)	(0.002)
Mean Dep. Var. (indexed, pre, $\leq$ 250km)	0.063	0.037	0.019	0.014	0.025	0.019	0.025
Mean Dep. Var. (indexed, pre, $>$ 250km)	0.066	0.074	0.072	0.016	0.048	0.035	0.042
Observations	1,510,705	1,741,754	1,404,067	908,962	1,843,314	1,756,988	2,518,688
	Panel B. Density of Cities with Saint Names						
Indexed X Post X (Density $>$ median)	-0.020***	-0.018***	-0.020***	-0.006	-0.008**	-0.005***	-0.009***
	(0.007)	(0.006)	(0.007)	(0.004)	(0.004)	(0.002)	(0.002)
Indexed X Post X (Density $\leq$ median)	-0.009	-0.002	-0.007	-0.004**	0.000	-0.006***	0.004
	(0.006)	(0.007)	(0.004)	(0.002)	(0.003)	(0.002)	(0.003)
Mean Dep. Var. (indexed, pre, Density $>$ median)	0.059	0.045	0.025	0.024	0.038	0.032	0.033
Mean Dep. Var. (indexed, pre, Densit $\leq$ median)	0.072	0.093	0.074	0.007	0.044	0.020	0.040
Observations	1,510,705	1,741,754	1,404,067	908,962	1,843,314	1,756,988	2,518,688
	Panel C. Inside/Outside of State						
Indexed X Post X (Inside State)	-0.021***	-0.025***	-0.030**	-0.004**	-0.005	-0.007***	-0.012***
	(0.007)	(0.007)	(0.012)	(0.002)	(0.005)	(0.002)	(0.003)
Indexed X Post X (Outside State)	-0.013**	-0.010*	-0.012**	-0.005	-0.003	-0.005***	-0.002
	(0.006)	(0.005)	(0.005)	(0.003)	(0.002)	(0.002)	(0.002)
Mean Dep. Var. (indexed, pre, Inside State)	0.065	0.036	0.032	0.010	0.027	0.008	0.009
Mean Dep. Var. (indexed, pre, Outside State)	0.066	0.068	0.061	0.016	0.044	0.028	0.040
Observations	1,510,705	1,741,754	1,404,067	908,962	1,843,314	1,756,988	2,518,688
Author FE	✓	✓	✓	✓	✓	✓	✓
City FE	✓	✓	✓	✓	✓	✓	✓
Decade FE	✓	✓	✓	✓	✓	✓	✓
Controls‡	✓	✓	✓	✓	✓	✓	✓

Notes: The table shows regressions based on equation 1. Column 2 includes interactions of Index X Post with a dummy for being in a city within/outside a 250 km radius of the index city. Column 3 includes interactions of Index X Post with a dummy for being in a city above/below the median number of cities with saint names in a 20 km radius. Column 4 includes interactions of Index X Post with a dummy for being in a city within/outside the index's political jurisdiction. Data: Universal Short Title Catalogue (USTC) and Index Librorum Prohibitorum (ILP). Standard errors, clustered at the city-author level, are presented in parentheses. ***, ** and * indicate statistical significance at the 99%, 95% and 90%, respectively.

‡ Controls include the total number of works printed in the city in the given decade.

Table 4: The effect of being indexed on getting printed: Heterogeneity by author characteristics

Outcome:	Being printed at all						
	(1) Paris 1544	(2) Louvain 1546	(3) Venice 1549	(4) Rome 1559	(5) Antwerp 1569	(6) Parme 1580	(7) Munich 1582
	Panel A. Protestant vs. Non-Protestant authors						
Indexed X Post X Leading Protestant Reformer	-0.010*	-0.012*	-0.016**	-0.003**	-0.009**	-0.006***	-0.011*
	(0.005)	(0.007)	(0.006)	(0.001)	(0.004)	(0.002)	(0.007)
Indexed X Post X Other Auhors	-0.024***	-0.014***	-0.012**	-0.006*	0.006*	-0.005***	-0.001
	(0.008)	(0.005)	(0.005)	(0.003)	(0.003)	(0.002)	(0.002)
Mean Dep. Var. (indexed, pre, Protestant)	0.051	0.069	0.061	0.003	0.056	0.014	0.071
Mean Dep. Var. (indexed, pre, Other)	0.095	0.057	0.051	0.023	0.016	0.029	0.033
Observations	1,510,705	1,741,754	1,404,067	908,962	1,843,314	1,756,988	2,518,688
	Panel B. Opera Omnia authors						
Indexed X Post X (Opera Omnia)	0.000	-0.030***	-0.012**	-0.005**	0.000	-0.006***	-0.003
	(0.000)	(0.010)	(0.005)	(0.003)	(0.003)	(0.002)	(0.002)
Indexed X Post X (Non-Opera Omnia)	-0.015***	-0.012**	-0.019**	-0.005	-0.006**	-0.005***	0.000
	(0.006)	(0.005)	(0.008)	(0.003)	(0.003)	(0.002)	(.)
Mean Dep. Var. (indexed, pre, opera omnia)	.	0.108	0.051	0.011	0.032	0.018	0.038
Mean Dep. Var. (indexed, pre, non-opera omnia)	0.066	0.061	0.070	0.023	0.048	0.030	.
Observations	1,510,705	1,741,754	1,404,067	908,962	1,843,314	1,756,988	2,518,688
Author FE	✓	✓	✓	✓	✓	✓	✓
City FE	✓	✓	✓	✓	✓	✓	✓
Decade FE	✓	✓	✓	✓	✓	✓	✓
Controls‡	✓	✓	✓	✓	✓	✓	✓

Notes: The table shows regressions based on equation 1. Column 2 includes interactions of Index X Post with a dummy for being in a city within/outside a 250 km radius of the index city. Column 3 includes interactions of Index X Post with a dummy for being in a city above/below the median number of cities with saint names in a 20 km radius. Column 4 includes interactions of Index X Post with a dummy for being in a city within/outside the index's political jurisdiction. Data: Universal Short Title Catalogue (USTC) and Index Librorum Prohibitorum (ILP). Standard errors, clustered at the city-author level, are presented in parentheses. ***, ** and * indicate statistical significance at the 99%, 95% and 90%, respectively.

