



Rent seeking and the decline of the Florentine school

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Abstract

Economists have claimed that the invisible hand of competition is behind the historical episodes of outstanding artistic achievement, from Shakespearean theater to musical composition in Mozart's Vienna. Competition, the argument goes, acts on producers of the arts just as it does on producers of mundane commodities. By pitting one artist against all others for the public's purse and the critics' praise, rivalry encourages them to supply more refined products. While often left unstated, the same argument implies that the absence of competition will be detrimental to the quality of artists' output. We extend that insight to explain the decline of the Florentine school of painting in the Late Renaissance period. The rise of the Medici family as Florence's ruling dynasty turned the previously competitive market for paintings into a monopsony. That development, we argue, strengthened the benefits to local painters of forming a cartel to reclaim the rents captured by the monopsonist. The result was the creation of a local painters' guild that restricted competition, ultimately contributing to a decline in the quality and influence of Florentine painting.

Keywords Renaissance Art · Florentine School of Painting · Economics of Art Markets · Rent-seeking

JEL Classifications: D72 · N83 · Z11

1 Introduction

Economists have recognized for a long time that competitive market forces discipline suppliers, forcing them to indulge consumers' preferences in matters of quantity and quality. It therefore is not surprising that economists have seen the invisible hand of competition behind historical episodes of outstanding artistic achievement. Competition, the argument goes, constrains producers of the arts just as it does producers of mundane commodities.

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Pitting one artist against all others for the public's hard-earned money and the praise of critics encourages them to supply more satisfactory products. Consider the case of Western music. Vaubel (2005) has argued that the triumph of that art form in Baroque Europe is in no small part explained by its political fragmentation after the Roman Empire's collapse into small, independent states, leading to stiff competition between rulers as patrons of the musical arts. Consistent with that hypothesis, Vaubel says that the greatest composers of the period tended to be from the continent's two most politically fragmented regions: Italy and Germany.

Along similar lines, Baumol and Baumol (1994, pp. 171–172) argue that “the extraordinary confluence of composers whose activities centered in Vienna around Mozart's time” is traceable to “the political division of the Holy Roman Empire and the Hapsburg possessions into numerous petty states.” Musical composition does not appear to be exceptional in that regard. Etro (2018), Etro et al. (2015), and Etro and Pagani (2013) report evidence of significant competition in Italy's primary market for paintings in during the Renaissance and Baroque periods during which the peninsula produced painters the likes of Botticelli, Raphael, Michelangelo, Caravaggio, and many others. Alternatively, consider the results in Etro, Marchesi and Stepanova's (2020) study of the effects of the liberalization of the art exhibition market in late nineteenth-century France. They contend that the ending of the Paris Salon's monopoly in 1880 opened the door to innovation in painting, resulting in the explosion of the French impressionist movement. The overall lesson then is that competition has beneficial effects on artistic achievement. On the other hand, the absence of competition generally will be detrimental.

In this paper, we extend the argument above to make sense of the following history-of-art puzzle: How did Florence, and its school of painting, go from being that art form's world capital to a secondary center at best over just a few generations?

The place of Florence in art history—and the history of painting in particular—during the late medieval and Renaissance periods is undisputed. For instance, De Marchi and Van Miegroet (2006, p. 73) write that “Florence was perhaps the single most prolific center of the new painting, and of ideas concerning painting, that we associate with the Renaissance.” Similarly, Campbell and Cole (2012, p. 102) write that while not all Renaissance art was Florentine, Florence's influence on painting's development is “unparalleled”. The exceptional concentration of artistic talent in Florence during the period already was apparent to contemporaries. In his *Vite dei più Eccellenti Pittori*, sixteenth-century Florentine painter and art historian Giorgio Vasari attributed Florence's development to a combination of Providence and the benefits of clustering:

It is Nature's custom, when she creates a person of great excellence in any profession, to create not just one man alone but another as well, at the same time and in the same part of the world as his competitor, so that both of them may profit from each other's talent and from the rivalry. (Vasari 1998, p. 101)

Consistent with Vasari's claim, Kelly and O'Hagan (2007) report that more than one-fourth of all major Italian painters between the thirteenth and sixteenth centuries was born in Florence, and for almost 30% of them, Florence was the primary location of their work. When painters from the rest of Tuscany—over which Florence came to exercise direct political control during the same period—are counted, the comparable figures are 43% and 40%, respectively. Thus, a region that could claim to be home to less than 1% of Italy's total population (Lo Cascio and Malanima 2005) produced and attracted a plurality of all major

painters throughout the late medieval and Renaissance periods. Veneto, which harbored the foremost Italian maritime power of the time—Venice—produced only half the significant painters as Florence.

Data from Kelly and O’Hagan (2007) suggest that Florence’s painting school had started to decline at some point between the fifteenth and the sixteenth centuries. While 24 major painters were active mainly in Tuscany’s *Quattrocento*,¹ the figure had dropped to just four by the following century. We see signs of decline in Venice and its territories over the same period, but the drop there was significantly less dramatic, going from eight active major painters in the fifteenth century to five in the sixteenth century. The rest of Italy experienced no such decline. Rome went from hosting five prominent painters to 16. Emilia-Romagna—a region that contained some middle-sized urban centers like Bologna, Parma, and Ravenna—went from being the primary work location of just one major painter during the *Trecento* to that of eight in the sixteenth century.

Historians have attributed Florence’s decline to the cultural and economic ramifications of the Medici family’s rise. According to one popular argument, the success of the Florentine school was tied to the city’s republican tradition and its values. As the Republic turned into a (de facto and then de jure) hereditary monarchy, the old values fell out of fashion, and took with them the work of the artists they inspired (Kent 2012). Another explanation blames Florence’s economic stagnation and, in particular, the decline of Italy’s wool industry, which ushered in a period of “austerity” and weaker “cultural initiatives” (Darr 2002, p. 7).

Our account differs from the traditional arguments by emphasizing the changes in the structure of the primary market for paintings in Florence and Tuscany over the *Cinquecento*. The structural changes affected both sides of the market. On the demand side, we argue that the establishment of the Medici family’s de facto hereditary monarchy reduced competition between patrons drastically. On the supply side, the rise of the Medici’s rule coincided with—and, as we will argue, likely caused—the emergence of effective collective action institutions that enabled local painters to (a) capture the market for adjudication between patrons and artists and (b) erect barriers to entry against foreign painters and local newcomers. The combined effect of those developments was to weaken competitive pressures on local artists and, thus, the quality of the paintings produced by the Florentine school.

