

(DE) FUNDING THE ARTS: EFFECTS ON CREATIVITY*

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FEBRUARY 9, 2023

How does public funding affect creative output in the arts? To answer this question, we exploit exogenous variation in exposure to public funding cuts due to Italy's unification in 1861. Using theater-level performance data as a measure of creativity, we find that theaters more exposed to cuts put on fewer shows, produced fewer new works, and shifted towards more popular forms of entertainment. The impact of cuts was more severe in areas with low income and smaller cities. In the long run, theaters more exposed to funding cuts were more likely to close or be replaced by movie theaters.

KEYWORDS: CREATIVITY, INNOVATION, AND PUBLIC FUNDING

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Public funding for the arts is a subject of intense debate. Proponents argue that “arts and culture policies and programs increase economic development in states by attracting businesses, creating new jobs, increasing tax revenues and promoting tourism” (NASAA 2017, p. 3). Supporting these claims, economic analyses have found that cultural amenities, such as music venues, museums, and theaters can help to grow local economies (Falk, Fritsch and Hebllich 2011; Diamond and Moretti 2021). Once established, creativity and innovation can be passed on across generations as young entrepreneurs learn from older generations in the same location (Guiso Pistaferri and Schivardi 2021). Thus, public investments in the arts can create enormous positive spillovers as a strategy to promote well-being and economic growth, revitalizing rural areas, cities, and populations struggling with poverty (NASAA 2017, p. 2).

Despite these benefits, the public good nature of the performing arts exposes theaters, museums, and other institutions to growing financial strain (Baumol and Bowen 1966, 161), increasing their dependence on public funding. For instance, today a large but declining share of funding for the arts, and especially for theaters, originates from municipal funds and other public sources. In the United States and Europe, theaters draw 53 and 41 percent, respectively, of their resources from state and federal sources (EU Report 2020). Yet, in a situation when every public dollar is competitive, lawmakers “may ask whether government has a legitimate role to play in the arts or whether the arts should receive funds when so many other critical needs are pressing” (NASAA 2017, p.1). This is especially salient when tax money supports arts that taxpayers may find offensive. In the United States, for example, public funding became more restricted after 1989, when public funding for two controversial artists, Robert Mapplethorpe and Andres Serrano, triggered widespread criticism of the National Endowment for the Arts (NEA). These debates culminated in the 1990 Williams/Coleman amendment (20 U.S.C. 954(d)1), requiring the NEA to consider “general standards of decency and respect for the diverse values and beliefs of the American public.”¹

With a decline in decline in public funding, theaters and other public institutions have become increasingly dependent on donations by wealthy patrons and ticket sales. This dependency, however,

¹ In 1989, the University of Pennsylvania used funding from the National Endowment for the Arts (NEA) to finance an exhibit including homoerotic photographs by Robert Mapplethorpe. In the same year, the Southeast Center for Contemporary Art used an NEA grant to support Andres Serrano, who had exhibited a photograph of a crucifix submerged in urine. Criticism over public funding for these artists culminated in the Supreme Court affirming these restrictions in 1989 in *National Endowment for the Arts v. Finley* 524 U.S.C. 569 (1998) arguing that, while “the First Amendment protects artists' rights to express themselves as indecently and disrespectfully as they like, [it] does not compel the Government to fund that speech.”

may discourage risk taking and motivate theaters perform safe bets that draw a crowd and satisfy donors, rather than taking the chance to innovate and explore. Institutions that serve poorer populations may be particularly vulnerable to these funding cuts because their donor base is less powerful.

Despite intense debates about public funding, there is little empirical evidence on the causal effects of government funding on creativity. This is due primarily to two empirical challenges. First, it is difficult to find plausibly exogenous variation in public funding in modern settings, when opponents of public funding argue that tax dollars tend to support the prominent urban institutions, which already have access to other types of support. Second, measuring the effects of public funding on creativity requires data on changes in creativity and the survival of public institutions in the long run, over decades, and such data lack in modern setting.

This paper uses an exogenous episode of cuts in public funding for the arts – as a result of Italy’s unification in the 1860s – to investigate the causal effects of changes in public funding on creativity, measured by the number and by the type (or genre) of performances in theaters. With the unification, the newly formed Kingdom of Italy inherited the crushing war debts that individual states had accumulated. Faced with this debt, Italy’s new central government abolished central funding for public theaters in 1867. Funding rules that had been established a century early determined the extent to which theaters depended on public funding, ranging from 5 to 87 percent of their endowment, and therefore their exposure to the funding cut. Importantly, variation in exposure across theaters was unrelated to the characteristics of individual theaters, including their size, age, or the type of programming they offered before the funding cuts.

Using performance data for all Italian theaters between 1859 and 1914, we establish three main results related to the number of performances, their quality, and the survival of the theater. First, we find that the funding cuts decreased the quantity of theater performances. A 10-percent increase in exposure to the cuts in public funding was associated with an 8.2 percent decline in the number of total performances (with an estimate of 0.7 in Table 2, column 1, relative to a mean of 86.5 performances in 1866).

Second, we show that funding cuts impacted the novelty and genre of programming at theaters affected by cuts. A 10-percent increase in funding cuts reduced the share of premieres – first performances of new works – by 31 percent and lowered the share of new productions by 17 percent. After the funding cuts, theaters shifted to showing repertory work, repeat performances of existing

productions: A 10 percent increase in exposure to funding cut is associated with a 48 percent increase in repertory work. Theaters that suffered severe cuts also shifted their productions from high-brow pieces (including operas and *operettas*) to lighter fare (*commedia dell'arte*). For each 10-percent cut in funding, the share of operas and operettas declined by 36 and 18 percent respectively while that of *commedia dell'arte* increased by 42 percent.

To investigate the timing of these shifts, we exploit the long run nature of our data, which cover performances for more than 50 years, from 1859 to 1913. Importantly, time-varying estimates reveal no differences in performances across theaters in years leading up to the funding cuts. Following the cuts, however, exposed theaters experienced a persistent change in the quantity and quality of creative output. Total productions declined by 29 percent for each additional 10-percent cut within a year relative to performances in 1866, the last year before the cuts. After this initial decline, performances recovered only slowly and incompletely. As late as 1913, the last year before World War I, a 10-percent increase in exposure was associated with a 5.8 percent reduction in performances.

Third, we find that cuts in public funding increased theaters' vulnerability to closure. Each additional 10-percent cut in funding was associated with a 17-percent increase in the probability an affected theater would close. Theaters that suffered larger funding cuts were also more likely to shift from staging live performances to transforming their core business to movie viewing.

Finally, we examine whether the funding cuts created a differential impact outside of wealthy urban centers. The positive spillovers of the performing arts as amenities may be particularly important in these areas which tend to offer fewer amenities. Yet, theaters and other institutions may also be more vulnerable to funding cuts because, serving poorer populations, they get less money from donations and from ticket sales. We find that theaters in provinces with lower GDP per capita or in smaller cities experienced a more dramatic decline in theater performances.

