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# Liberalizing Art. Evidence on the Impressionists at the end of the Paris Salon

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# Liberalizing Art

## Evidence on the Impressionists at the end of the Paris Salon

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### Abstract

We analyze the art market in Paris between the government-controlled Salon as a centralized organization for art exhibition and the post-1880 system when the Republican government liberalized art exhibitions. The jury of the old Salon decided on submissions with a bias toward conservative art of the academic insiders, erecting entry barriers against outsiders as the Impressionists. With a difference-in-difference estimation, we provide evidence that the end of the government-controlled Salon contributed to start the increase of the prices of the Impressionists relative to the insiders.

Keywords: Art market, Liberalization, Market structure, Insider-Outsider, Hedonic regressions, Impressionism.

JEL Classification: C23, Z11

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# 1 Introduction

The artistic innovations of Impressionist painters such as Claude Monet, Pierre Auguste Renoir, Camille Pissarro, Alfred Sisley, Edgar Degas, Paul Cézanne as well as of Édouard Manet have been marginalized in the Paris Salon and in the Paris art market of the late 1800s, which were dominated by more traditional Academic artists. In 1880 the new Republican government liberalized the system of art exhibitions, withdrawing from the control of the Salon and opening the way to the creation of a variety of privately organized salons, where all painters could find their way to present artworks to the public. We argue that this liberalization was crucial to lower entry barriers in the Paris art market, divert demand from the academic insiders of the old Salon toward outsiders as the Impressionists, and start the increase of their market prices. For this purpose, we analyze a unique dataset on transactions of paintings in Paris at the end of the 1800s and advance a difference in difference analysis based on the year of the liberalization and the market prices of insiders of the Salon and the Impressionists.

The organization of art exhibitions in Paris had been centralized for two centuries, with a unique Salon controlled by the on-going regime. During the 1800s, artists submitted paintings at this Salon and their acceptance or rejection was decided by a jury whose members were chosen by the government and a restricted and conservative Academy ([Mainardi, 1987, 1994](#)). Their purpose was essentially to promote history paintings for public commissions in support of the ideology of the government and to defend the classical tradition of the academic painters. While other genres and styles could be traded in the art market, demand was virtually confined to the painters who were accepted at the Salon, and the willingness to pay for the artists who were not exhibited there was much lower. As [Galenson and Jensen \(2009\)](#) have noticed, the “Salon’s monopoly of the legitimate public presentation of new art thus gave it almost complete control over who would be allowed to become a painter in 19th-century France.” That is why the acceptance of a submission at the Salon was crucial for marginalized painters as the Impressionists. As long as the Salon was the only access to the public and the Impressionists were repeatedly rejected, they could not reach critical or monetary recognition ([Rewald, 1973](#)).

The centralized organization of the government-controlled Salon ended in 1880 when the Republicans had just obtained the political majority and their government adopted reforms in favor of *laissez faire* policies and against state monopolies. In particular, they abolished the public control of the Salon liberalizing the organization of art exhibitions (see [Mainardi, 1994](#); [Brauer, 2014](#)). A private association of artists took control of the old Salon electing its jury under more transparent rules, and new private salons were soon organized in Paris in competi-

tion with each other, while various art dealers started to promote group exhibitions and even the first solo exhibitions (Brauer, 2014).<sup>1</sup> The main consequence of this liberalization was that painters that had been marginalized at the government-controlled Salon as the Impressionists could finally display their works in multiple exhibitions and reach the public through them. Our main claim is that the end of the government-controlled Salon in 1880 was the turning point that reduced entry barriers in the Paris art market and allowed for an increase in demand and prices of *avant-garde* painters as the Impressionists relative to the academic painters.

We have collected a unique dataset on transactions of paintings by artists active in Paris between 1859 and 1914 from a variety of art historical sources, with information on the author, the price (adjusted for inflation) and its year, the surface area of the paintings, its genre, the identity of the seller and the buyer, as well as other information useful for hedonic regressions. We also have information on the paintings exhibited in each Salon until 1880, and on the academic recognitions awarded at each Salon. While the discrimination of the Salon against the Impressionists represents an *ex post* judgment based on art historical accounts, we look for evidence that entry barriers in the art market of Paris associated with the admittance to the government-controlled Salon had an economic impact. If this was the case, the acceptance of a painting by an outsider as an Impressionist at a Salon should increase visibility and demand for the paintings of the same painter traded in the market, and therefore increase their prices, while we expect a smaller impact or no impact at all for insiders of the Salon, who were already widely known in the market. Accordingly, we analyze the Salon system before 1880, and show that the exhibition of an additional painting by an Impressionist painter at an average Salon increased the market price of the works by the same painter of about 30% during the subsequent year, while there was no significant impact for the insiders of the Salon and other artists.