The present article contributes mainly to three bodies of literature. Most directly, it builds on the works of Vaubel (2005), Baumol and Baumol (1994), Etro (2018), and Etro, Marchesi and Stepanova (2020), as well as others,² documenting the effects of competition on the supply of artistic commodities like musical compositions and paintings. It extends the same intuition to study the primary market for paintings in the Italian Renaissance. Previous work on the economics of the Renaissance market for paintings includes Etro (2018), who argues that the market was remarkably competitive, and Piano (2021), who studies the ownership structure and division of labor on the market’s supply side. Most closely related to the argument herein is Owen (1977). There, the author applies a monopsony model to explain the stylistic differences that emerged over time between the (neighboring) Siense

¹ Throughout the paper, we will follow the (admittedly pretentious) practice of art historians by sometimes referring to the fourteenth, fifteenth, and sixteenth centuries as *Trecento*, *Quattrocento*, and *Cinquecento* respectively.

² See, for instance, the works reviewed in De Marchi and Van Miegroet (2006).

and Florentine schools of painting. Owen argues that local market power enabled the elites to influence the styles and themes of the paintings produced by resident painters.

By focusing on the decline of the Florentine school, our article complements those works by exploring (a) the consequences of weaker competitive pressures for the performances of Florentine painters; (b) the negative effects that can follow from the ability of producers of the arts to organize themselves and form professional associations wielding the power to enforce restrictions on entry and other anticompetitive acts; (c) how market power on the demand side facilitated rising concentration on the supply side.

Our argument also is related to existing work applying the rent-seeking model to various episodes in economic history. Ekelund and Tollison (1981) adopt a rent-seeking framework to make sense of the policies and institutions of mercantilist Europe. The same framework has been applied to the study of the Medieval Church (Ekelund et al. 1989), the Soviet Union (Anderson and Boettke 1997), the rise of central banking in France (Rouanet 2021), and mental-health policies in the nineteenth-century United States.

Finally, our paper contributes to the debate between economic historians on the economic function of European guilds and their effects on economic performance. Traditionally, scholars saw guilds as a classic example of collusion by suppliers to redistribute consumer surplus to themselves. That “classic” view was questioned in the work of economists and historians who emphasized the welfare-enhancing properties of guilds, namely their enforcement of quality standards, lessening of consumers’ information costs, and the provision of human-capital enhancing services (Hickson and Thompson 1991; Epstein 1998, 2008). More recently, Sheilagh Ogilvie has led to a revival of the more traditional view that the net effect of guilds on social welfare was negative (Ogilvie 2007, 2008, 2011, 2014, 2019; Comino et al. 2020).

Our analysis cannot adjudicate between the two sides of that debate. However, it sheds light on one effect of the rise of collective action institutions, especially the decline in output quality owing to restrictions on competitive behavior and other monopolistic practices. We also show that rent seeking by members of a professional association may, over time, result in the demise of the domestic industry itself.

2 The rise and decline of the Florentine school³

2.1 Rise

For most of the Middle Ages, painting was a lost art in Western Europe. When choosing how to decorate the interiors of a church, a monastery, or a palace, patrons preferred mosaics and tapestries (Sekules 2001). Moreover, painting mainly fell under the purview of “Greek” (i.e., Byzantine) artisans. The revival of painting, and really the beginning of its ascent as the most popular art form in the region, traces to the career of Florentine painter Cimabue and, most important, that of his pupil, Giotto. With Giotto, Italy and especially Florence emancipated itself from the Greek school of painting (Hartt 1960, 51). His frescoes and altarpieces genuinely were revolutionary. He brought a new sense of space to his figures, which gave the observer the impression of depth that simply was missing from the paint-

³ this section provides only a brief and partial outline of the history of paintings in Renaissance Florence. For more comprehensive treatments, see Hartt (1960), Welch (2000), and especially Nethersole (2019)

ings of the Byzantine tradition. Giotto also introduced a sense of drama and realism into his human subjects. Whereas the figures of his predecessors were painted as symbols and intended as such, he emphasized their humanity and individuality (Levey 1968, p. 12).

Giotto died in 1337. Nevertheless, his style dominated the practice of painting for a century in Florence and all over central Italy. After Giotto's death, the most prominent Florentine painters, like Taddeo Gaddi and Andrea Orcagna, were his direct disciples—hence known as *Giottesca* School. Little great art was produced in Western Europe in the second half of the fourteenth century, as the region dealt with the economic and social consequences of the Black Death, and so Florence did not produce very many great painters at the time. As the European economy recovered in the first half of the new century, so did the Florentine school. More than a recovery, it was a boom. In a short period, Florence produced many great artists, each of whom advanced the art of painting distinctively. In the 1420s, the duo of Masolino and Masaccio applied to painting successfully the principles of perspective developed by the (Florentine) sculptor Lorenzo Ghiberti.

Masaccio's innovations were best embodied by two clergymen, Fra Angelico and Fra Filippo Lippi. The popularity of mathematical principles in the design of paintings persisted during the next generation of painters, most of all in the work of Paolo Uccello. His battle scenes follow the one-point perspective technique so strictly that all objects on the ground, including the corpses of dead soldiers, happen to be perfectly parallel to one another (Hartt 1960, p. 216). Among his contemporaries, Domenico Veneziano exploited the principle of perspective to give the impression that the scenes in the foreground were taking place against the backdrop of an open-ended world. Veneziano's work exemplified the closer attention painters paid to their art's realism. That emphasis on realism was true of human figures and their surroundings, as in the work of Andrea del Castagno and Piero della Francesca (Campbell and Cole 2012, p. 253).

Florence kept producing great masters in the second half of the *Quattrocento*. Some, like Benozzo Gozzoli, Alesso Baldonivetti and Domenico Ghirlandaio—the leading figures of the Florentine school during the period—continued working in the tradition of Masaccio (Hartt 1960, p. 269). Others ventured into uncharted stylistic and technical territory. Thus, we see painters move away from traditional religious subjects and towards ones from myth and classical antiquity, as in the work of Antonio del Pollaiuolo but most important that of Sandro Botticelli. With the work of Ghirlandaio and his contemporaries, the Florentine school had firmly established its “dominance” over the Italian market (Hartt 1960, pp 308–309). Even as other schools of painting had started to develop all over central and northern Italy, “these, however they developed, felt the pervasive Florentine influence” (Levey 1968, p. 44). So, when Pope Sixtus IV needed painters to decorate the walls of his Vatican Palace in 1480, he hired four Florentine school painters (O'Malley 2013).