Our findings contribute to two major strands of the literature. First, we contribute to analyses of the determinants of creativity and innovation, and more specifically, to the role of public funding in encouraging innovation (e.g., Hall and Lerner 2010). Using data on applications to the US Department of Energy Small Business Innovation Research (SBIR) program, Howell (2017) finds that grants have large effects on the innovative, financial, and commercial success of small firms. Azoulay, Zivin, Li, and Sampat (2018) show that a \$10 million boost in National Institutes of Health (NIH) funding is associated with a net increase of 2.7 patents in biotechnology. Myers (2020) documents that it takes a large amount of NIH money to motivate scientists to change the direction of their research, because the

costs of switching one's research agenda are high. Our research extends these analyses to the arts, which have been particularly affected by funding cuts because of the COVID-19 pandemic. Compared with science we find much larger effects for the arts, and we document that funding cuts create a large and persistent decline in the creation of new works.

Second, our findings contribute to a growing field of economic analyses of the arts (e.g., Borowieki 2022; Giorcelli and Moser 2020; Kruger 2019; Aguiar and Waldfogel 2018; Hendricks and Sorensen 2009), reaching back to Rosen (1981) and Baumol and Bowen (1966). While recent analyses have focused on the for-profit segment of the industry, our findings highlight the impact of funding cuts on public institutions. Outlining the fundamental economic characteristics of nonprofits in the performing arts, Baumol and Bowen (1966, p. 497) argue that they are “by their very nature designed to keep constantly on the brink of financial catastrophe” because “the quality of the services which it provides becomes an end in itself.” Our findings suggest that being “on the brink of financial catastrophe” may undermine the mission to encourage creativity.

I. FUNDING CUTS FOLLOWING ITALY'S UNIFICATION

In Italy, the origins of public theaters reach back to the 17th century when the Teatro San Cassiano in Venice in 1637 and the Teatro del Falcone in Genoa in 1652 opened their doors to a paying public (Bassi 2000, p.21). Until that time, theaters were privately owned by kings and nobles, and only their personal guests had access to performances. Demand for entertainment fueled a rapid expansion of the theater industry. By 1700, around 200 theaters operated in Italy; by 1800 their number had increased to more than 1,000.

Different genres evolved to serve the heterogenous audience for entertainment. Operas and concerti were the most demanding of the performers, the theaters, and their audience. Performers had to have a minimum level of skills to make their voices heard through the entire hall, and theaters had to design and construct the stage and costumes. New works were most appreciated by an audience who was already familiar with much of the existing work and willing to commit to long performances (Pirota 1955, p.82). By contrast, *commedia dell'arte* required less skills from actors (who could use masks to represent their characters) and little to no costs for setting the stage. For the audience, *commedia dell'arte* offered more accessible, light-hearted entertainment (Pirota 1955, p.83).

As the industry developed, each theater became professionally managed by an *impresario* (Bassi 2000, p.26). Within a given budget, the *impresario* chose the works to be performed and

managed the creative process. In the early years of public performances, when production costs were still relatively small, theaters could cover them through ticket sales. Yet, with the increasing complexity of performances in the 18th century, theaters became increasingly dependent on external funding to supplement income from ticket sales (Draghi 2001, p.29).

External funding came from three major sources: First, many theaters received a substantial portion of their funding from the local government, to help compensate for the elevated costs of providing the public service of performing (Bassi 2000, p.26). These funds, set at the time of theater opening, were renewed every five years, and remained substantially unchanged until Italy's unification in 1866 (Draghi 2001, p.31).

Second, theaters received additional revenue from the sale of concessions to sell coffee and food, rent wardrobes, and run the gambling operations that accompanied many shows (Mattiello 2012, p.36). Third, theaters entered private contracts with wealthy families, the *palchettisti*, who paid an annual fee in exchange for the right to attend all performances. Often their privileges included special seats, which families came to treat like personal property, passing them down through generations (Draghi 2001, p.30). Most of these contracts were signed in the early 18th century and changed very little over time.

In 1861 the Kingdom of Italy unified nearly all Italian states.² To improve its standing with other nations, the country's new central government committed almost immediately to repay the debts of Italy's pre-unitarian states. This decision placed great strain on the nation's public expenditures, further exacerbated by the Third Independence War in 1866. To assess the economic, social, and cultural situation of the peninsula, the national government sponsored in-depth analyses of specific industries, including the performing arts. In Spring 1866, the Minister of the Interior ordered local county heads (*prefetti*) to prepare a survey of all the 1,132 Italian theaters.³ For each theater, the *prefetti* were required to record the year when it was founded, its precise location, the theater's total capacity (including seats and standing room), the theater manager, their annual endowment coming from private and public sources (*dote*), and the state of the building.

² The following territories became part of Italy after 1861: Veneto (annexed in 1866, with the end of the Third Independence War), the city of Rome (conquered in 1870), and Trentino Alto-Adige and Friuli-Venezia Giulia (annexed in 1919, after World War One).

³ Archivio Centrale dello Stato, Ministero dell'Agricoltura, Industria e Commercio, Div. III, Diritti d'autore, Opere teatrali, b. 1, fasc. 1 "Circolare 31 marzo 1866, n. 2587. Elenco dei teatri nelle diverse provincie".

Given the new country's massive burden of debt, funding more than 1,100 theaters became impossible. When the new country faced additional expenses to move its capital from Turin to Florence as defense spending exploded to finance the Third War of Independence in 1866, funding for public theaters had to be cut, despite a public outcry and political debate. Senator Lazzaro expressed a key concern: Theaters would have a hard time to identify alternative sources of funding, forcing them to close: "How can we, at this time, further aggravate the burden of these theaters by asking them to find their own funding? Given the circumstances we are in it is the same as saying: shut down your theaters!"⁴ Despite these criticisms, Italy's central government recused itself from funding public theaters, and in 1867 theater funding disappeared from the government budget (Nicolodi 1987, pp. 258-270).

The withdrawal of public funding affected even prominent theaters like Milan's Teatro Alla Scala or the Teatro Carlo Felice in Venice. La Fenice was forced to cancel its Carnival season – the main season for opera – for five years between 1872 and 1897 after budget cuts had reduced the theater to a "precarious state."⁵ Following a dispute with the major in 1877, the Teatro la Pergola in Firenze suffered major cuts "that marked the start of a miserable life."⁶ Similarly, the Teatro Carlo Felice in Genova was forced to close its doors for 4 years between 1879 and 1883 and lost its famous orchestra (Bianconi and Pestelli 1987, pp.169-70).