We then look at the impact of the liberalization of 1880 and apply a difference in difference identification strategy on a sample including paintings traded in the last four decades of the century by Impressionists and a control group of academic insiders, identified as the winners of major prizes at the government-controlled Salons (namely Medals of Honor, First Class Medals and Second Class Medals). Controlling for common changes in prices with a complete set of time dummies, fixed effects for artists and buyers, and other control variables, we show that the prices of the Impressionists started to increase compared to the insiders, as well as compared to all the painters active in Paris, just after 1880, when the liberalization took place. The difference in difference estimate reveals an economically and statistically significant impact of

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<sup>1</sup>The importance of this institutional change has been noticed in the art historical literature (see for instance Boime, 1971), but the implications of the subsequent liberalization for the art market have not been explored in detail.

the liberalization, and this is confirmed in a battery of robustness checks, with more or less restrictive definitions of Impressionists and of the same insiders, with alternative controls for time effects and the size of paintings, using an extended dataset including the beginning of the new century and a reduced one limited to transactions with buyers from Paris, allowing for the inclusion of other artists who were not insiders of the Salon in the control group, and even using repeated sales of the same artworks to control for paintings' fixed effects. We also run placebo tests for the date of treatment, investigate alternative methodologies for the endogenous identification of structural breaks and run an interrupted time series analysis, which strengthens our evidence that a change in price dynamics did take place right after the liberalization of art exhibitions.

While our focus is on a liberalization of artistic policy that has not been studied in the economic literature, our work relates to multiple strands of research. At a preliminary level, it belongs to the recent interdisciplinary literature on the economic determinants of artistic creativity (Hulst, 2017; Borowiecki and Greenwald, 2018), including works by Galenson (2006, 2007, 2009) on the careers of artists, David et al. (2014) on the role of art dealership, Borowiecki (2015, 2017) on the origins of cultural supply and the creativity of music composers, Etro (2018), Etro and Stepanova (2015); Etro and Pagani (2012, 2013), Etro and Stepanova (2016, 2017) on a Schumpeterian approach to artistic creativity. Our contribution is to show that centralized and decentralized organizations of the art market can affect differently the reward of artistic innovations.

Moreover, we relate to the economic history literature that has examined the importance of market organization for economic dynamics, from the work of Mokyr (1990) and North (1990) on the impact of social environment and institutions on technological progress and economic performance to the literature on the political economy of centralized organizations and their reforms to enhance development (Acemoglu et al., 2001). Important works on difference-in-difference analysis of policy changes are those of Card and Krueger (1994) or Myers (2017) on labor market reforms, Slaughter (2001) on trade liberalization (see also Meyer, 1995) and Mastrobuoni and Pinotti (2015) on immigration policy. In our context, the power of the government and the Academy on the election of the jury of the Salon determined decisions that affected the art market, and generated a *status quo* bias in the organization of the same institution: we employ a difference in difference analysis to argue that the liberalization of art exhibitions led market forces to correct earlier distortions.

Our analysis is also broadly related to the industrial organization literature on market liberalization, which emphasizes the benefits of eliminating barriers to entry to foster competition

(in our case between painters through the creation of new exhibitions as marketplaces), and relates to studies on the role of contracts between art producers and art dealers in affecting competition (see [Caves, 2000](#)). Another related literature is that on the labor economics of insiders-outsiders relations and unions, which has analyzed the behavior of economic agents in labor markets where some participants, as incumbents or unionized workers, have more privileged positions than others, as unemployed or non-unionized workers ([Lindbeck and Snower, 1986, 2001](#)). Incumbent workers often enjoy more favorable employment opportunities than the outsiders, typically under the protection of a union, whose activity is usually driven by the same insiders. As in our environment, entry barriers or discrimination lead to a segmented market with a lower compensation for the outsiders.