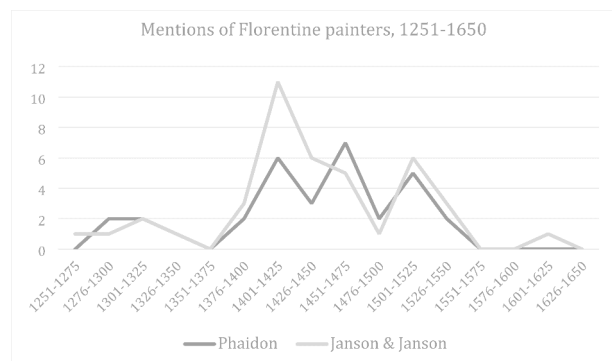
Only one of the painters hired by Pope Sixtus IV was not Florentine by birth. Pietro di Castro Pieve, known as Perugino, was one of the most prolific artists of his generation. He operated two workshops, one in his hometown of Perugia and the other in Florence (Canuti 1931). His experience exemplifies the centrality of Florence in the world of Renaissance painting: Not only did the city produce many if not most of the period's great masters, but it also attracted and indeed trained a decent number of those born outside of Tuscany—painters like Domenico Veneziano, for instance, or Piero della Francesca. One could also find painters from northern Europe, like Hugo Van der Goes, living and working in Florence (Nethersole 2019).

2.2 Decline

The Florentine school did not die with Botticelli and Ghirlandaio. In 1632, an official census found more than 60 painters working within the city’s walls (Spear, Sohm and Marshall 2010, p. 173). Still, of the great masters of the early sixteenth century, few were born in Florence or spent significant portions of their careers there. Raphael was from Urbino, in the Papal States. Luca Signorelli was from Cortona, in Tuscany, but spent only a few years in Florence. Giovanni Bellini was from Venice and the leading figure of the Venetian school. Like Raphael, Michelangelo Buonarroti was from the Papal States. He moved to Florence as a young man and would return to it to work on several occasions, most famously to produce the statue of David, but did most of his painting in Rome, frescoing the walls and ceilings of the Sistine Chapel. Leonardo da Vinci was born near Florence and undertook his training there. However, he spent most of his career outside of Tuscany—in Milan, mainly, but also in Rome and France.

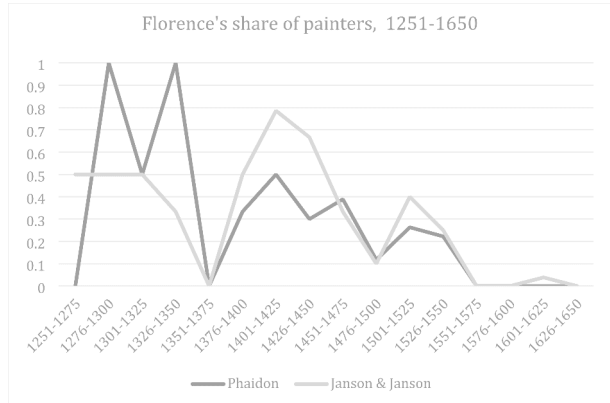
To quantify the decline of the Florentine school during the late Renaissance, we consulted two popular contemporary art history reference books: Janson and Janson (2001) and Phaidon (1997).⁴ We collected information for all painters mentioned in the two books identified as either active or as having turned 18 years of age between 1250 and 1650. We then determined whether each of the artists ever worked in the city of Florence, referred to broadly by us as “Florentine painters”. Figure 1 displays the absolute numbers of Florentine painters during the relevant period at 25-year intervals reported in one or the other reference book. The number of prominent artists born or active in Florence was at its highest throughout the fifteenth century, peaking in the middle of it, only to decline over the following century; only one Florentine painter is mentioned in either source after the year 1550. Figure 2 records the shares of Florentine artists represented amongst all painters mentioned

Fig. 1 Sources: Janson and Janson (2001) and Phaidon (1997)



⁴ We follow Galenson (2011) and Kelly and O’Hagan (2007) in relying on art history manuals as sources of quantitative evidence on the significance of an artist’s contributions. Janson and Janson (2001) is a popular college-level art history textbook, while Phaidon (1997) is a famous reference work focusing on 500 artists, including painters, from art’s history. In the appendix, we replicate the results from Figs. 1, 2, 3 and 4 with data from two other popular texts on the history of Western art: Gardner (1926) and Honour and Fleming (2010). Regardless of the source on which we rely, the picture remains the same: Florentine painters achieved prominence in the fourteenth century and maintained significant influence throughout the fifteenth, only to experience a drastic decline in the second half of the *Cinquecento*.

Fig. 2 Sources: Janson and Janson (2001) and Phaidon (1997)



in the two sources. Once again, we see a long period of over-sized Florentine prominence throughout the thirteenth, fourteenth, and fifteenth centuries, followed by a rapid decline—starting in the second half of the *Quattrocento*—resulting in the virtual disappearance of Florentine painters from art history after the year 1550.

Fig. 3 Population growth in Florence and the Italian Center-North, 14th-17th centuries. (Source: Malanima (1998))

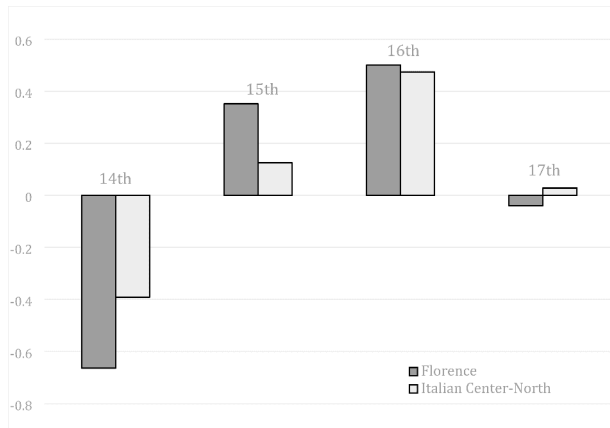
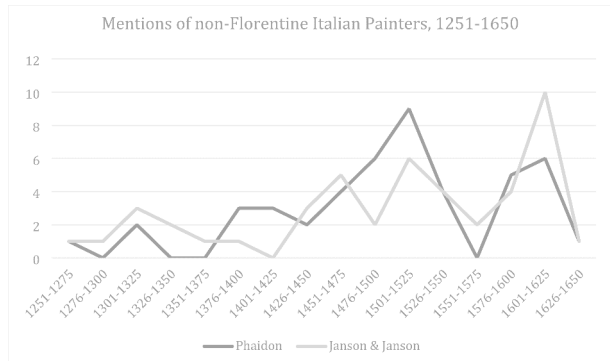


Fig. 4 Sources: Janson and Janson (2001) and Phaidon (1997)



3 Understanding the decline of the Florentine school

3.1 Competition and quality in art markets

A standard result from economic theory is that competition—on both sides of the market—guarantees maximization of the gains from trade: Competition ensures that commodities are supplied plentifully and cheaply—or at least as plentifully and as cheaply as is technologically feasible. The same argument has been extended to the market for artistic commodities, drawing causal links between competition and the quality and quantity of art in a specific historical setting. In his study of Baroque music in Baroque Italy and Germany, Vaubel (2005) identifies five channels through which competition encourages artistic achievement:⁵

1. Competition leads to higher rates of artistic production by preventing monopolistic price setting.
2. Competition on the demand side raises the “income and prestige of suppliers” of artistic commodities and attracts talented individuals into the industry.
3. Competition means more freedom to innovate.
4. Competition between independent artists with different sensibilities and backgrounds fosters more experimentation.
5. The existence of many competing suppliers facilitates learning, comparisons, and innovation.