In 1883, the *Gazzetta Musicale di Milano* deplored that nothing had been done to support music since the Unification ("Da che si è costituito il Regno d'Italia nulla si è fatto per la musica").⁷ In a letter to his friend Giuseppe Piroli, Giuseppe Verdi condemned the damage that these cuts had inflicted on Italy's cultural scene arguing that "Our music, distinctly from Germany's, which could survive in symphony halls and the lodgings of the private quartets, relies on the theater as its principal home."⁸ In the same year, Verdi wrote to the Minister Baccelli and asked for "government protection, specifically

⁴ Author translation from the Italian: "Oggi, infatti, come possiamo aggravare questi teatri delle spese per il loro finanziamento? Oggi sarebbe lo stesso che dire: chiudete questi teatri!" (AAPP, CD, legislature X, Sessione I 1867, Discussioni, Discussione del bilancio del Dicastero dell'Interno pel 1867, p.1388).

⁵ "si ridusse ad uno stato di precarietà" (Bianconi and Pistelli 1987, p. 170)

⁶ "si incamminò verso una vita di stenti" (Bianconi and Pistelli 1987, p. 169).

⁷ Giulio Ricordi, Musica e politica, "Gazzetta Musicale di Milano", XXVII, 13 maggio 1883, p.181.

⁸ «La nostra musica a differenza della tedesca che può vivere nelle sale con le sinfonie, negli appartamenti coi Quartetti, la nostra, dico, ha il suo seggio principale nel teatro» (Carteggi verdiani, a cura di A. Luzio, 3° e 4° vol., Accademia nazionale dei Lincei, Roma 1947).

dote to theaters and not taxes”, adding that “in the current conditions of all the theaters, the poor impresari cannot meet the needs of the artists and of the audience.”⁹

II. DATA

To examine the effects of budget cuts on the arts, we have collected data on theaters, their funding sources, and their performances from primary sources. Specifically, we collected data on years of operation, sources of funding and all performances between 1859 and 1913 at all 1,132 publicly funded theaters in Italy that were in operation in 1866.

Theaters and Their Endowments

First, we collected data on the population of Italian theaters in 1866 from a survey on theaters, the “Circolare 31 marzo 1866, n. 2587. Elenco dei teatri nelle diverse provincie,” commissioned by Italy’s Ministry of Interior. For each publicly funded theater, we know when and where it was founded, its total capacity (including seats and standing room), the name of the theater manager (*impresario*), the annual endowment (*dote*) and the state of the building. For publicly funded theaters, we also know the amount of *dote* from public funding, donations, subscriptions, other ticket sales, and concessions for coffee, food, wardrobes, and gambling.

The entry for the Teatro Regio in Turin, for example, reports that it was founded in 1740 by Carlo Emanuele III King of Savoy, and had capacity for 450 people, including 290 in the seated audience and 160 in standing room. In 1866, 60 percent of the Regio’s *dote* (set at the time of its founding in 1740) came from the federal government, 30 percent from subscription tickets by wealthy families (*palchettisti*), and 10 percent from the sale of concessions for coffee and gambling.

In total the Circolare lists 1,164 publicly funded theaters across all of Italy in 1866. Opening years range from 1637 (for the Teatro San Cassiano) and 1652 (the Teatro del Falcone in Genoa), to 1814 for the Teatro Toniolo in Venezia. Most theaters, however, opened in the mid-18th century, with an average opening year of 1733.

⁹ “Protezione del governo, cioè Dote ai teatri e non imposte! Nelle condizioni che si trovano attualmente i teatri di ogni genere, i poveri impresario non possono far fronte alle esigenze degli artisti e del pubblico” (Carteggi verdiani, a cura di A. Luzio, 3° e 4° vol., Accademia nazionale dei Lincei, Roma 1947).

For all theater, the composition of the *dote* was set in the opening year and remained unchanged until 1866. The share of public funding ranges from 5.2 percent to 86.9 percent (Figure 1), with an average of 44.3 percent, a standard deviation of 15.2, and a median of 44.4 percent.

Performance Data as a Measure of Creative Output

To measure differences in creative output across theaters and over time we collected detailed data on performances at all Italian theaters from annual reports of Italian theaters, the *Annuario Teatrale Italiano* (Ministero degli Interni, 1859-1882) and the *Annuario dello Spettacolo* (Società Italiana degli Autori ed Editori, 1883-1913).

For each theater, we know the total number of performances, premieres, new productions, and repertory works per year between 1859 and 1913. The Teatro Regio in Turin, for example, staged a total of 233 pieces in 1896, including 5 premieres, 50 new productions of existing works, and 15 revivals. *Premieres* capture the first performance of a new composition. For example, Giacomo Puccini's opera *La Bohème* was a premiere at the Teatro Regio in Turin on 1 February 1896. On March 14, 1897, the Teatro di San Carlo staged its own production of *La Bohème*; it enters our data as a *new production* at that theater in 1897. In 1897, the Teatro Regio performed *La Bohème* again with the original staging; this enters our data as a *revival*.

Before the funding cuts, between 1859 and 1866, 1,164 theaters produced an average of 98.5 performances per year (Table 1). Among these performances, 13.7 percent were *premieres*, 18.4 percent new productions, and 67.9 percent were repertory works. Separating genres, we find that 69.4 percent of performances were *commedia dell'arte*, followed by concerti (14.9 percent), operas (9.1 percent) and operettas (6.6 percent).

In addition to changes in the quantity and quality of performances, we observe whether theaters survived in their original function, or whether they were replaced by a movie theater (without live performances) after 1900. For instance, the Teatro Sacro Cuore in Modena, opened in 1776 and permanently closed in 1880, while Teatro Spazio Bixio in Vicenza, in operation since 1709 was replaced by a movie theater in 1902.

III. EFFECTS OF FUNDING CUT ON PERFORMANCES AND SURVIVAL

Encouraging creativity is a major motivation for public funding for the arts (NAAPPD 1990), yet there is little empirical evidence on the causal effects of public funding on creative output in the arts. Here,

we provide such evidence by exploiting exogenous variation in exposure to funding cuts after Italy’s unification. We examine the effects of funding cuts on the quantity and quality of performances, and on the survival of theaters and we investigate heterogeneous effects on populations living with less income and in smaller cities.

Identification Strategy

To estimate the causal effects of public funding on the arts we exploit quasi-experimental variation in cuts due to Italy’s unification in 1861. Publicly funded theaters drew their endowment (*dote*) from three major sources: 1) public funding from their municipality, 2) ticket sales, subscriptions, and donations from wealthy patrons, and 3) income from the sale of concessions for coffee, food, and gambling. Like theaters today, public funding represented the major source of income for theaters, around 58 percent on average, compared with 53 and 41 percent in the United States and Europe in 2020.

The share of public funding in the theater’s total *dote* remained stable between the 1750s and 1866 but dramatically declined in 1867 (Figure 1, Panel A, using 1866, the last year before the funding cuts, as a baseline). This decline persisted until WWI. Cuts in 1867 eliminated public funding but left intact all other sources, creating significant variation in exposure (Figure 1, Panel B). Across theaters, exposure ranged from 0 to 85 percent, with a median of 44.20 percent, an average of 44.47 percent, and a standard deviation of 15.12.