‡ Controls include the total number of works printed in the city in the given decade.

Table 5: The effect of being indexed on printers

	(1) Paris 1544	(2) Louvain 1546	(3) Venice 1549	(4) Rome 1559	(5) Antwerp 1569	(6) Parme 1580	(7) Munich 1582
				Panel A. Dependent variable: 1(print)*			
Indexed X Post	-0.004*	-0.004***	-0.002	-0.002	-0.003***	-0.002***	-0.002***
	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Mean Dep. Var. (indexed, pre)	0.013	0.008	0.007	0.006	0.006	0.006	0.006
Observations	165,036	264,657	205,847	156,234	396,114	407,245	606,028
				Panel B. Dependent variable: N editions			
Indexed X Post	-0.284**	-0.250**	-0.120**	-0.157	-0.145**	-0.166**	-0.155***
	(0.123)	(0.096)	(0.055)	(0.109)	(0.061)	(0.067)	(0.039)
Mean Dep. Var. (indexed, pre)	0.454	0.308	0.212	0.152	0.212	0.199	0.251
Observations	165,036	264,657	205,847	156,234	396,114	407,245	606,028
				Panel C. Dependent variable: N indexed			
Indexed X Post	-0.112**	-0.122***	-0.061**	-0.025	-0.065***	-0.049***	-0.091***
	(0.047)	(0.040)	(0.024)	(0.016)	(0.023)	(0.018)	(0.023)
Mean Dep. Var. (indexed, pre)	0.188	0.154	0.101	0.032	0.086	0.062	0.115
Observations	165,036	264,657	205,847	156,234	396,114	407,245	606,028
				Panel D. Dependent variable: N Protestant			
Indexed X Post	-0.012	-0.033***	-0.026**	-0.001	-0.022***	-0.013**	-0.050***
	(0.013)	(0.012)	(0.012)	(0.001)	(0.008)	(0.005)	(0.013)
Mean Dep. Var. (indexed, pre)	0.045	0.053	0.043	0.001	0.025	0.016	0.055
Observations	165,036	264,657	205,847	156,234	396,114	407,245	606,028
Publisher FE	✓	✓	✓	✓	✓	✓	✓
City FE	✓	✓	✓	✓	✓	✓	✓
Decade FE	✓	✓	✓	✓	✓	✓	✓
Controls‡	✓	✓	✓	✓	✓	✓	✓

Notes: The table shows regressions based on equation 3. Data: Universal Short Title Catalogue (USTC) and Index Librorum Prohibitorum (ILP). Standard errors, clustered at the city-publisher level, are presented in parentheses. ***, ** and * indicate statistical significance at the 99%, 95% and 90%, respectively.
‡ Controls include the total number of works printed in the city in the given decade.

Table 6: Summary statistics: BHHT Data

	European towns	
	Mean	sd
Famous people dead	0.11	1.08
Academic	0.02	0.25
Culture	0.03	0.46
Religious	0.02	0.35
Politics	0.03	0.24
Business	0.00	0.07
Other occupations and Missing	0.01	0.09
Printed editions	4.16	92.34
Religious	1.30	26.67
Science	0.17	4.37
Arts	0.58	16.19
Social Science	0.47	11.77
Other	0.96	32.39
Missing	0.97	23.55
Indexed editions printed	0.60	16.35
Indexed Religious	0.26	7.15
Indexed Science	0.03	1.21
Indexed arts	0.14	5.49
Indexed social science	0.05	1.99
Indexed other	0.07	2.12
Indexed missing	0.08	2.16
$Observations$	149900	
$Towns$	7,495	

Notes: The table shows the average number of 'thinkers' or books printed in a given town and decade. The dataset is composed of those ctowns that at least printed a book or where a 'thinker' was born or died between 1450 and 1650. Those are 7,495 towns across 20 decades, 149,900 observations.

Table 7: Famous people by occupation

Occupation	N	%	Examples
Academic	5,154	19.30	Galileo Galilei, Giordano Bruno, Leonardo da Vinci, Erasmus
Business	733	2.75	Francis Willoughby, Jakob Fugger
Culture	8,609	32.24	Michelangelo, Johannes Gutenberg, Albrecht Durer, Miguel de Cervantes, William Shakespeare
Politics	6,279	23.51	Catherine of Austria, Ferdinand I, Cardinal Richelieu, André Furtado de Mendonça
Religious	4,634	17.35	Francesco Barberini, Francisco Jiménez de Cisneros, Pope Leo X
Other	1,295	4.85	
Total	26,704	100.00	

Table 8: Indexed books printed and famous people

	ln(Immigrants)			ln(Dead)		
	(1)	(2)	(3)	(4)	(5)	(6)
F1.ln(Indexed books printed)	0.007			-0.005		
	(0.011)			(0.011)		
ln(Indexed books printed)	0.007			0.002		
	(0.011)			(0.011)		
L1.ln(Indexed books printed)	0.041***	0.040***		0.049***	0.039***	
	(0.012)	(0.012)		(0.013)	(0.012)	
L1.ln(Indexed books printed (Religion))			0.028*			0.027*
			(0.015)			(0.015)
L1.ln(Indexed books printed (Science))			0.020			0.015
			(0.031)			(0.031)
L1.ln(Indexed books printed (Arts))			-0.045*			-0.040
			(0.025)			(0.025)
L1.ln(Indexed books printed (Soc. Science))			0.025			0.024
			(0.030)			(0.031)
Mean Dep. Var.	0.038	0.040	0.040	0.047	0.048	0.048
R-squared	0.068	0.063	0.080	0.078	0.071	0.088
Observations	133,686	141,113	141,113	133,686	141,113	141,113
Number of cities	7,427	7,427	7,427	7,427	7,427	7,427
City FE	✓	✓	✓	✓	✓	✓
Interval FE	✓	✓	✓	✓	✓	✓

Notes: The table shows regressions based on equation 4. Data: Universal Short Title Catalogue (USTC) and Index Librorum Prohibitorum (ILP). Standard errors, clustered at the city-author level, are presented in parentheses. ***, ** and * indicate statistical significance at the 99%, 95% and 90%, respectively.