Restrictions limiting the competitive pressures faced by sellers and buyers in the art market weaken the channels identified by Vaubel and, thus, reduce the quantity of art produced, its quality, and possibly both. Whether it is exercised on the demand side or the supply side of the market, market power redistributes surplus at the cost of reducing the overall volume of trade, which generates a deadweight loss. Systematic evidence of the deleterious effects of market power in art markets are limited.⁶ The best such evidence comes from Etro, Marchesi and Stepanova (2020), who study the liberalization of art exhibitions in late nineteenth-century France. Until 1880, the Paris Salon constituted a *de facto* public monopoly with respect to exhibitions of the French visual arts. That year, the newly established Republican government adopted a more open approach. The liberal policy reform launched the impressionist movement in the visual arts, a highly significant development in the history of modern art. The prices of impressionist paintings more than tripled in just two decades, while those of paintings from artists that had benefited from the Salon’s monopoly fell by more than 20% (Etro, Marchesi and Stepanova 2020, p. 12). More informally, Sullivan and Pry (1991) argue that the Licensing Act introduced by the English Parliament in 1737 created a cartel on the supply side of the market for playwrights, following which “the quality of playwriting and [theater] performances suffered” (Sullivan and Pry 1991, p. 47).

⁵ In his article, Vaubel (2005) focuses mainly on the demand side of the market. He also identifies a sixth channel, which applies explicitly to competition between jurisdictions. In a more fragmented polity, rulers are constrained in their ability to raise taxes, leaving the wealthy with more income available to patronize the arts.

⁶ As opposed to evidence that competition has beneficial effects in the same markets, which is indirect evidence of the negative consequences of its absence.

Similarly, Cowen (2009, p. 41) explain the cultural decline of the Soviet Union by connecting it to the centralized—and state-controlled—nature of demand.

3.2 Restrictions on competition in late Renaissance Florence

3.2.1 The rise of the Medici monopsony and its consequences

Throughout the fourteenth and fifteenth centuries, competition between Florentine patrons of the arts for the services of the city's painters was fierce. Nelson and Zeckhauser (2014) attribute rising competition to the growth in popularity of private chapels in the late Middle Ages. Private chapels emerged as a clever institutional means of funding the construction of new churches or the restoration and expansion of old ones. A religious order would auction space along the walls of a church to members of “the new class of extremely wealthy and status-conscious merchants” that was emerging in Florence (Nelson and Zeckhauser 2014, p. 115). In exchange for monetary contributions, benefactors obtained *Ius Patronatus*, or de facto ownership, over the spaces, which then could serve as places for special celebrations like funerals and ceremonial masses. Within the limits set by custom and tradition, benefactors could—and in many cases were required contractually to (Nelson and Zeckhauser 2014, p. 122)—embellish their chapels as they pleased with statues, altarpieces, or frescoes. The privatization scheme lasted from the end of the thirteenth to the first few decades of the sixteenth century. During that period, hundreds of de facto owners of Florence's private chapels competed against one another for the scarce time budgets of the most prestigious local artists. However, it all came to an end with the final ascent of the Medici family to the commanding heights of Florentine politics.

The Medici family immigrated to Florence from Northern Italy in the early thirteenth century. Owing to its involvement in the banking industry, it accumulated significant wealth rapidly and emerged as a leading clan in Florentine politics and society (Schevill 1936; Hollingsworth 2019). It was not until following the political unrest in Florence and the black death in the mid-14th century that the Medici family began to make significant progress towards seizing local power. A critical step in that transition was the appointment of the Medici as papal bankers in 1420, which earned them a very powerful and influential ally. Fourteen years later, Cosimo De Medici, the family's leader, executed a ‘coup’ following his exile from Florence, thus establishing his clan as the firm holder of the city's power (Hollingsworth 2019, p. 102). Cosimo I ruled Florence with an iron fist and for the most part subverted the republican ideals that had been the pride of the city. With few exceptions, most prominently the brief republican revival at the turn of the sixteenth century, Cosimo's heirs reigned over Florence and Tuscany into the eighteenth century.

A significant contributor to the history of Florentine art is the direct relationship between its most outstanding artists and their funding from the Medici family. That relationship had begun before the rise of Cosimo I, but certainly was reinforced by it. Between his reign and that of Cosimo II in the early seventeenth century, the Medici family funded the works of all of the city's major artists, from Botticelli to Raphael, from Leonardo da Vinci to Michelangelo (Darr 2002). The Medici family's role as patrons of the arts was central to its strategy of building consent and reinforcing the clan's domestic and international status (Darr 2002; Nelson and Zeckhauser 2014). Other scholars have argued that, at least initially, Medici patronage was explained by Cosimo's religiosity (Hollingsworth 2019, p. 188). Although

the reasons for art patronage likely shifted over time, a consensus exists among historians that by the fifteenth century, the Medicis had emerged as the primary source of demand for the services of local artists (Elam 2012, p. 214). So significant was that role that, at times, the family's finances were strained (Hollingsworth 2019, p. 169).

Owen (1977) describes the evolution of the demand for paintings in Florence and its territories over the Renaissance as consisting of two stages. The first stage, which began at the height of Giotto's popularity in the early 1300s, was characterized by competition on the demand side between the members of Florence's oligarchy. Over time, however, and especially during the second half of the 1400s, the Medici family became more influential in the local market, just as its members ascended to dominate Florentine politics. By the 1450s, Pope Pius II referred to Cosimo de' Medici as "King [of Florence] in everything but name" (quoted in Owen 1977, p. 40). From then on, political power in Tuscany would be the purview of Cosimo and his heirs, with a brief Republican intermission at the turn of the century. Along with the Medici's political ascent came their dominance in matters of art. The once competitive demand for paintings, which had turned into an oligopsony in the late fourteenth century, now effectively was a Medicean monopsony (Owen 1977, p. 43).