To estimate the causal effects of cuts in public funding on creativity, we compare changes in various measures of creative output across theaters that were differentially exposed to funding cuts:

$$creative\ output_{ict} = \alpha \cdot funding\ cut_i + \beta \cdot (funding\ cut_i \times post_{it}) + \lambda_c + \delta_t + \varepsilon_{ict} \quad (1)$$

where *creative output*_{ict} measures changes in the number productions of theater *i* in city *c* in year *t* between 1859 and 1913. The variable *funding cut*_{*i*} is the share of funding that theater *i* received from its municipality (and not from subscriptions and donations). The indicator *post*_{*it*} equals 1 starting in 1867 when funding for public theaters was cut. α is a constant. City fixed effects λ_c control for variation in creative output across cities, e.g., if cities with higher average income or a lively cultural scene may create more performances. Year fixed effects δ_t control for changes in creative output over

time that is shared across theaters, for example, because of secular changes in tastes that are shared across Italy. ε_{ict} is an error term at the level of theaters.

Under the identification assumption that, without the funding cut, creative output would have been on the same trend across public theaters that were more or less affected by the cut, the coefficient β estimates the causal effects of reduced funding on creative output.

Tests of the Identification Assumption

To investigate the identification assumption, we first check whether the share of public funding in a theater's endowment varies across different types of theaters and cities (Table 2). Reassuringly, there is no observable correlation between measures for the size of theaters (such as the total number of seats and standing room tickets), or city size and the share of public funding in the endowment. Moreover, measures of theater output before the funding cuts (including the total number of performances, premieres, new productions, repertory works) with exposure to the funding cuts.

Second, we test whether theaters with different share of public funding were on similar time trends in terms of their creative output before 1867. First, we estimate a linear pre-trend for total productions, premieres, new productions, and repertory work for years between 1859 to 1867, interacted with the share of public funding in a theater's endowment. In these regressions, estimated coefficients are never significantly different from zero (Appendix Table A1, Panel A, columns 1, 3, 5 and 7), and all results are robust to controlling for year fixed effects (Appendix Table A1, Panel A, columns 2, 4, 6, and 8). We also estimate a year-specific time trend interacted with the share of public funding in the endowment for 1859-66. None of the annual year-specific coefficients estimated are statistically significant (Appendix Table A1, Panel B), and we fail to reject the hypothesis that all the coefficients are jointly equal to zero.

Finally, we show that the composition of theater funding did not change after 1867 (Figure A2). The share of private funding in total funding remains substantially constant in terms of both the yearly average and the variance between 1867 and 1913. This indicates that theaters were unable to replace public funding with private resources, leaving them fully exposed to the impact of the cut.

Cuts in Public Funding Reduced the Number of Performances

First, we investigate whether funding cuts reduced the number of performances at theaters that remained in operation between 1859 and 1913. Estimating equation (1) with the count of performances

as the outcome variable indicates that an additional 10-percent funding cut reduced the number of productions by 7.1 per theater and year (Table 2, column 1, significant at 1 percent). Compared with a mean of 86.5 productions in 1866, this implies an 8.2-percent decline in productions for each additional 10-percent decline in funding. For theaters that experienced the average decline in public funding of 44.2, this implies a 36.24 percent decline in total productions.

To investigate the timing of these changes, we exploit the long-run nature of our data and re-estimate equation (1) with year-specific interaction terms with *funding cuts*:

$$creative\ output_{ict} = \sum \beta_r \cdot (funding\ cut_i \times year_r) + \alpha \cdot funding\ cut_i + \lambda_c + \delta_t + \varepsilon_{ict} \quad (2)$$

where the variable *year_r* indicates years between 1859 and 1914, and 1859 is the excluded year. λ_c are city fixed effects. δ_t are year fixed effects.

Time-varying estimates show that funding cuts led to a long-lasting effect on theater productions (Figure 2, Panel A). After the cuts, the number of performances fell by 2.2 performances for each additional 10-percent decline in funding in 1867. After that, performances recovered slowly, without, however, recovering fully to their pre-1867 levels (Figure 2, Panel A).

Cuts in Public Funding Reduced the Novelty of Performances

This decline in public funding changed the nature of the repertoire at public theaters, significantly reducing the novelty of productions, measured by the share of premieres among all performances.

Estimating equations (1) and (2) with premieres as the outcome variables shows a large and persistent decline in premieres. For each 10-percent decline in public funding, the share of *premieres* among total productions declined by 30.6 percent (Table 2, column 3, significant at 1 percent). In absolute terms, for each 10-percent cut in funding, the average public theater produced 0.9 fewer premieres per year (Table 2, column 2, significant at 1 percent). Compared to the 1866 mean of 21.2 premieres per theater and year, this implies a 4.2 percent decline in premieres. For theaters that experienced average declines in public funding of 44.2, this implies a 13.53 percent decline in total productions. Time-varying estimates indicate that this decline persisted until the end of our sample in 1913 (Figure 2, Panel B).

In addition to a decline in premieres, the funding cuts also led to a decline in new productions of existing compositions. After the funding cuts, new productions declined by 17.2 percent (Table 2,

column 5, significant at 1 percent). In absolute terms, cutting the budget by 10-percent reduced new productions by 0.51 per year (Table 3, column 4, significant at 1 percent). Compared with the 1866 mean of 13.0 new productions per theater and year, this implies a 3.9 percent decline.

Instead of showcasing new compositions or productions, theaters shifted towards repertory works - reruns of existing production of existing compositions. These performances were the least creative, but also the cheapest to produce because they cut payments to composers and stage design, as well as materials for staging and costumes. Even though repertory works declined in absolute terms (Table 2, column 6, significant at 1 percent), their share increased by 47.8 percent (Table 2, column 7, significant at 1 percent). Results are robust to controlling for theater fixed effects (Appendix Table A2).

Finally, we investigate whether funding cuts affected the genre of works that a theater produced. To perform this analysis, we estimate equation (1) across genres, distinguishing operas, operettas, and concerti, from *commedia dell'arte*, as the most popular form of entertainment. These estimates show that the funding cuts shifted performances from operas towards more popular works. A 10-percent cut in funding in 1867 was associated with a 35.7 percent decline in the share of operas after 1867, and a 41.8 percent increase in the *share of commedia dell'arte* increased (Appendix Table A3, columns 2 and 8, significant at 1 percent). All results are robust to controlling for theater fixed effects (Appendix Table A4).

Theaters that were More Affected by Funding Cuts were More Likely to Close

At the intensive margin, theaters that remained in operation responded to cuts in public funding by reducing the quantity and novelty of their performances. In addition to these changes, funding cuts may have affected theaters at the extensive margin, forcing them to shut down. To investigate this channel, we estimate equation (1) using the probability of shutting down between 1867 and 1913 as dependent variable. Estimates from a probit model indicate that an additional 10-percent funding cut increased a theater's risk of failure by 17 percent (Table 3, column 1).

In addition to closures, the loss of funding also appears to have encouraged theaters to move their operations away from live performances and towards the medium of film. Italy's first movie theater opened in Genova in May 1896. By 1910, 250 cities had opened a movie theater, and by 1913, the last year before World War II, 313 cities had a movie theater. While some new theaters used new construction, most movie theaters replaced an existing theater that had previously staged live performances.