The first quantitative approach to the evolution of French art during the 1800s is in the sociological analysis of [White and White \(1965\)](#), who have pointed out a transition from an academic system based on the Salon in the first half of the century to a decentralized “dealer-critic system” in the second half. [Galenson and Jensen \(2009\)](#) have amended this view emphasizing the emergence of various group exhibitions by few key artists that created their own market, starting with the exhibition of the Impressionists of 1874. An alternative view is that the exhibition on the Impressionists of 1886 in New York was the real catalyst of new unbiased interest in the *avant-garde*, and this contributed to generate an international art market where Impressionists and other innovators could be rewarded ([Patry, 2015](#)).

Building on the art historical analysis by [Mainardi \(1994\)](#) and especially [Brauer \(2014\)](#),<sup>2</sup> we argue that the liberalization of the art exhibitions with the end of the government-controlled Salon in 1880 was the key event that shifted the structure of the art market from imperfect competition between insiders toward a contestable market where all artists had a chance to differentiate their products and attract buyers by exhibiting in alternative salons and through competition between dealers. The anecdotal evidence on the discrimination of the Impressionists at the Salon and their slow appreciation is well known in art history (see for instance [Rewald, 1973](#)). However, we are not aware of any systematic analysis on art pricing that goes beyond descriptive statistics,<sup>3</sup> and, in a period of generalized increase of the nominal prices of paintings, it is important to analyze the behavior of relative prices and how the liberalization of 1880 affected them.

The rest of the work is organized as follows. The next section frames the organization of

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<sup>2</sup>See also [Mainardi \(1987\)](#) and [Kearns and Mills \(2015\)](#) on the organization of the Salon.

<sup>3</sup>An interesting econometric analysis by [Greenwald \(2018\)](#) has recently studied correlations between exhibition of paintings of rural subject at the Salon before 1880 and characteristics of the painters, but ignoring prices and the impact of the liberalization of 1880.

the art market in Paris during the 1800s and the institutional change taking place since 1880. The subsequent section presents the research design and the data. The next one describes econometric methods and results. The last section provides final remarks.

## 2 The Salon of Paris and the rise of Impressionism

The Paris Salon was the official institution for the exhibition of art in France. Since the intervention of Colbert in 1667, it was organized under the control of the government, in the various forms this had over time. It took place every one or two years, initially at the Louvre and later at the *Palais de l'Industrie*, typically in spring. During the *Ancien Regime* the Salon was a direct expression of the monarchy through the organization by the *Académie Royale de Peinture et de Sculpture*, which was a sort of government agency whose highest level members received appointment for life, salaries and commissions from the king. The Academy perpetuated its role thanks to the monopoly on art teaching of its *Ecole des Beaux-Arts*, awarded the best students with a four years residency in Italy to study the classics and ultimately selected the hierarchy of the future academicians. Only members of the Academy were admitted to the Salon, which represented an exposition of their commissioned works, with didactic or celebrative purposes. The paintings of the Salon were not for sale, since the Academy defended the intellectual and non-commercial nature of its activity, but the system assigned an effective monopoly to the academicians on the primary market for major commissions (see [Grampp, 1989](#)).

### 2.1 The government-controlled Salon before 1880

After the French Revolution the old corporations were abolished, and the responsibility of the Salon was moved to the Ministry of the Interior in 1791, introducing the possibility for all artists to participate at the Salon. This started a new phase in which the selection of paintings became crucial for the artists, because the Salon was becoming not just an exposition of “pictures to see” but also an exhibition of “pictures to sell” ([Mainardi, 1994](#)). However, the *Académie des Beaux-Arts* was soon recreated around the neoclassical school, retaining the control of the Salon and, most of all, of selections and monetary prizes.

During the First Republic and the Empire of Napoleon, it was always understood that the government had to support the tradition of monumental history painting, which represented the pride of the French school and could not prosper without public commissions, as a sort of (impure) public good. Therefore, the main purpose of the Salon remained the promotion of

history painting of a rather homogeneous style and, indirectly, of the academic painters and their aesthetic values. Most of the prizes and recognitions kept being awarded to history painters, who gained from this a substantial advantage in terms of reputation, further commissions and higher prices. This bias in favor of a closed and exclusive “aristocracy of art” and against a more commercial and inclusive role of the Salon as an open marketplace for paintings of differentiated genres demanded by the bourgeoisie, followed the political events of the century, but was never overturned until the final collapse of the Salon in 1880. When academicians gained more power, as under the Restoration (1815-1830), they contrasted the commercialization of the Salon by having it less frequently and by reducing the number of accepted artists. These insiders gained the visibility needed to reach the demand of the private clients and could compete by offering a limited number of paintings for sale, while the artists who were excluded from the Salon could hardly find any buyers. If the early Salon was characterized by a monopoly of the academicians on the primary art market, the one of the 1800s was characterized by a market structure close to imperfect competition between insiders with barriers to entry against outsiders (something that was being formalized in economic theory by [Cournot, 1838](#)).