No respectable member of the Florentine school in the fifteenth century had not worked for a member of the Medici family or the Florentine government under its control. Thus, at some point over the same period, the Medici extended their patronage to the likes of Filippo Lippi, Fra Angelico, Paolo Uccello, Verrocchio, il Pollaiuolo, Benozzo Gozzoli, Botticelli, Ghirlandaio, and Pietro Perugino (O'Malley 2013). The magnitude of the Medici's market patronage cannot be overstated. According to one calculation, Cosimo spent more than 600,000 florins on works of art (Owen 1977, p. 41). That figure exceeds by 300 the price of the most expensive painting produced in the entire *Quattrocento* and is more than 8,000 times larger than the price of the median painting during the same period (Etro 2018). Even those figures fail to capture fully the extent of the Medici's influence on the primary market for paintings. They provided scholarships for young, talented artists like Michelangelo and served as intermediaries between local painters and other patrons, and not just in Florence. For instance, it was Lorenzo de' Medici who recommended four members of the Florentine School—Cosimo Rosselli, Domenico Ghirlandaio, Sandro Botticelli and Pietro Perugino—to Pope Sixtus IV for a cycle of frescoes that were to adorn the Sistine Chapel (O'Malley 2013).

While the Medici clan's influence on the demand for art was a function of its wealth and political prestige, it also was the result of likely self-interested public policy. Soon after the Medicean restoration in the 1530s, the Florentine government "began to exercise much greater control over local churches, specifically over the sale and decoration of their private chapels" (Nelson and Zeckhauser 2014, p. 114). Thus, what had been for centuries a major source of competition on the demand side of the market for paintings was now being regulated directly by one of the same market's main players.

Owen (1977) claims that the Medicean monopsony in the local art market had profound effects on the development of the Florentine school, especially in matters of style and subject matter. Because they controlled a considerable share of the demand for paintings, the Medici could exercise their market power over the production of those artworks. The family's influence could have taken the form of lower compensation for the artists. However, painters would have responded to lesser compensations by moving to the region's other art centers, thereby limiting the Medici's ability to reduce their compensations to a significant

degree. Instead, the family exercised its market power by dictating the content and characteristics of the painters' work. According to that argument, the Medici family members' aesthetic preferences for themes and ideas from Classical Antiquity—such as Greek mythology and Neo-Platonic thought—humanism, and rationalism came to influence the content of the paintings produced in Florence. Such influence is reflected in the domestic success of Botticelli, whose style and predisposition were better suited to Medicean aesthetics, as well as in the decision of Leonardo, whose work was not to the Medici's tastes, to leave Florence in [WHEN?] (Owen 1977, p. 45).

Changes in the structure of the demand side of an industry can affect that of the supply side of the same industry (Shughart 1997). In the case of the primary market for paintings in Renaissance Florence, the rise of the Medici clan as the dominant buyer would have generated incentives for local painters to form an oligopoly of their own.

A monopsony allows the buyer to impose losses on sellers. In effect, it reallocates property rights over sellers' surplus to the monopsonist (Barzel 1994). However, sellers do not have to suffer the loss passively. Just like automobile owners may take actions to mitigate the losses imposed on them by car thieves, sellers in monopsonistic markets face can capture considerable benefits from coordination. Specifically, sellers can reduce the share of their surplus that would be transferred to the buyer by forming an oligopoly—a coalition allowing all sellers to act in unison in dealing with the sole buyer. The benefits of sellers' coordination would be even greater if—as was likely the case in a market like that for painting commissions in Florence—the monopsonist potentially could engage in price discrimination.⁷

By coming together and forming an oligopoly, Florentine painters would have gained a significant advantage in dealing with the Medici monopsony. The formation of a sellers' oligopoly turns what had been a monopsony into a bilateral monopoly. Under a bilateral monopoly, sellers can capture a larger surplus than under monopsony conditions, and those gains will be even more significant if the monopsony can price discriminate (Bowley 1928; Blair et al. 1989). Suppose that the oligopoly can solve its collective action problem and commit its members to act in unison. If so, it can make the monopsonist an “all or nothing” offer: Either the monopsonist offers sellers compensation above the monopsonistic price, or they will refuse to supply their commodities altogether (Barzel 1994).⁸ Under those circumstances, assuming that the oligopolists' threat is credible, the monopsonist's optimal strategy is to concede (Blair et al. 1989). As long as the value of the concession exceeds the costs of coordinating and enforcing the oligopoly agreement, painters will take action and introduce institutions to that effect.

⁷ Price discrimination is feasible if (a) the buyer knows the elasticities of supply of the different sellers and (b) sellers cannot trade commission incomes amongst themselves. The latter condition undoubtedly was met in the Renaissance art market since commissions were painter-specific and could not be subcontracted to other, lower-cost painters. Regarding (a), the Medici would have been in good position to price-discriminate against local painters given that information relevant to their elasticities of supply—such as their skills and talent, reputation in other art markets, and incomes—would have been available readily to the rulers of Florence. It is worth pointing out that all major masters during the Renaissance employed other painters, generally young trainees and less talented artisans, to perform a variety of tasks from the grinding of colors to the painting of minor figures. For an economic analysis of this division of labor in painters' workshops, see Piano (2021).

⁸ The actual ability of the oligopoly to increase its share of the total surplus will depend on its bargaining power in dealing with the monopsonist.

Another factor facilitating the creation of a painting oligopoly in Florence would have been the effects of the rise of the Medici monopsony on buyer turnover (Shughart 1997). When suppliers face a monopsony, the rate of turnover on the market's demand side falls and so do the costs of enforcing a collusive agreement among sellers: Lower turnover reduces the information costs associated with the detection of cheating on the collusive agreement by one or more of the oligopolists, thereby facilitating coordination among sellers (Shughart 1997, p. 401).

To summarize, the rise of the Medici as the predominant buyer of art in Renaissance Florence would have raised the benefits of painters' coordination into an oligopoly to bargain more effectively for a larger share of the market surplus. Combined with the fall in decline in turnover on the demand side and the associated reduction in the costs of enforcing a collusive agreement, market dynamics would have made the emergence of a painters' oligopoly more likely. The same logic underlies the formation of players' unions in US professional sports (Barzel 1994) and the growth of labor unions in the public sector (Hall and Vanderporten 1977).