Did funding cuts make theaters more vulnerable to conversion? We find that, conditional on surviving, theaters suffering larger funding cut were more likely to be replaced by movie theaters after 1900. A 10-percent larger funding cut increases the probability of becoming a movie theater by 24 percent (Table 3, column 3). These results complement findings on changes in the quality of productions at the intensive margin. Even though movies were a novel medium of entertainment, they repeated existing content, without requiring significant creative input from the theater.

Heterogeneous Effects by Income per Capita and City Size

For underserved rural areas, arts can help improve residents' quality of life, diversify employment, and mitigate population flight (NASAA 2017, p.14.). In cities "(t)he arts are unique in their ability to revitalize rundown sections" (Federal Reserve Bank of Atlanta 2015). Yet, these areas may also be more vulnerable to cuts in public funding because they have worse access to private donations and ticket sales.

To better understand these heterogeneous effects of funding cuts, we estimate equation (1) by tertiles of the distribution of income per capita at the province level and by city population in 1861. We measure province income per capita using estimates from Felice and Vecchi (2015),¹⁰ and city population from the first census organized by the Italian government, the Population Census of 1861.

Consistent with a disproportionate effect of funding cuts on lower-income regions, we find that theaters in the bottom tertile of GDP in 1861 experienced the most dramatic decline in the creation of new works across all measures. Theaters in the bottom tertile of income per capita lose 1.12 performances per year for each 10 percent loss in funding, more than 7 times more than theaters in the top tertile who just lose 0.16 (Appendix Table A5, column 1, significant at 1 percent). Similarly, theaters in the bottom tertile lose a much larger share of their premieres, with 56 percent compared with just 12 percent of theaters in the top tertile. Smaller cities appear to be the most affected by the budget cut, while the largest suffered significantly less (Appendix Table A6).

IV. CONCLUSIONS

¹⁰Felice and Vecchi (2015) estimate the regional GDP series from 1861 to 2011. We imputed the province GDP from the regional GDP using provincial employment from 1861 Population Census, following the methodology developed by Daniele, Malanima and Ostuni (2016).

This paper investigates the causal effects of cuts in public funding on creativity and survival in the performing arts. Using changes in the number and the novelty of performances as a measure for creative output we find that public funding significantly reduced both the number and the novelty of creative work. Moreover, we show that theaters that were more affected by funding cuts – due to exogenous variation in exposure determined more than 100 years before the cuts – were more likely to close or be replaced by movie theaters when that technology became available and transformed the industry. Our analyses of the heterogeneous effects suggest that the effects of funding are largest for theaters in smaller cities and serving populations with less income.

These results have important policy implications for decisions on public funding for the arts. If the arts are in fact a source of amenities that attract highly productive individuals, cuts in public funding weaken the positive multiplier effects that arts have on local economies. Moreover, to the extent that artistic creativity interacts with entrepreneurship and technological innovation (e.g., because innovators are attracted to locations with a thriving community of arts), public funding will also weaken innovation. To the extent that the effects of public funding cuts are strongest in poorer areas and small cities, our results suggest that cutting funding for the arts harms may harm innovation and growth, especially among underserved populations.

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TABLE 1 – SUMMARY STATISTICS AND PRE-BUDGET CUT BALANCING TESTS

	MEAN	PERCENT ENDOWMENT	
	(1)	(2)	(3)
Year of Foundation	1637	-0.112 (0.408)	-0.110 (0.741)
N Seats	601.37	0.466 (0.961)	-2.509 (2.182)
N Standing Seats	367.10	0.198 (0.595)	-1.932 (1.342)
Total Productions	97.77	0.022 (0.028)	-0.012 (0.050)
Premieres	13.44	0.005 (0.007)	-0.002 (0.013)
Premieres (in %)	13.68	0.000 (0.000)	0.000 (0.000)
New Productions	18.07	0.012 (0.012)	-0.004 (0.020)
New Productions (in %)	18.39	0.000 (0.000)	-0.000 (0.000)
Repertory Works	66.74	0.005 (0.017)	-0.006 (0.031)
Repertory Works (in %)	67.93	0.002 (0.004)	0.005 (0.007)
City FE		NO	YES
Observations	1,164	1,164	1,164

Notes: Column 1 reports the mean in 1866 for public theater characteristics. Columns 2 and 3 report the coefficient of regressing each public theater characteristic on the percent of theater funding coming from public endowment. *Total Productions* is the number of pieces performed by a theater in a given season (excluding the repeat performance of the same piece). *Premieres* capture the first performance of new compositions. *New Productions* are the first performance of a new production (for example with an innovative staging) of an existing composition. *Repertory Works* are re-runs of existing productions.

TABLE 2 – EFFECTS OF ENDOWMENT CUTS ON CREATIVITY

	Total Productions	Premieres		New Productions		Repertory Works	
		Number	Share	Number	Share	Number	Share
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Funding Cut x post	-0.709*** (0.065)	-0.090*** (0.014)	-0.306*** (0.009)	-0.051*** (0.008)	-0.172*** (0.006)	-0.568*** (0.045)	0.478*** (0.015)
Funding Cut	-0.040 (0.066)	-0.007 (0.014)	0.011 (0.010)	-0.003 (0.009)	0.005 (0.006)	-0.030 (0.046)	-0.016 (0.016)
City FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean Dep. Var.	86.53	21.20	24.49	12.98	15.01	52.34	60.49
Observations	31,964	31,964	31,964	31,964	31,964	31,964	31,964
R-squared	0.866	0.923	0.864	0.911	0.864	0.818	0.894

Notes: *Total Productions* is the number of pieces performed by a theater in a given season (excluding the repeat performance of the same piece). *Premieres* capture the first performance of new compositions. *New Productions* are the first performance of a new production (for example with an innovative staging) of an existing composition. *Repertory Works* are re-runs of existing productions. The *Share* variables indicate the share of a given type of performance as a fraction of the total production. *Funding Cut* is the share of funding that a theater received from the state (instead of from private sources); funding from public sources was cut in 1867. The indicator *post* equals 1 starting in 1867 when funding for public theaters was cut (AAPP, CD, Legislatura X, Sessione I, 1867, Discussioni, Discussione del bilancio del Dicastero dell'Interno pel 1867, tornata del 17 giugno 1867). Standard errors are clustered at the city level.