During the so-called July Monarchy (1830-1848) the king turned the Salon into a yearly event and delegated the jury entirely to the Academy. Its fourteen member painters were tied to the neoclassical style of Jean-Auguste-Dominique Ingres, and ready to repeatedly reject the innovations of the time, as the romantic colorism of Eugène Delacroix, the landscapes *en plein air* associated with Jean-Baptiste Camille Corot, Théodore Rousseau (nicknamed *le grand refusé*), , Jean-François Millet, Charles-François Daubigny and the other members of the Barbizon school,<sup>4</sup> and later the realism of Gustave Courbet. The decisions of the jury started to be criticized as narrow-minded by an increasing number of artists. In 1838, the *Journal des Artistes* published a heavy criticism of the Salon asking for a permanent exhibition with free entry, and in 1840 and 1843 large groups of artists signed petitions for reforms of the jury aimed at opening access to more painters. In spite of this, the jury was becoming always more restrictive and by the 1840s the majority of the submitted works were rejected. The analysis of the *livrets* that record the artworks exhibited at the Salon shows that during the July Monarchy a third of the accepted paintings were still history paintings or portraits, and the field of genre painting was expanding its share (including historical anecdotes, oriental scenes or battle scenes that could be praised also by the conservatives), but landscapes were in decline and still lifes remained completely marginal ([Kearns and Mills, 2015](#), p. 151-3).

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<sup>4</sup>The tin paint tube, that allowed artists to paint entirely outdoor, was invented in the 1830s and imported from England in the 1840s. It is hard to underestimate the impact that this innovation had on realistic landscape painting as that of the artists gathering around the forest of Barbizon and, later, of the Impressionists.

The liberalization of admissions to the Salon of 1848, when the revolutionary government decided to accept all the works that had been submitted, was only a temporary result of the Second Republic (1848-1852), which never undermined the prominent role of history paintings in its cultural policy, but simply switched the rationale for public intervention toward didactic and patriotic purposes. As noticed by [Mainardi \(1994, p. 15\)](#), the new fine arts administrator, the art critic Charles Blanc, defended the idea that “the state has an obligation to commission monumental painting, destined to live as long as the buildings it decorates, encouraging to regain the dignity and sobriety of Italian fresco”, while the other genres were the interest of private collectors and not of the government. In the subsequent years, the jury was in part appointed by the government and in part elected by the painters that had received prizes in earlier Salons, and the elected jurors remained rather conservative artist.<sup>5</sup>

During the Second Empire (1852-1870), admissions to the Salon were again under the direct control of the regime, which reinstated the Academy as the jury, under the direction of the conservative Comte de Nieuwerkerke. As an important fruit of its centralized organization financed by the government, the Salon was by now the most important art event of the world. As such, it was also a powerful weapon to promote French *grandeur*, support the image and the ideology of the *regime* and protect the prestige and the economic interests of the academic painters. The promotion of national pride was always fed by the academic *art pompier*, though leading painters such as Alexandre Cabanel, Jean-Léon Gérôme and Ernest Messonier were also engaged in edifying genre paintings. The interest of the academic painters was protected by favoring the insiders of the Salon: for instance, the gradual introduction of the principle of *hors concours*, for which winners of medals and other recognitions were “exempt” from future jury decisions, increased the bias of admissions against the outsiders. The promotion of official art was also pursued through preferential positioning in the rooms of the Salon by the powerful “hanging committee”, and through a variety of recognitions, such as the Medal of Honor and other medals of different importance, such as First, Second and Third Class medals.