3.2.2 The oligopolization of the market for paintings in Florence

In late Medieval and Renaissance Florence, the law required any specialized worker to join a guild. Florentine guilds or *Arti* were divided between the richer and more powerful "major guilds" and the less influential "minor guilds" (Schevill 1936). Guild membership among the Florentines was exceptionally high (Staley 1906), an unsurprising fact since membership in a guild did not merely grant access to economic and social benefits (Brucker 2015), but was necessary to participate actively in the city's political process (Goldthwaite 2009, p. 346). The requirement of guild membership extended to artists as well. Thus, Dante Alighieri, poet, linguist, and polemicist, was himself a member of the *Arte dei Medici e Speciali*, the guild of physicians and pharmacists. By custom, sculptors would join the *Arte dei Maestri di Pietra e Legname*—the guild of stonemasons and woodworkers—while one would have found most painters among the members of the *Arte dei Medici e Speciali* (Staley 1906, p. 228). Nevertheless, painters represented just a small faction, with corresponding little influence, within their guild. Indeed, the guild did not enforce painters' membership requirements for most of its history (Wackernagel 1981, p. 302).

Marginalized by their fellow guild-men, Florentine painters formed their own professional association, the *Compagnia di San Luca*, in 1339. Like many other such groups, the *Compagnia* had started as a voluntary religious association. Over time, it served as a self-regulatory body for things like the training of apprentices (Etro 2018). Even such self-imposed regulations were seldom enforced (Goldthwaite 2009, p. 345). Most important, no evidence has been found that either the *Arte* or the *Compagnia* prevented foreign painters from doing business with local patrons or interfered with the commissioning process by setting formal prices and quality requirements. Florentine painters remained free of the regulations and interference with their business practices traditionally associated with medieval guilds.

The state of de facto *laissez-faire* came under attack in the last decades of the fifteenth century. In 1471, the *Compagnia* introduced a new set of rules regulating the arbitration of disputes between painters and patrons. Traditionally, if a patron was not satisfied with a master's final product, he could demand that it be examined by one or more experts, gener-

ally established masters themselves. Over time, that practice evolved into a formal institution known as *lodo*. We find explicit reference to it in commission contracts from the early fifteenth century.⁹ A commission contract would stipulate that, in case of disagreement over the value of a painting, the amount of final compensation to the painter would be decided by a jury, with each party selecting an equal number of its members. The jury would examine the final product thoroughly, assessing every aspect of the artwork, from the quality of the materials to the composition, use of colors, and overall appearance, and then determine a payment to the artist that could exceed or fall short of the original compensation. Some institutional patrons, who expected to award several commissions to various masters, developed in-house adjudication procedures over many years. For instance, the Florence Cathedral established in 1414 a committee of 25 Florentine painters. Nine of those painters would be selected and divided into three groups for each commission awarded by the Cathedral. Each group would set a compensation figure independently, and the average of the three would be paid to the commissioned artist (Thomas 1995, p. 192).

The regulations introduced in 1471 obligated Florentine painters and local patrons to entrust the adjudication of disputes to the *Compagnia*. Any adult member could be eligible to serve in a *borsa*. Every trimester, three names from the *borsa* would be extracted at random to serve as official adjudicators. The adjudicators would be called on to establish the value of commissions that had been disputed by either the painter or the commissioning patron. The latter would then have to pay a fraction of the final figure to the *Compagnia*, splitting the sum with the three adjudicators. To ensure compliance with the new regime, the *Compagnia* introduced penalties for painters who undertook evaluations without its approval (O'Malley 2005, p. 94) and anyone who refused to have a work assessed by its officials (Thomas 1995 p. 192). For instance, in 1460, Fra Filippo Lippi was threatened with expulsion from the *Compagnia* for his initial refusal to subject his *Death of Saint Jerome*, painted for the Cathedral of Prato, to official arbitration (Thomas 1995, p. 195).

Understandably, patrons would not have been happy with the arbitratio system. First of all, having monopolized the local market for dispute resolution, the *Compagnia* would have been tempted to inflate compensation awards—of which it received a share—above their “real” values to extract the largest possible rent from patrons. Moreover, corruption always was possible. its threat was only made more likely because local masters—though generally older and often retired—often were called to evaluate the work of their peers with whom they may have had close professional and personal ties. To mitigate that concern, the *Compagnia* adopted a policy against masters adjudicating their own disputes or those of business partners (Thomas 1995, p. 195). Nevertheless, the incentive to favor the painter over the patron was strong. If anything, one adjudicator could take his jury service as an opportunity to signal his goodwill in the hope that the beneficiary would reciprocate once his own turn came around.

The ability of established local painters to coordinate and control the supply side of the market strengthened throughout the sixteenth century and reached its apogee during the reorganization of the city's guild system in the 1560s. Thanks also to the influence of Giorgio Vasari on Grand Duke Cosimo, painters, sculptors and architects officially were freed from the requirement of enrolling in, and subjecting themselves to, the regulations of the other *Arti*. Instead, they created their own body—the *Accademia del Disegno*—modeled on the *Compagnia* (Hughes 1986; Jack 1976).

⁹ See contract #15 in the appendix to Piano and Piano (2021).

With the establishment of the *Accademia*, Florentine painters could exercise their new-found guild-like status to enforce their oligopoly and exert their market power more effectively. Borrowing directly from the institutional practices of Florence's traditional economic guilds, the *Accademia* elected its officials and regulated various aspects of its business practice (Hughes 1986, 3). Membership in the new organization was limited to the most talented Florentine architects, painters, and sculptors. Foreigners—including those living in Italian places not under Florence's direct jurisdiction—were not allowed to join the ranks of the *Accademia*.¹⁰ With membership came the right to elect, twice a year, the organization's officers, the most important of whom were the three consuls, one for each major art—architecture, sculpture, and painting. The superintendent of the *Accademia* was nominated by the Grand Duke of Florence himself.

With its incorporation by the government of Florence, the officers of the *Accademia* were empowered to adjudicate disputes between its members and their clients.¹¹ The painters' own representative—a consul of the *Accademia*—was charged with selecting jurors entrusted with evaluating the paintings produced by—and thus the compensation owed to—local artists doing business with local patrons (Hughes 1986, p. 8). Nor was the reach of the *Accademia*'s authority limited to domestic matters. Starting in 1602, Florence's government charged it with authority for regulating the importing and exporting of works of art (Jack 1976, p. 11).

The *Accademia* created a wide array of “selective incentives” to its members to facilitate collective action (Olson 1965). The incentives included mechanisms for resolving disputes between members, provision of educational services to its younger members, along with the social services generally associated with Medieval and Renaissance guilds like health-care, retirement funds, and care for a member's family in the event of his premature death (Hughes 1986, p. 4).