TABLE 3 – PROBABILITY OF SHUTTING DOWN AND REPLACEMENT BY MOVIE THEATERS

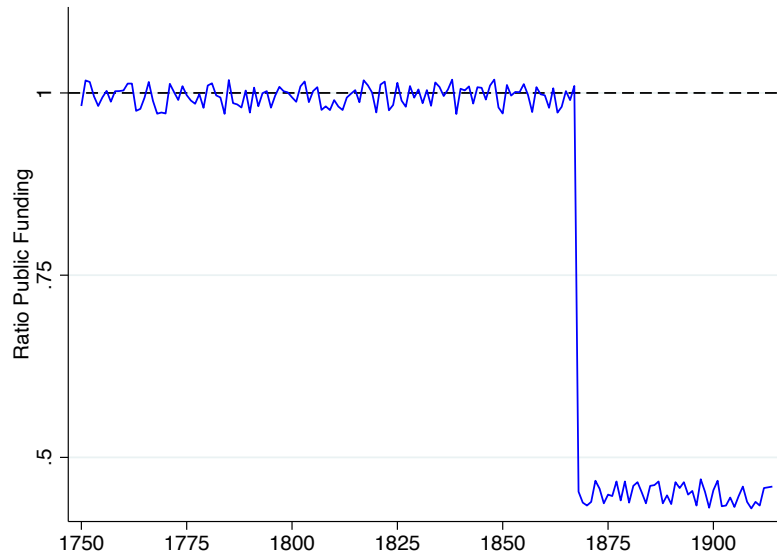
	Pr (Shut Down)		Pr (Replaced by Movie Theater)	
	(1)	(2)	(3)	(4)
Funding Cut	0.017*** (0.005)	0.018*** (0.004)	0.024*** (0.003)	0.025*** (0.005)
Year FE	Yes	Yes	Yes	Yes
City FE	No	Yes	No	Yes
Observations	1,164	1,164	1,164	1,164

Notes: *Pr (Shut Down)* is an indicator for theaters that closed between 1867 and 1914. *Pr (Replaced by Movie Theater)* is an indicator for theaters replaced by a movie theater after the emergence of this medium between 1900 and 1914. Data include 1,164 publicly funded theaters that operated in Italy in 1859. Standard errors are clustered at the city level. *** denotes 1%, ** denotes 5%, and * denotes 10% significance.

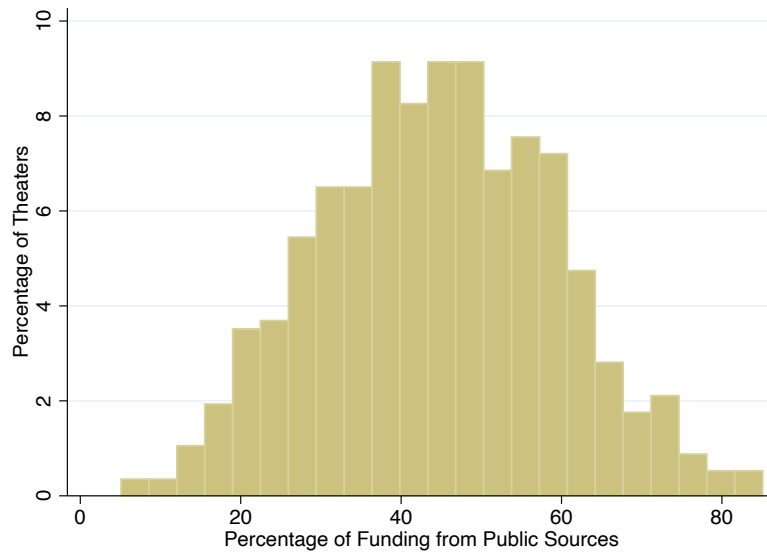
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FIGURE 1 – INCIDENCE OF FUNDING CUT ON THEATER SHARE OF PUBLIC ENDOWMENT

PANEL A: DISTRIBUTION IN THE SHARE OF PUBLIC ENDOWMENT OVER TOTAL FUNDING IN 1866

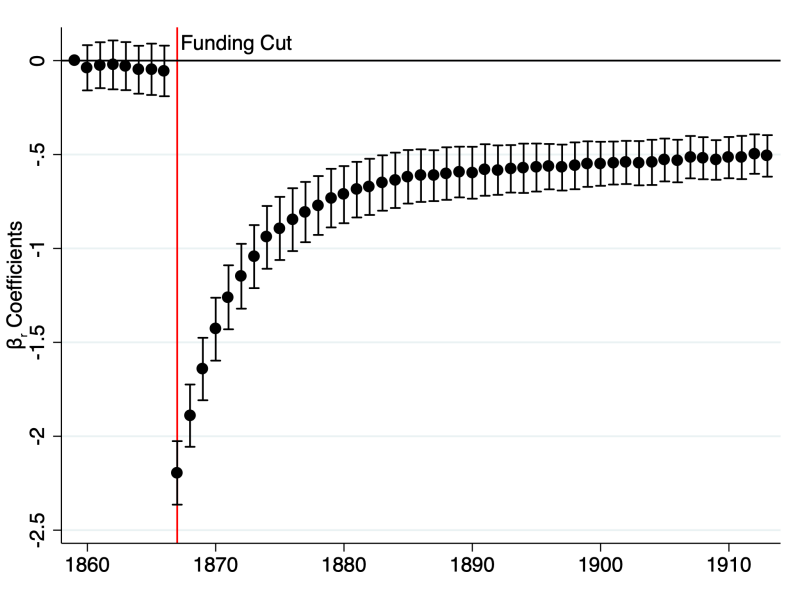


PANEL B: RATIO OF PUBLIC ENDOWMENT RELATIVE TO 1866 VALUE, 1750-1914

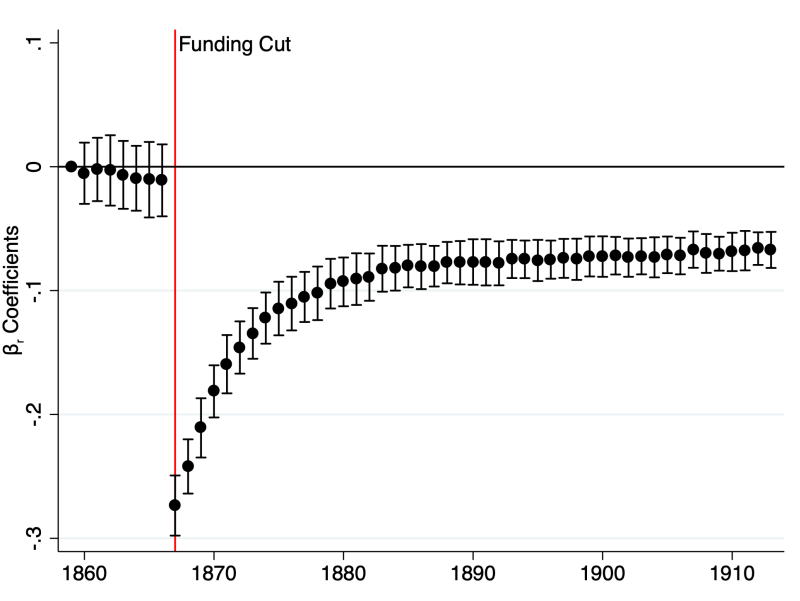


Notes: Panel A shows the average ratio of public funding endowment in each year between 1750 and 1914, relative to its 1866 value. Panel B shows variation in the dependence on public funding, measured by the share of public funding in 1866 a theater's endowment (*dote*).