Table 9: Indexed books printed and famous people

	All	Academic	Culture	Religious	Politics	Business
	(1)	(2)	(3)	(4)	(5)	(6)
L1.ln(Indexed books printed)	0.039***	0.059***	0.003	-0.002	0.011	0.011***
	(0.013)	(0.010)	(0.011)	(0.005)	(0.007)	(0.004)
Mean Dep. Var.	0.049	0.012	0.015	0.011	0.016	0.002
R-squared	0.071	0.073	0.056	0.009	0.013	0.011
Observations	140,999	140,999	140,999	140,999	140,999	140,999
Number of cities	7,421	7,421	7,421	7,421	7,421	7,421
City FE	✓	✓	✓	✓	✓	✓
Interval FE	✓	✓	✓	✓	✓	✓

Notes: The table shows regressions based on equation 4. Data: Universal Short Title Catalogue (USTC) and Index Librorum Prohibitorum (ILP). Standard errors, clustered at the city-author level, are presented in parentheses. ***, ** and * indicate statistical significance at the 99%, 95% and 90%, respectively.

Table 10: Indexed books printed in Latin or vernacular, and famous people

	ln(Immigrants)		ln(Dead)	
	(1)	(2)	(3)	(4)
L1.ln(Indexed books printed)	0.040***		0.039***	
	(0.012)		(0.013)	
L1.ln(Indexed books printed (Latin))		-0.014		-0.012
		(0.016)		(0.017)
L1.ln(Indexed books printed (Vernacular))		0.058***		0.052***
		(0.014)		(0.015)
Mean Dep. Var.	0.040	0.040	0.049	0.049
R-squared	0.063	0.069	0.071	0.077
Observations	140,999	140,999	140,999	140,999
Number of cities	7,421	7,421	7,421	7,421
City FE	✓	✓	✓	✓
Interval FE	✓	✓	✓	✓

Notes: The table shows regressions based on equation 4. Data: Universal Short Title Catalogue (USTC) and Index Librorum Prohibitorum (ILP). Standard errors, clustered at the city-author level, are presented in parentheses. ***, ** and * indicate statistical significance at the 99%, 95% and 90%, respectively.

Table 11: Indexed books printed and famous people

	All	Academic	Culture	Religious	Politics	Business
	(1)	(2)	(3)	(4)	(5)	(6)
L1.ln(Indexed books printed (Latin))	-0.012	0.010	-0.019	0.006	-0.027**	0.008
	(0.017)	(0.014)	(0.016)	(0.009)	(0.013)	(0.006)
L1.ln(Indexed books printed (Vernacular))	0.052***	0.067***	0.024*	-0.010	0.033***	0.004
	(0.015)	(0.011)	(0.013)	(0.008)	(0.010)	(0.005)
Mean Dep. Var.	0.049	0.012	0.015	0.011	0.016	0.002
R-squared	0.077	0.084	0.066	0.010	0.015	0.011
Observations	140,999	140,999	140,999	140,999	140,999	140,999
Number of cities	7,421	7,421	7,421	7,421	7,421	7,421
City FE	✓	✓	✓	✓	✓	✓
Interval FE	✓	✓	✓	✓	✓	✓

Notes: The table shows regressions based on equation 4. Data: Universal Short Title Catalogue (USTC) and Index Librorum Prohibitorum (ILP). Standard errors, clustered at the city-author level, are presented in parentheses. ***, ** and * indicate statistical significance at the 99%, 95% and 90%, respectively.

Appendices

A Deutsche Biographie results

We use the *Deutsche Biographie* (German Biography), a bibliographical reference work of famous people in the German-speaking countries, as alternative proxy for the location of thinkers.

In our historical setting, the area covered by the *Deutsche Biographie* roughly corresponds to the Holy Roman Empire, i.e. we restrict our analysis in the part on thinkers to this area. The Deutsche Biographie was produced by the Historical Commission at the Bavarian Academy of Sciences and Humanities and is meant to inform 'in brief, scholarly well-founded articles about deceased persons whose actions and work have had a substantial influence on political, economic, social, scholarly/scientific, technical or artistic developments.'

A.1 Description of Data

The *Deutsche Biographie* contains short biographies of 127,600 'thinkers' or 'famous people' who were born or died in German speaking countries. We are interested in the subsample of thinkers that were born before 1650, or died during the same period. With these constraints, we obtain a dataset of 12,486 thinkers that were born in German speaking countries up to 1650. From those, 7,876 died before 1650. However, in our analysis we need to have information on both place of birth and death for each of them, leaving us with a final sample of 3,670 famous people.

Table A.1 shows summary statistics for the sample of European towns (as in Table 6) and HRE towns from BHHT and compares them with the summary statistics for HRE towns from our alternative source of data of 'thinkers', the *Deutsche Biographie* (DB). We observe that the number of towns is larger from the sample obtained from BBHT. In particular, we have 3,192 HRE towns from the BHHT and only 1,219 HRE towns from the DB. This is probably due to the nature of the selection of individuals in both datasets. However, when we look

at the number of dead individuals per town and decade, we observe that the average, when comparable, is similar. For instance, the average number of dead individuals per town and decade is not statistically different between our two samples. Similarly, the average of dead individuals whose individuals' occupation is Religion is similar for both samples.