In many ways, the *Accademia* inherited the functions performed by the *Compagnia* over the course of the previous century. However, by assuming the responsibility of recruiting and educating young artists, it influenced the extent of competitiveness between Florentine painters through a new channel. Wannabe painters were required to join the organization at a very young age, preferably before they had turned 15 years old. They would then be required to take a series of courses—on such topics as human anatomy, design, and mathematics—taught by established academicians. Young painters also would need to bring their work to the *Accademia*'s monthly meetings, where it would be assessed by senior members, who would then provide feedback (Jack 1976, pp. 16–19). By exposing every young painter to the same painting philosophy—a philosophy that happened to coincide with that most favored by Vasari and the other founders of the *Accademia*—opportunities for experimentation and innovation would have been limited.¹²

¹⁰ According to Jack (1976, p. 12), the *Accademia* made “one exception” by allowing a group of six Venetian artists to join.

¹¹ Having been emancipated from the jurisdiction of other guilds, the decisions of the painters' courts could be reviewed and reversed only by the *Mercanzia*, Florence's supreme court for commercial affairs.

¹² A potential counterargument would be that the *Accademia* facilitated the transmission and adoption of new ideas and techniques by providing a place for artists to meet and share ideas. Yet, such an institution already existed in the *Compagnia* and painters had been copying each other and adapting their style to incorporate innovative techniques and styles for centuries. By increasing the degree of homogeneity among Florentine painters, the *Accademia* reduced the number of innovations to be transmitted and adopted in the first place.

One effect of the decades-long attempt by Florentine masters to regulate the domestic supply of paintings was the stifling of creativity and innovation amongst the new generations of local artists. According to Schevill (1936, p. 504) “[in Florence] a decline in the quality of the individuals electing to follow the arts had already set in by the turn of the [sixteenth] century.” That decline was exacerbated later that century by the policy of the *Accademia* grounded in its founder’s (Vasari’s) strong aesthetic preferences—that all young painters had to train in the tradition of da Vinci and Michelangelo (Jack 1976). Unsurprisingly, the new generations “fell under the spell of the two magicians [Leonardo and Michelangelo], and, gathering around their works, search[ed] them for the secrets of the power which they seemed to strike dumb whoever beheld them” (Schevill 1936, p. 511).

Those developments match the predictions of the model we outlined above closely. The Medici family did not gain control of Florentine politics overnight. Instead, its rise to power began in the middle of the fifteenth century, but it was not complete until a century later. During that period, the clan attained significant monopsony power in the market for paintings. The Medici’s monopsony had long-lasting consequences for the development of Florentine art (Owens 1977). Beforehand, Florentine painters had operated in a regime of de facto *laissez-faire*. They were content with membership in a guild that had no interest in regulating their business. The only professional organization for practitioners of the craft, the *Compagnia*, primarily had a Medici’s religious function.

Soon after the Medici’s initial rise, we observe the first efforts to facilitate artisanal collective action. In 1471, the *Compagnia* introduced a set of new regulations that gave its members a monopoly over the adjudication of disputes between painters and patrons. The Medici’s grip on Florentine politics was interrupted by two republican regimes, the first lasting from 1494 to 1512, the second from 1527 to 1530. Turbulences continued for several years, culminating with the assassination of Alessandro de’ Medici, the first Duke of Florence, in 1537. He was followed by Cosimo I, who would remain in power for more than years. Under Cosimo, the Medici regime achieved lasting stability. Under his rule, local painters led by Giorgio Vasari launched a campaign to obtain independence from the *Arte dei Medici e Speciali*. Those efforts resulted in the creation of the *Accademia* in the 1560s. That institution was granted pervasive powers to regulate the business of painting, from the training of young artists to the import of foreign artworks.

Painters could have tried to introduce the same institutions before the rise of the Medici, but for almost two centuries beyond Giotto’s revival of their craft, they opted not to or failed to do so successfully. According to our theory, the reason is simply that the benefits fell short of the costs of coordinating the efforts of dozens of painters with diverging interests. The rise of the Medici changed that calculus: Collective action would allow them to recapture some of the surplus appropriated by the Medici’s monopsony. The static effect of forming an oligopoly likely was beneficial to the painters. However, the dynamic consequence was to restrict entry, discourage innovation, and redirect promising young painters to Rome, Venice, or Bologna instead of Florence, ultimately contributing to the decline of its school.

4 Alternative explanations for Florence’s decline

Other factors may have contributed (and likely did contribute) to the decline of the Florentine school over the late fifteenth and sixteenth centuries. For instance, one could argue that

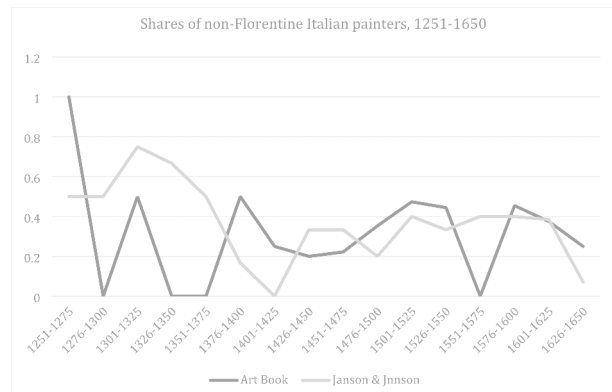
the Florentine school's decay resulted from the city's general economic and demographic decline. After all, Florence was embroiled directly in more than a century of armed conflict between all major European powers for control of Italy—the Lombardy Wars (1423–1454) and the Italian Wars (1494–1559). That almost uninterrupted state of war would have strained the economy and the finances of the Florentine state. Perhaps a poorer Florence became a less welcoming (and profitable) market for domestic and foreign painters.

That a bad economy is not a boomtime for painters is not surprising. After all, the number of Florentine painters dropped to zero in the decades immediately following the arrival of the Black Death in Italy in 1347 (Fig. 1). However, as the Florentine economy recovered over the following century, so did the local market for paintings. That observation suggests that even as severe a short-run economic shock as the halving of a city's population over the course of a few years does not necessarily have long-term consequences for the productivity of its creative sector. Moreover, the sixteenth century was not a time of economic contraction for Florence but rather its opposite. Figure 5, which plots data on urban population from Malanima (1998), shows that Florence's population grew faster than the rest of the Italian center-north in both the fifteenth and sixteenth centuries and indeed grew faster during the latter period than in the former, making it is unlikely that the decline of the Florentine school is explained by a lack of domestic economic opportunity.