FIGURE 2 – TIME-VARYING ESTIMATES OF THE EFFECTS OF FUNDING CUTS ON CREATIVE OUTPUT
 PANEL A: ALL PERFORMANCE



PANEL B: PREMIERES



Notes: 95% confidence intervals for β_r 's coefficients in the OLS regression $creative\ output_{ict} = \sum \beta_r \cdot (funding\ cut_i \cdot year_r) + \alpha \cdot funding\ cut_i + \lambda_c + \delta_t + \varepsilon_{ict}$, where the dependent variable is the total number of yearly performance (Panel A) and the number of yearly premieres (Panel B). The variable $year_r$ indicates years between 1860 and 1914, where 1859 is the excluded year. λ_c are city fixed effects. δ_t are year fixed effects. Standard errors are clustered at the city level.

ONLINE APPENDIX
NOT FOR PUBLICATION

TABLE A1 –TEST FOR PRE-TRENDS, 1859-1866

PANEL A: LINEAR PRE-TREND

	Total Productions		Premieres		New Productions		Repertory Works	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Funding Cut x Linear Pre-Trend	0.003	0.003	0.001	0.001	0.001	0.001	0.002	0.002
	(0.012)	(0.012)	(0.003)	(0.003)	(0.002)	(0.002)	(0.007)	(0.007)
Linear Pre-Trend	3.805***		0.943***		0.534***		2.329***	
	(0.552)		(0.140)		(0.088)		(0.328)	
City FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	No	Yes	No	Yes	No	Yes	No	Yes
Mean Dep. Var.	86.53	86.53	21.20	21.20	12.98	12.98	52.34	52.34
Observations	4,645	4,645	4,645	4,645	4,645	4,645	4,645	4,645
R-squared	0.700	0.703	0.684	0.687	0.578	0.580	0.687	0.690

Notes: Test for linear pre-trend for 587 public theaters between 1859 and 1866. *Total Productions* is the number of pieces performed by a theater in a given season (excluding the repeat performance of the same piece). *Premieres* capture the first performance of new compositions. *New Productions* are the first performance of a new production (for example with an innovative staging) of an existing composition. *Repertory Works* are re-runs of existing productions. *Funding Cut* is the share of funding that a theater received from the state (instead of from an endowment, the *dote*); funding from public sources was cut in 1867. The indicator *post* equals 1 starting in 1867 when funding for public theaters was cut (AAPP, CD, Legislatura X, Sessione I, 1867, Discussioni, Discussione del bilancio del Dicastero dell'Interno pel 1867, tornata del 17 giugno 1867). Standard errors are clustered at the city level.

PANEL B: YEAR SPECIFIC PRE-TREND

	Total Productions (1)	Premieres (2)	New Productions (3)	Repertory Works (4)
Funding Cut x Year 1859	-0.035 (0.072)	-0.008 (0.018)	-0.006 (0.012)	-0.020 (0.044)
Funding Cut x Year 1860	-0.035 (0.072)	-0.010 (0.018)	-0.010 (0.013)	-0.014 (0.043)
Funding Cut x Year 1861	-0.045 (0.075)	-0.012 (0.019)	-0.003 (0.011)	-0.030 (0.046)
Funding Cut x Year 1862	-0.048 (0.078)	-0.012 (0.020)	-0.007 (0.012)	-0.029 (0.047)
Funding Cut x Year 1862	-0.043 (0.076)	-0.009 (0.019)	-0.012 (0.012)	-0.023 (0.046)
Funding Cut x Year 1864	-0.027 (0.075)	-0.007 (0.018)	-0.008 (0.013)	-0.012 (0.045)
Funding Cut x Year 1865	-0.030 (0.079)	-0.006 (0.020)	-0.002 (0.012)	-0.023 (0.048)
<i>p</i> -value of <i>F</i> -test	0.460	0.617	0.721	0.363
City FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Mean Dep. Var.	86.53	21.20	12.98	52.34
Observations	4,645	4,645	4,645	4,645
R-squared	0.700	0.687	0.581	0.691

Notes: Test for year specific pre-trend for 587 public theaters between 1859 and 1866. Year fixed effects are included but not reported. *Total Productions* is the number of pieces performed by a theater in a given season (excluding the repeat performance of the same piece). *Premieres* capture the first performance of new compositions. *New Productions* are the first performance of a new production (for example with an innovative staging) of an existing composition. *Repertory Works* are re-runs of existing productions. *Funding Cut* is the share of funding that a theater received from the state (instead of from an endowment, the *dote*); funding from public sources was cut in 1867. The indicator *post* equals 1 starting in 1867 when funding for public theaters was cut (AAPP, CD, Legislatura X, Sessione I, 1867, Discussioni, Discussione del bilancio del Dicastero dell'Interno pel 1867, tornata del 17 giugno 1867). *p*-value of *F*-test reports the *p*-value for jointly testing the equality of all coefficients to zero. Standard errors are clustered at the city level.

TABLE A2 – EFFECTS OF FUNDING CUT ON THE NOVELTY OF PRODUCTIONS AT PUBLIC THEATERS
CONTROLLING FOR THEATERS FIXED EFFECTS

	Total Productions	Premieres		New Productions		Repertory Works	
	(1)	Number (2)	Share (3)	Number (4)	Share (5)	Number (6)	Share (7)
Funding Cut x post	-0.709*** (0.062)	-0.090*** (0.013)	-0.306*** (0.010)	-0.051*** (0.008)	-0.172*** (0.006)	-0.568*** (0.043)	0.478*** (0.016)
Theater FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean Dep. Var.	86.53	21.20	24.49	12.98	15.01	52.34	60.49
Observations	31,964	31,964	31,964	31,964	31,964	31,964	31,964
R-squared	0.891	0.932	0.910	0.919	0.902	0.854	0.938

Notes: *Total Productions* is the number of pieces performed by a theater in a given season (excluding the repeat performance of the same piece). *Premieres* capture the first performance of new compositions. *New Productions* are the first performance of a new production (for example with an innovative staging) of an existing composition. *Repertory Works* are re-runs of existing productions. The *Share* variables indicate the share of a given type of performance as a fraction of the total production. *Funding Cut* is the share of funding that a theater received from the state (instead of from private sources); funding from public sources was cut in 1867. The indicator *post* equals 1 starting in 1867 when funding for public theaters was cut (AAPP, CD, Legislatura X, Sessione I, 1867, Discussioni, Discussione del bilancio del Dicastero dell’Interno pel 1867, tornata del 17 giugno 1867). Standard errors are clustered at the city level.