The main difference from our HRE samples appears in the average number of printed books. The sample from the DB offers a larger average number of printed books as well as for all types of editions, from Religious books til Social Sciences books. The ratios of indexed books to printed books for both samples however are very similar. Therefore, the main difference between samples is the amount of HRE towns without any printed edition in the sample coming from the BHHT.

A.2 Comparability of BHHT data and Deutsche Biographie in the Holy Roman Empire

The following table A.2 suggests that the results based on the biographical data used in our main analysis (BHHT) are very similar to the results obtained using the Deutsche Biographie, a curated collection of biographies in the German lands. Indeed, point estimates are very similar. Notice that Deutsche Biographie has smaller geographical coverage than the BHHT data, as can be seen from the smaller number of cities included in columns 4 to 6. Still, results are extremely similar. Our takeaway is that the BHHT, with their Europe-wide coverage, is the better choice for our analysis as results align so clearly for the Holy Roman Empire where we have two alternative data sources.

Table A.1: Summary statistics: Comparison BHHT and DB Data

	(Europe - BHHT)		(HRE - BHHT)		(HRE - DB)	
	Mean	sd	Mean	sd	Mean	sd
Famous people dead	0.11	1.08	0.13	0.89	0.09	0.50
Academic	0.02	0.25	0.03	0.28		
Culture	0.03	0.46	0.04	0.44		
Religious	0.02	0.35	0.02	0.14		
Politics	0.03	0.24	0.03	0.26		
Business	0.00	0.07	0.00	0.08		
Other occupations and Missing	0.01	0.09	0.01	0.10		
Religious					0.03	0.21
Social Sciences					0.05	0.31
Arts					0.02	0.20
Science					0.01	0.12
Diplomacy					0.03	0.18
Technology					0.01	0.12
Other					0.00	0.06
Printed editions	4.16	92.34	4.64	59.86	12.13	96.39
Religious	1.30	26.67	1.68	22.37	4.40	36.04
Science	0.17	4.37	0.21	3.70	0.55	5.97
Arts	0.58	16.19	0.59	8.90	1.55	14.36
Social Science	0.47	11.77	0.52	9.24	1.35	14.91
Other	0.96	32.39	0.93	14.89	2.44	24.02
Missing	0.97	23.55	1.03	16.60	2.68	26.77
Printed Indexed editions	0.60	16.35	0.85	15.62	2.23	25.21
Indexed Religious	0.26	7.15	0.45	9.51	1.17	15.37
Indexed Science	0.03	1.21	0.04	1.04	0.10	1.68
Indexed Arts	0.14	5.49	0.15	2.99	0.39	4.83
Indexed social science	0.05	1.99	0.06	1.32	0.15	2.13
Indexed other	0.07	2.12	0.10	2.16	0.27	3.49
Indexed missing	0.08	2.16	0.11	2.00	0.28	3.23
$Observations$	149900		63840		24380	
$Towns$	7495		3192		1219	

Notes: The table shows the average number of 'thinkers' or books printed in a given town and decade for the BHHT and the DB datasets. The dataset is composed of those towns that at least printed a book or where a 'thinker' was born or died between 1450 and 1650. Those are 7,495 towns across 20 decades, 149,900 observations, for the BHHT dataset for all European towns (columns 1 and 2). In columns 3 and 4, the table shows the mean and standard deviation for the subsample of towns from the BHHT that belong to the HRE, 3192 towns across 20 decades. Last two columns show the average and standard deviation for HRE towns from the DB dataset; we have 1219 towns across 20 decades.

Table A.2: Indexed books printed and famous people: Holy Roman Empire

	BHHT data			Deutsche Biographie		
	ln(Dead)			ln(Dead)		
	(1)	(2)	(3)	(4)	(5)	(6)
F1.ln(Indexed books printed)	-0.007			0.009		
	(0.014)			(0.012)		
ln(Indexed books printed)	-0.006			0.004		
	(0.015)			(0.012)		
L1.ln(Indexed books printed)	0.047***	0.035**		0.044***	0.049***	
	(0.017)	(0.016)		(0.011)	(0.010)	
L1.ln(Indexed books printed (Religion))			0.023			0.014
			(0.020)			(0.012)
L1.ln(Indexed books printed (Science))			-0.004			0.021
			(0.037)			(0.025)
L1.ln(Indexed books printed (Arts))			-0.026			-0.043**
			(0.034)			(0.021)
L1.ln(Indexed books printed (Soc. Science))			0.018			-0.011
			(0.039)			(0.031)
Mean Dep. Var.	0.057	0.059	0.059	0.052	0.052	0.052
R-squared	0.117	0.105	0.129	0.080	0.074	0.104
Observations	57,042	60,211	60,211	21,942	23,161	23,161
Number of cities	3,169	3,169	3,169	1,219	1,219	1,219
City FE	✓	✓	✓	✓	✓	✓
Interval FE	✓	✓	✓	✓	✓	✓

Notes: The table shows regressions based on equation 4. Data: Universal Short Title Catalogue (USTC) and Index Librorum Prohibitorum (ILP). Standard errors, clustered at the city-author level, are presented in parentheses. ***, ** and * indicate statistical significance at the 99%, 95% and 90%, respectively.

Another robustness check of interest is related to the definition of occupations of famous people in the BHHT dataset itself. In Table 9, we used the primary occupation of a famous person. Some famous people are listed with both a primary and a secondary occupation. For example, Martin Luther's primary occupation is 'academic', and his secondary occupation is 'religious person'. In Table A.2, we look at both primary and secondary occupations, so some famous people may be counted in two columns. Results are, however, robust.