If the decline of the Florentine school had been a consequence of Italy's economic and political obsolescence during and after the Italian Wars, we should expect not just the Florentine school but other Italian schools of painting to follow the same trajectory. However, as we show in Fig. 3, the absolute number of non-Florentine Italian painters mentioned by Janson and Janson (2001) expanded as that of Florentine ones collapsed. Figure 4 reveals a similar pattern when looking at shares rather than absolute numbers. Nor did the differential pattern emerge because of variations in economic performance. Figure 6 plots population growth in six major cities in the Italian center-north to document that, even as it suffered more of the consequences of the Black Death than any other city in the sample, Florence rebounded quickly and indeed outperformed all but one other (i.e., Venice) during the period of interest.

The evidence appears to reject the proposed alternative explanations. However, establishing our hypothesized causal link is exceedingly difficult for two reasons. First, the quality of the data and the nature of the relevant events prevent us from undertaking more

Fig. 5 Sources: Janson and Janson (2001) and Phaidon (1997)



advanced econometric analyses. Quantitative measures of market concentration and rent seeking on the part of Florentine painters are not available, and the changes we describe were not discrete but rather continuous over a time span of several decades. Second, similar developments took place across the region. Throughout the fifteenth and sixteenth centuries, the republican and quasi-democratic institutions of the communes gave way to the monarchical despotism of the *Signoria* model. Even where that model did not take hold, as in the Republic of Venice, political participation was restricted to a selected few. Similarly, organizations of artists, often influenced explicitly by the Florentine *Compagnia di San Luca* and *Accademia del Disegno*, mushroomed in the most significant urban centers of the Italian center-north (Dempsey 1980, p. 557). Nevertheless, the historical record provides evidence of crucial institutional variation, which we can leverage to evaluate the validity of our hypothesis. We will focus here on two cases: Those of the Bolognese and Venetian schools of painting.

Throughout the Renaissance, Bologna had been an important regional art center. However, it was well behind Florence, Venice, Rome, and even Perugia in terms of artistic national achievement. Local painters started to experience growing popularity in the sixteenth century, led by three brothers: Ludovico, Agostino, and Annibale Carracci. In 1598, Ludovico petitioned the Bolognese government successfully to emancipate local painters from the traditional guilds and allow them to start their own independent company, a feat they accomplished four years later (Dempsey 1980, p. 557). Unlike their Florentine counterparts, however, the Bolognese painters could not convince the local government to grant Carracci's *Accademia*, a legal monopoly over the affairs of local painters:

For whatever reason, the Carracci Academy never received official incorporation in the manner of the Academies of Florence and Rome, and, unlike those Academies, it did not long survive the death of its founders. (Dempsey 1980, p. 559)

The trajectory of the Bolognese school over the decades following Carracci's creation of it diverged sharply from the experiences of its Florentine contemporaries. Whereas the latter were decades into a decline characterized by an emphasis on the creative contribution of old masters like Raphael and Michelangelo, the painters in Bologna were experimenting and innovating with new styles and techniques, giving way to “[a] full reform of painting that was hailed in the seventeenth century as the salvation of art from a period of degradation”, a degradation that Ludovico Carracci himself attributed to the teachings of Vasari and of the Florentine school (Dempsey 1980, p. 559).

The experiences of the market for paintings in Venice over the sixteenth century also differed drastically from those in Florence. Unlike Perugia, the critical difference lay on the demand side. Whereas in Florence, wherein demand became less competitive over time, especially following the rise of the Medici, in Venice more buyers made their appearances in the primary market for paintings. The buyers were merchants who had accumulated great riches by participating in international trade and, thus, had been welcomed warmly by Venice's mercantile aristocracy (Berenson 1980, pp. 13–14). The tastes of those men in matters of art differed starkly from those of Venetian painters' more traditional customers—religious orders and the Republic's government. Most of the paintings commissioned by the latter were of either patriotic or religious subjects. The average member of the mercantile aristocracy “had as a rule very little personal religion, and consequently did not care for pictures that moved him to contrition or devotion” (Berenson 1980, p. 13): Portraits, paintings of mythological subjects, and landscapes were more to their taste.

The supply-side adjusted readily to the change in demand. Indeed, according to Berenson (1980, p. 14), the Venetian school, “alone among Italian schools, was ready to satisfy such a demand, and it thus became the first genuinely modern art.” What may have contributed to the ability of the supply side of the Venetian market for paintings to adapt so effectively to changes in demand was the absence of a local counterpart to Florence’s (and most other Italian art centers’) *Accademia*. Venice did not have a comparable institution until the second half of the eighteenth century, when the Republic’s Senate founded the *Accademia delle Belle Arti*. Like that of Perugia, and unlike that of Florence, Venice remained an innovative and vibrant school of painting and continued to produce some of the world’s greatest painters well after the end of the Renaissance. With few exceptions, almost all Italian painters among the most influential artists of the eighteenth century would have called Venice their home (Levey 1968).

5 Conclusions

In this paper, we provide further evidence supporting the argument that competition encourages the supply of masterpieces in markets for the arts (Vaubel 2005). Previous work has focused almost exclusively on showing that bursts of artistic excellence result from competitive pressures (Baumol and Baumol 1994, pp. 171–172). We show that the opposite also is true: The absence of competition is detrimental to the flourishing of high-quality art, and a weakening of competitive pressures may affect the ability of a cultural industry to produce masterpieces negatively. That, we argue, is what explains the decline of the once-dominant Florentine school of painting. Between the early 14th and the early 16th centuries, Florence was home to a significant share of the world’s greatest master painters—from Giotto to Masaccio, from Ghirlandaio to Botticelli. However, by the second half of the 1500s, the city was not producing or attracting very many exceptional artists anymore.

We attribute the decline of the Florentine school to changes in the industrial organization of both sides of the market for paintings. The rise of the Medici family as the rulers of Florence and Tuscany turned a once competitive demand side into a monopoly. That development, in turn, made the benefits of collusion on the supply side more attractive: By forming a cartel, Florentine painters could turn a monopoly into a bilateral monopoly from which they could recapture by way of bargaining some of the rents they had lost. To achieve that objective, they created novel institutions that facilitated coordination between members, the enforcement of cartel behavior, and the exclusion of competitors. In doing so, they may have salvaged some rents in the short run but reduced the incentive to innovate and experiment. Cartelization also encouraged young, enterprising painters (some of whom, in the past, would have moved to Florence to complete their training and start workshops) to take their brushes elsewhere. So, as the Florentine school declined in the sixteenth century, other Italian cities, like Bologna and Venice, continued to produce great and innovative painters for more than a century.

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