A statistical analysis by [White and White \(1965\)](#) on the careers of painters exhibiting at the official Salon, based on the records in [Auvray \(1882\)](#), has shown that it was only a small minority of artists that could hope for an official recognition in a largely nepotistic system (where scholars elected jurors who allocated awards to scholars) so as to improve reputation in the market as well. For the outsiders of the system, instead, the market was confined to few art

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<sup>5</sup>[White and White \(1965\)](#) have analyzed statistically the sales of paintings over a century of major auctions recorded by the same [Blanc \(1857\)](#): they have shown that both the number and the average price of French history paintings increased during the first half of the century, especially for living artists and compared both to foreign masters and to genre and landscape painters.

lovers with a limited willingness to pay. For this reason, acceptance at the Salon was crucial in affecting demand and prices of the artists. Repeated rejections stopped careers of painters without other sources of income. Of course, the set of accepted paintings at the Salon was slowly changing over time, for instance welcoming a synthesis between the well finished style of the neoclassical school and the sketchy style of the romantic school, or gradually accepting works of the Barbizon painters who had been marginalized for a long time (though the market prices for Corot, Rousseau and Millet increased substantially only in the 1880s). The hysteresis in the decision process of the Salon system had a positive impact on the best followers of the mainstream tradition and their monetary recognition in the primary market, but it could not reward in due time (let alone, discover or promote) deeper innovators. This was the case of Manet and the Impressionists, whose personal and artistic network started during the 1860s, together with the first submissions and rejections at the Salon. As well known, the radical innovation of impressionism was to emphasize the perception of light and movement, through a light palette and small but visible brush strokes (leaving an impression of “unfinished” to the contemporary audience) mainly to depict landscapes or genre paintings, often *en plein air* and from unusual or altered perspectives.<sup>6</sup>

The Salon of 1863 reached a rate of rejection of more than two thirds of the submitted works, forcing Napoleon III to set up a *Salon des Refusés* where the public could see rejected works as well. Between them were the scandalous “Déjeuner sur l’herbe” and two other paintings by Manet - whose controversial submissions had already been rejected at the Salon of 1859. Among the Impressionists at the *Refusés* there were also Pissarro, who had been rejected for the second time, and Cézanne. After that, the jury was reformed, including only artists who had received medals in earlier Salons and representatives of the administration, always under the strict control of Nieuwerkerke. The new governance did not allow for a radical change on the merit, but contributed to weaken the role of the *Salon des Refusés*, which was not repeated in the following years. While some Impressionists managed to appear in some of the subsequent Salons, the submissions of Manet, Cézanne and, for the first time, Renoir were all rejected in 1866. The Salon of 1867 refused again two thirds of the submitted works, including those of Cézanne, Pissarro, Renoir and for the first time Monet and Sisley. The Impressionists benefited from a more liberal jury in the next Salon, but Nieuwerkerke was personally responsible for rejecting a submission by Monet. At the Salon of 1869, all submissions by Monet, Sisley and Cézanne were rejected again, and Monet was rejected also in 1870. Summing up, after more

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<sup>6</sup>See [Rewald \(1973\)](#) for a classic introduction to the history of impressionism. Similar innovations were independently developed in Florence by the *Macchiaioli*, including painters later active in Paris, such as Boldini and two participants of the group exhibitions of the Impressionists, Zandomenighi and de Nittis.

than a decade without effective visibility at the Salon, the Impressionists were still largely ignored in the art market, which prevented their appreciation from spreading beyond a limited set of amateurs.

During the Franco-Prussian war (1870-71), Monet and Pissarro moved to London where they met the forward-looking dealer Paul Durand-Ruel, who immediately started purchasing their works for few hundred francs.<sup>7</sup> Back in Paris, Durand-Ruel visited the studio of Manet in 1872 for the first time and bought literally all what was available, starting with twenty-three paintings for 35,000 francs and others later on (including for instance “The boy with a sword”, which was paid 1,500 francs and will be sold only in 1881). Durand-Ruel will do the same with all the other Impressionists, paying between 100 and 300 francs for works by Sisley, Pissarro and Renoir, and a bit more for those of Edgar Degas, and storing many of them for years (as “Dancers in pink” which was bought from Degas for 3,000 francs and will be sold in 1881). As a reference for prices in the secondary art market, top prices could overcome a hundred thousand francs for works by Gérôme, Messonier, and other academic painters led by Léon Bonnat and Adolphe Bouguereau.