Table A.3: Indexed books printed and famous people: 1st and 2nd occupations

	All	Academic	Culture	Religious	Politics	Business
	(1)	(2)	(3)	(4)	(5)	(6)
L1.ln(Indexed books printed)	0.039***	0.063***	0.016	0.001	0.018**	0.026***
	(0.012)	(0.011)	(0.011)	(0.006)	(0.008)	(0.006)
Mean Dep. Var.	0.048	0.016	0.018	0.015	0.021	0.004
R-squared	0.071	0.074	0.064	0.016	0.022	0.023
Observations	141,113	141,113	141,113	141,113	141,113	141,113
Number of cities	7,427	7,427	7,427	7,427	7,427	7,427
City FE	✓	✓	✓	✓	✓	✓
Interval FE	✓	✓	✓	✓	✓	✓

Notes: The table shows regressions based on equation 4. Data: Universal Short Title Catalogue (USTC) and Index Librorum Prohibitorum (ILP). Standard errors, clustered at the city-author level, are presented in parentheses. ***, ** and * indicate statistical significance at the 99%, 95% and 90%, respectively.

B Robustness Checks

Vintage effects In Tables B.1 and B.2, we probe the role of vintage effects. Authors may be famous for a while and then fall our of fashion. Potentially, there are differences between indexed and non-indexed authors in this regards, which is what we want to check. To do so, we add the year in which an author was first printed in any city, interacted with the Post dummy, as an additional control. The main effect of 'year first printed' is constant within author and hence absorbed by the author fixed effect. But the interaction with the Post dummy is identified. In case there were important differences in vintage effects for indexed and non-indexed authors following indexation, we would expect the main DD coefficient to be affected. However, coefficient estimates are very close to those in Tables 1 and 2.

Earlier and later editions of the same index In our main results, we use authors indexed in the first edition of an index as 'indexed authors', while those indexed in later editions of the same index are part of the control group. In Table B.3, instead, the treatment group is composed of all authors indexed in any edition (1st or later ones) of an index. Results are very similar to those in Table 2.

Authors with at least 10 editions printed In our benchmark specification we restrict the sample to authors with at least 25 editions printed. Thus, we are restricting the sample to include relatively more prolific authors. In Table B.4 we include authors with at least 10 editions printed. Even though coefficients are smaller than those found in Table 1, the magnitude of the effects are very similar.

Event study with half-decade intervals In Figure B.1 we show estimates of the event study model but now considering half-decade intervals. The results are similar to those in Figure 3, showing that the parallel trends assumption hold for all indexes but Parme.

Table B.1: The effect of being indexed on getting printed: being printed at all - Controlling for vintage

Outcome:	Being printed at all								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Paris	Louvain	Portugal	Venice	Spain	Rome	Antwerp	Parme	Munich
	1544	1546	1547	1549	1551	1559	1569	1580	1582
	Panel A. 30-year time window around the index								
Indexed X Post	-0.013**	-0.011**	-0.002	-0.013**	-0.001*	-0.005**	-0.003	-0.004***	-0.003
	(0.005)	(0.005)	(0.002)	(0.005)	(0.001)	(0.002)	(0.003)	(0.001)	(0.002)
Mean Dep. Var. (indexed, pre)	0.066	0.063	0.009	0.057	0.008	0.015	0.041	0.026	0.038
Observations	1,510,705	1,741,754	246,283	1,404,067	558,580	908,962	1,843,314	1,756,988	2,518,688
	Panel B. 20-year time window around the index								
Indexed X Post	-0.013**	-0.011**	-0.003	-0.011**	-0.001	-0.004*	-0.003	-0.003***	-0.003*
	(0.005)	(0.004)	(0.002)	(0.004)	(0.001)	(0.002)	(0.003)	(0.001)	(0.002)
Mean Dep. Var. (indexed, pre)	0.076	0.077	0.012	0.065	0.009	0.022	0.054	0.027	0.051
Observations	1,079,075	1,246,649	180,269	1,002,905	403,701	647,445	1,325,358	1,272,039	1,835,697
	Panel C. 10-year time window around the index								
Indexed X Post	-0.011**	-0.012**	-0.001	-0.012**	-0.000	-0.003	-0.007**	-0.001	-0.004**
	(0.005)	(0.005)	(0.001)	(0.004)	(0.001)	(0.002)	(0.004)	(0.001)	(0.002)
Mean Dep. Var. (indexed, pre)	0.094	0.108	0.019	0.088	0.012	0.029	0.076	0.033	0.068
Observations	644,906	738,849	111,716	601,743	248,822	388,467	804,863	776,934	1,127,316
Author FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
City FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Decade FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Controls‡	✓	✓	✓	✓	✓	✓	✓	✓	✓

Notes: The table shows regressions based on equation 1. Data: Universal Short Title Catalogue (USTC) and Index Librorum Prohibitorum (ILP). Standard errors, clustered at the city-author level, are presented in parentheses. ***, ** and * indicate statistical significance at the 99%, 95% and 90%, respectively.
‡ Controls include the total number of works printed in the city in the given decade.

Table B.2: The effect of being indexed on getting printed: number of printed works - Controlling for vintage

Outcome:	Number of printed works								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Paris	Louvain	Portugal	Venice	Spain	Rome	Antwerp	Parme	Munich
	1544	1546	1547	1549	1551	1559	1569	1580	1582
	Panel A. 30-year time window around the index								
Indexed X Post	-0.130	-0.111	-0.008	-0.134*	-0.004	-0.025	-0.003	-0.022*	-0.017**
	(0.081)	(0.086)	(0.007)	(0.079)	(0.003)	(0.017)	(0.013)	(0.012)	(0.008)
Mean Dep. Var. (indexed, pre)	0.436	0.370	0.023	0.434	0.017	0.067	0.134	0.110	0.161
Observations	1,510,705	1,741,754	246,283	1,404,067	558,580	908,962	1,843,314	1,756,988	2,518,688
	Panel B. 20-year time window around the index								
Indexed X Post	-0.116	-0.077	-0.006	-0.062*	-0.002	-0.024	-0.001	-0.014*	-0.021**
	(0.073)	(0.050)	(0.005)	(0.033)	(0.002)	(0.017)	(0.010)	(0.008)	(0.009)
Mean Dep. Var. (indexed, pre)	0.474	0.366	0.020	0.317	0.012	0.098	0.165	0.105	0.235
Observations	1,079,075	1,246,649	180,269	1,002,905	403,701	647,445	1,325,358	1,272,039	1,835,697
	Panel C. 10-year time window around the index								
Indexed X Post	-0.076	-0.043	-0.002	-0.060**	-0.001	-0.017	-0.023	-0.007	-0.023***
	(0.062)	(0.027)	(0.003)	(0.030)	(0.002)	(0.013)	(0.014)	(0.004)	(0.008)
Mean Dep. Var. (indexed, pre)	0.509	0.392	0.025	0.422	0.024	0.135	0.271	0.126	0.314
Observations	644,906	738,849	111,716	601,743	248,822	388,467	804,863	776,934	1,127,316
Author FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
City FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Decade FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Controls‡	✓	✓	✓	✓	✓	✓	✓	✓	✓