TABLE A3 – EFFECTS OF FUNDING CUT ON GENRE OF PERFORMANCE

	Operas (1-2)		Operettas (3-4)		Concerti (5-6)		Commedia Arte (7-8)	
	Number	Share	Number	Share	Number	Share	Number	Share
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Funding Cut x Post	-0.114***	-0.357***	-0.062***	-0.205***	-0.177***	0.144***	-0.356***	0.418***
	(0.010)	(0.011)	(0.006)	(0.006)	(0.016)	(0.025)	(0.033)	(0.024)
Funding Cut	-0.004	0.014	-0.005	0.004	-0.010	-0.002	-0.021	-0.016
	(0.011)	(0.011)	(0.006)	(0.007)	(0.016)	(0.030)	(0.033)	(0.029)
City FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean Dep. Var.	12.99	15.00	7.35	8.49	22.07	25.50	44.12	50.99
Observations	31,964	31,964	31,964	31,964	31,964	31,964	31,964	31,964
R-squared	0.848	0.732	0.844	0.741	0.862	0.101	0.865	0.246

Notes: *Operas*, *operettas*, *concerti*, and *commedia dell'arte* are, respectively, is the number of operas, operettas, concerti and commedia dell'arte premiered by a theater in a given season (excluding the repeat performance of the same piece). The *Share* variables indicate the share of a given type of performance as a fraction of the total production. *Funding Cut* is the share of funding that a theater received from the state (instead of from private sources); funding from public sources was cut in 1867. The indicator *post* equals 1 starting in 1867 when funding for public theaters was cut (AAPP, CD, Legislatura X, Sessione I, 1867, Discussioni, Discussione del bilancio del Dicastero dell'Interno pel 1867, tornata del 17 giugno 1867). Standard errors are clustered at the city level.

TABLE A4 – EFFECTS OF FUNDING CUTS ON THE GENRE OF PRODUCTIONS BY PUBLIC THEATERS
CONTROLLING FOR THEATERS FIXED EFFECTS

	Operas (1-2)		Operettas (3-4)		Concerti (5-6)		<i>Commedia del Arte</i> (7-8)	
	Number	Share	Number	Share	Number	Share	Number	Share
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Funding Cut x Post	-0.114***	-0.357***	-0.062***	-0.205***	-0.177***	0.144***	-0.357***	0.418***
	(0.010)	(0.012)	(0.005)	(0.007)	(0.016)	(0.025)	(0.031)	(0.024)
City FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean Dep. Var.	12.99	15.00	7.35	8.49	22.07	25.50	44.12	50.99
Observations	31,964	31,964	31,964	31,964	31,964	31,964	31,964	31,964
R-squared	0.872	0.812	0.868	0.824	0.887	0.125	0.890	0.278

Notes: The *Share* variables indicate the share of a given type of performance as a fraction of the total production. *Funding Cut* is the share of funding that a theater received from the state (instead of from an endowment, the *dote*); funding from public sources was cut in 1867. The indicator *post* equals 1 starting in 1867 when funding for public theaters was cut (AAPP, CD, Legislatura X, Sessione I, 1867, Discussioni, Discussione del bilancio del Dicastero dell'Interno pel 1867, tornata del 17 giugno 1867). Standard errors are clustered at the city level.

TABLE A5 – HETEROGENOUS EFFECTS BY INCOME PER CAPITA

	Total Productions	Premieres		New Productions		Repertory Works	
		Number	Share	Number	Share	Number	Share
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Funding Cut x post x top tertile	-0.156*** (0.045)	-0.040** (0.011)	-0.122*** (0.034)	-0.045*** (0.009)	-0.109*** (0.026)	-0.282*** (0.030)	0.151*** (0.009)
Funding Cut x post x middle tertile	-0.830*** (0.085)	-0.090*** (0.034)	-0.251*** (0.034)	-0.100*** (0.022)	-0.148*** (0.027)	-0.520*** (0.063)	0.452*** (0.010)
Funding Cut x post x bottom tertile	-1.124*** (0.042)	-0.140*** (0.030)	-0.558*** (0.036)	-0.159*** (0.016)	-0.222*** (0.028)	-1.097*** (0.029)	0.943*** (0.010)
City FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean Dep. Var.	86.53	21.20	24.49	12.98	15.01	52.34	60.49
Observations	31,964	31,964	31,964	31,964	31,964	31,964	31,964
R-squared	0.862	0.913	0.877	0.897	0.844	0.824	0.833

Notes: *Total Productions* is the number of pieces performed by a theater in a given season (excluding the repeat performance of the same piece). *Premieres* capture the first performance of new compositions. *New Productions* are the first performance of a new production (for example with an innovative staging) of an existing composition. *Repertory Works* are re-runs of existing productions. The *Share* variables indicate the share of a given type of performance as a fraction of the total production. *Funding Cut* is the share of funding that a theater received from the state (instead of from private sources); funding from public sources was cut in 1867. The indicator *post* equals 1 starting in 1867 when funding for public theaters was cut (AAPP, CD, Legislatura X, Sessione I, 1867, Discussioni, Discussione del bilancio del Dicastero dell'Interno pel 1867, tornata del 17 giugno 1867). Tertiles of income per capita in 1861 are computed using the province GDP level, imputed from the regional GDP series of Felice and Vecchi (2015) using provincial employment from 1861 Population Census. Standard errors are clustered at the city level.

TABLE A6 – HETEROGENOUS EFFECTS BY CITY SIZE

	Total Productions	Premieres		New Productions		Repertory Works	
	(1)	Number (2)	Share (3)	Number (4)	Share (5)	Number (6)	Share (7)
Funding Cut x post x top tertile	-0.528*** (0.040)	-0.031*** (0.010)	-0.151*** (0.043)	-0.025*** (0.005)	-0.099*** (0.031)	-0.413*** (0.028)	0.271*** (0.012)
Funding Cut x post x middle tertile	-0.723*** (0.046)	-0.131*** (0.011)	-0.499*** (0.045)	-0.055 (0.006)	-0.244*** (0.035)	-0.610*** (0.031)	0.486*** (0.013)
Funding Cut x post x bottom tertile	-0.996*** (0.039)	-0.151*** (0.010)	-0.602*** (0.046)	-0.074*** (0.014)	-0.336*** (0.036)	-0.956*** (0.028)	0.685*** (0.013)
City FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean Dep. Var.	86.53	21.20	24.49	12.98	15.01	52.34	60.49
Observations	31,964	31,964	31,964	31,964	31,964	31,964	31,964
R-squared	0.855	0.873	0.854	0.850	0.876	0.851	0.853

Notes: *Total Productions* is the number of pieces performed by a theater in a given season (excluding the repeat performance of the same piece). *Premieres* capture the first performance of new compositions. *New Productions* are the first performance of a new production (for example with an innovative staging) of an existing composition. *Repertory Works* are re-runs of existing productions. The *Share* variables indicate the share of a given type of performance as a fraction of the total production. *Funding Cut* is the share of funding that a theater received from the state (instead of from private sources); funding from public sources was cut in 1867. The indicator *post* equals 1 starting in 1867 when funding for public theaters was cut (AAPP, CD, Legislatura X, Sessione I, 1867, Discussioni, Discussione del bilancio del Dicastero dell'Interno pel 1867, tornata del 17 giugno 1867). Tertiles of city size distribution are computed from the Population Census of 1861. Standard errors are clustered at the city level.