Notes: The table shows regressions based on equation 1. Data: Universal Short Title Catalogue (USTC) and Index Librorum Prohibitorum (ILP). Standard errors, clustered at the city-author level, are presented in parentheses. ***, ** and * indicate statistical significance at the 99%, 95% and 90%, respectively.
‡ Controls include the total number of works printed in the city in the given decade.

Table B.3: The effect of being indexed on getting printed: number of printed works or being printed at all - Include authors indexed in **any** issue of an index

Outcome:	Being printed at all								
	(1) Paris 1544	(2) Louvain 1546	(3) Portugal 1547	(4) Venice 1549	(5) Spain 1551	(6) Rome 1559	(7) Antwerp 1569	(8) Parme 1580	(9) Munich 1582
Panel A. 30-year time window around the index									
Indexed X Post	-0.008*	-0.011***	-0.001	-0.011***	-0.000	-0.004**	-0.008***	-0.006***	-0.003
	(0.004)	(0.004)	(0.003)	(0.004)	(0.001)	(0.002)	(0.003)	(0.002)	(0.002)
Mean Dep. Var. (indexed, pre)	0.052	0.047	0.009	0.043	0.004	0.011	0.030	0.026	0.038
Observations	1,510,705	1,741,754	246,283	1,404,067	558,580	908,962	1,843,314	1,756,988	2,518,688
Panel B. 20-year time window around the index									
Indexed X Post	-0.008*	-0.009**	-0.002	-0.009**	0.000	-0.004**	-0.007***	-0.004***	-0.003*
	(0.004)	(0.004)	(0.003)	(0.004)	(0.001)	(0.002)	(0.002)	(0.001)	(0.002)
Mean Dep. Var. (indexed, pre)	0.060	0.056	0.012	0.048	0.004	0.013	0.034	0.027	0.051
Observations	1,079,075	1,246,649	180,269	1,002,905	403,701	647,445	1,325,358	1,272,039	1,835,697
Panel C. 10-year time window around the index									
Indexed X Post	-0.006	-0.008**	-0.004	-0.009**	-0.000	-0.003*	-0.008***	-0.002**	-0.004**
	(0.004)	(0.004)	(0.003)	(0.004)	(0.001)	(0.001)	(0.002)	(0.001)	(0.002)
Mean Dep. Var. (indexed, pre)	0.078	0.077	0.015	0.071	0.007	0.017	0.041	0.033	0.068
Observations	644,906	738,849	111,716	601,743	248,822	388,467	804,863	776,934	1,127,316
Author FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
City FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Decade FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Controls‡	✓	✓	✓	✓	✓	✓	✓	✓	✓

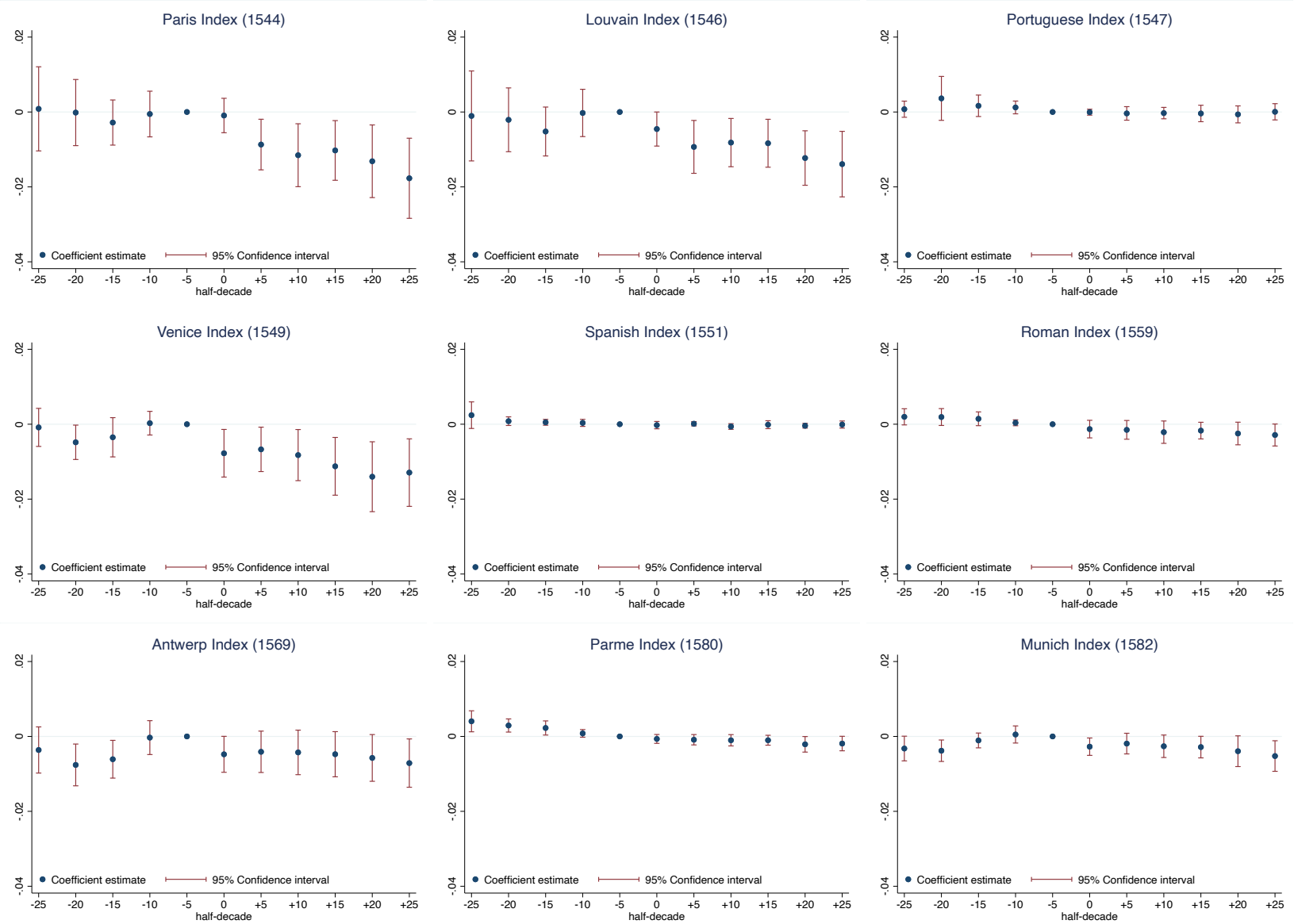
Notes: The table shows regressions based on equation 1. Data: Universal Short Title Catalogue (USTC) and Index Librorum Prohibitorum (ILP). Standard errors, clustered at the city-author level, are presented in parentheses. ***, ** and * indicate statistical significance at the 99%, 95% and 90%, respectively.
‡ Controls include the total number of works printed in the city in the given decade.

Table B.4: The effect of being indexed on getting printed: being printed at all - Include authors with at least 10 editions printed

Outcome:	Being printed at all								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Paris	Louvain	Portugal	Venice	Spain	Rome	Antwerp	Parme	Munich
	1544	1546	1547	1549	1551	1559	1569	1580	1582
	Panel A. 30-year time window around the index								
Indexed X Post	-0.009***	-0.007**	-0.001	-0.008***	-0.001**	-0.003**	-0.003**	-0.003***	-0.002**
	(0.003)	(0.003)	(0.001)	(0.003)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)
Mean Dep. Var. (indexed, pre)	0.038	0.034	0.004	0.033	0.003	0.007	0.024	0.015	0.024
Observations	4,584,475	5,285,630	747,385	4,260,865	1,695,100	2,758,390	5,593,830	5,347,270	7,643,360
	Panel B. 20-year time window around the index								
Indexed X Post	-0.009***	-0.006**	-0.001	-0.006***	-0.000**	-0.002*	-0.003**	-0.002***	-0.003**
	(0.003)	(0.002)	(0.001)	(0.002)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)
Mean Dep. Var. (indexed, pre)	0.044	0.040	0.005	0.037	0.004	0.009	0.032	0.016	0.033
Observations	3,274,625	3,783,155	547,055	3,043,475	1,225,095	1,964,775	4,022,010	3,867,910	5,570,715
	Panel C. 10-year time window around the index								
Indexed X Post	-0.007**	-0.006**	-0.000	-0.006***	-0.000	-0.002	-0.005***	-0.001*	-0.003***
	(0.003)	(0.003)	(0.000)	(0.002)	(0.000)	(0.001)	(0.002)	(0.001)	(0.001)
Mean Dep. Var. (indexed, pre)	0.054	0.056	0.007	0.048	0.005	0.012	0.042	0.018	0.041
Observations	1,957,070	2,242,155	339,020	1,826,085	755,090	1,178,865	2,442,485	2,357,730	3,421,020
Author FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
City FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Decade FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Controls‡	✓	✓	✓	✓	✓	✓	✓	✓	✓

Notes: The table shows regressions based on equation 1. Data: Universal Short Title Catalogue (USTC) and Index Librorum Prohibitorum (ILP). Standard errors, clustered at the city-author level, are presented in parentheses. ***, ** and * indicate statistical significance at the 99%, 95% and 90%, respectively.
‡ Controls include the total number of works printed in the city in the given decade.

Figure B.1: The effect of being indexed on getting printed: Event Study, half-decade intervals



Notes: Each figure shows coefficients from regressions based on equation 2. The reference point is the decade prior to the publication of the index. Data: Universal Short Title Catalogue (USTC) and Index Librorum Prohibitorum (ILP).

C Additional Figures

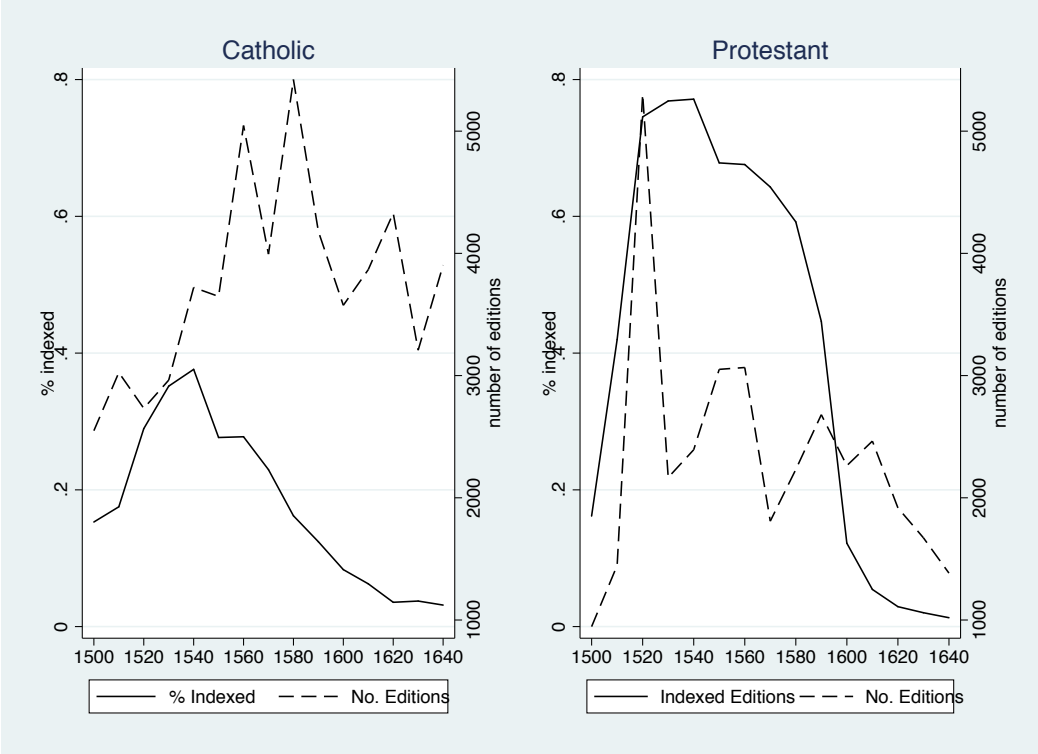


Figure C.1: Censorship of religious books by religious denomination in the HRE. Data: Universal Short Title Catalogue (USTC) and Index Librorum Prohibitorum (ILP). Religious denomination from Becker and Pascali (2019).

D Cleaning and Standardization of Printers' Names

In this section, we describe how we identified printers in our dataset. Printers are named in multiple languages (Latin and vernacular variants of the same name), with non-standard spelling, abbreviations, and in some instances variant names or aliases. Our coding cleaned and standardized printer names to avoid unnecessary duplication of printers' names.

We followed Dittmar and Seabold (2019) and proceeded in five steps to determine printing firms' names. First, to account for different languages we classify the data into fifteen zones according to the geographical area where printers belonged. For instance, "Printer" in Denmark is referred to by "Forlægger" (printing house), "udlægger" or "udg" (printer). On the other hand, there are differences in the naming of widows and heirs by zone (we assumed that widows are heirs continue with the same printing firms).

Secondly, we remove diacritical marks and common words. The list of common words is idiosyncratic by zone. Third, we compare all the printers' names based on similarity scores. Fourth, we review each printer name correcting by hand in the case of errors from the previous steps. Finally, we consider a correction due to the presence of variant names or aliases. We proceeded in two steps. First, we downloaded all the variant names of printers from the Consortium of European Research Libraries's (CERL) online Thesaurus database. Second. we used the list of variant names to standardize printers' names to avoid duplication of registries.

Table D.1 shows three cases from Poland, Italian States, and France to illustrate the standardization process from Original Printers' names to Post - Variant names. In the case of Poland, both original cases are standardized after the implementation of matching techniques. The case of Italian States illustrates the role of aliases or variant names. Based on the list scrapped from CERL Thesaurus, we can infer that *Alessandro Banacci* and *Alessandro Benacci* are the same individual, therefore, both names are standardized in the last step of the process. The case of France illustrates the role of the implementation of matching techniques to equalize cases where only one letter is different (e.g. Hadrianum vs. Adrianum). Table D.2 summarizes the number

Table D.1: Examples of the process of cleaning and standardization of printers' names

Oringal Publisher's name	Post - Cleaning	Post - Matching	Post - Individual Cases	Post - Variant Names
		Poland		
András Komlós, widow of: Hoffhalter, Rudolf]	Andras Komlos Hoffhalter Rudolf	Andras Komlos Hoffhalter Rudolf	Andras Komlos Hoffhalter Rudolf	Andras Komlos Hoffhalter Rudolf
Rudolf Hoffhalter]: in the house of the widow of András Komlós]	Rudolf Hoffhalter Andras Komlos	Andras Komlos Hoffhalter Rudolf	Andras Komlos Hoffhalter Rudolf	Andras Komlos Hoffhalter Rudolf
		Italian States		
Alessandro Banacci [sic]	Alessandro Banacci	Alessandro Banacci	Alessandro Banacci	Alessandro Benacci
Alessandro Benacci & C.	Alessandro Benacci C	Alessandro Benacci	Alessandro Benacci	Alessandro Benacci
		France		
Hadrianum Beys via Iacobæa [sic]	Hadrianum Beys via Iacoba	Adrianum Beys	Adrian Beys	Adrian Beys
Adrianum Beys via Iacobaea	Adrianum Beys via Iacobaea	Adrianum Beys	Adrian Beys	Adrian Beys

of unique printers in each step. We can see that the standardization process reduced the number of unique printers' names by one-third.

Table D.2: Unique printers by step of the process of cleaning and standardization of printers' names

Zone	OP	PPC	PPMT	PPIC	PPVN
Balkans	41	27	25	22	22
Bohemia	191	180	158	151	151
Denmark	127	113	76	64	63
England	2,090	2,036	1,775	1,715	1,714
France	15,945	13,945	11,156	10,199	10,116
Holy Roman Empire	11,057	9,677	8,101	7,894	7,774
Hungary	97	70	63	59	59
Italian States	10,543	8,828	7,266	7,219	7,088
Low Countries	5,604	4,887	4,218	4,197	4,173
Mexico	120	107	94	92	92
Poland	587	444	335	246	242
Portugal	394	356	309	292	290
Scotland	41	39	37	36	36
Spain	3,581	3,086	2,591	2,551	2,551
Swiss Conference	1,528	1,366	1,122	1,073	1,061
Without Zone	3,783	3,397	3,022	2,941	2,931
Total	**55,729**	**48,558**	**40,348**	**38,751**	**38,363**

Notes: (1) **OP**: Original Printers, **PPC**: Printers Post - cleaning correction, **PPMT**: Printers post - Matching Techniques correction, **PPIC**: Printers Post - Individual Cases correction, **PPVN**: Printers Post Variant Names Correction.