The first decade of the Third Republic did not change substantially the organization of the Salon. The Director of Fine Arts, now transferred to the Ministry of Public Instruction, was again Blanc, who restored the power of the Academy and introduced conservative rules with the Salon of 1872: only “exempt” artists were eligible for the jury and the government would directly choose part of its members. The rate of acceptance dropped drastically, generating new petitions, including one signed by Manet, Renoir, Pissarro, Cézanne and others. Such a “return to order” was pursued also by the conservative follower of Blanc, the legitimist Marquis de Chennevières: since 1874 only academicians and artists awarded medals were eligible to elect members of the jury and a sort of “state art” was promoted by these so-called “moral order” Salons (Brauer, 2014, Ch. 1). For another decade, again, Impressionism did not manage to reach any relevant visibility or recognition at the official art exhibition.<sup>8</sup>

Since 1874, the Impressionists opted for an unprecedented strategy: the organization of a group exhibition. Galenson and Jensen (2009, 2007) have convincingly argued that this was a key event in the development of a modern art market where artists started creating their own

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<sup>7</sup>In his memoirs, written in 1910-1912, Durand-Ruel writes: “Monet’s paintings cost me 300 francs, Pissarro’s 200 francs. Those are the prices I continued to pay them for years. No one else would have been so generous, since they were forced to let them go at 100 francs, then at 50 francs or even less, when I was no longer able to continue buying” (Durand-Ruel, 2014, p. 80).

<sup>8</sup>Renoir was rejected both in 1872 and 1873, when Berthe Morisot was the only one admitted to the Salon among the Impressionists (in the same year she could reach a price of 500 francs for her “View of Paris from the Trocadero”). Manet and Cézanne were rejected at the Salon of 1876, and “Nana” by Manet was also rejected in 1877.

shows. Nevertheless, this exhibition was received with mixed reactions, misunderstood by the public and heavily criticized by the conservative press, and it was hardly remunerative for the painters either, as was the case for the auction organized by Durand-Ruel at the *Hôtel Drouot*<sup>9</sup> in 1875, when seventy-two works were sold (or bought in) at an average price of 150 francs. The marginalization of the Impressionists in both the Salon and the art market forced them to try again a group exhibition in 1876 and 1877, but without better reactions from the press. This aggravated their economic problems (especially for Pissarro, Sisley and Monet), and did not help to solve those of Durand-Ruel, who stopped supporting the Impressionists for a few years. Another sale of the early collector Ernest Hoschedé, organized in 1878 was a disaster, with five Manets sold below the price of their primary sale and the Impressionists reaching their worst prices: in the words of Durand-Ruel (2014, p. 144) “at that time, 80 francs was the average price for the finest works by Monet, Sisley, Renoir and Pissarro whether they came up for auction or were sold privately”, and their minimum prices at this auction were respectively 38, 21, 31 and 7 francs. Renoir understood the roots of the problem when he was writing to Durand-Ruel: “There are in Paris scarcely fifteen art lovers capable of liking a painting without the Salon’s approval. There are eighty thousand who will not buy an inch of canvas if the painter is not in the Salon.”

In 1879 the political power turned suddenly in favor of a Republican majority in 1879. The Republicans were in support of *laissez-faire* in economics and implemented a variety of liberal reforms. The new Under-Secretary of State for the Fine Arts Edmond Turquet opted initially for expanding the electorate of the jury to all artists who had exhibited in at least three earlier Salons and separating juries and awards for history paintings and other genres. Monet was accepted and in the same year he managed to sell a small “View of Vétheuil” for 400 francs and a “Seine at Lavacourt” for 1,500 francs. However, the Salon system could hardly be reformed from inside: the jury was still accused of flagrant bias by a petition of artists, Sisley and Cézanne were rejected once again and some of the other Impressionists decided to organize new group exhibitions in 1879 and 1880.

With an unexpected move, on December 27, 1880, the Ministry decided that the French government would hand over the responsibility of the Salon to the artists, and Turquet announced on January 17, 1881 the end of the government-sponsored Salon (Mainardi, 1994, p.

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<sup>9</sup>This was the auction house where public sales in Paris took place since 1852. In 1874 a first Hoschedé sale featured promising prices for Renoir, Monet and Pissarro (twelve canvases sold around 450 francs each on average) and for Degas (with a “Horse race” reaching 1,100 francs), which led the impressionists to organize their own sale. A second impressionist sale took place in 1877 where forty paintings by Pissarro, Renoir and Sisley were again sold at an average of 150 francs. See Bodelsen (1968).

176). As Mainardi (1994, p. 81) states, the year 1880 “marked a milestone in French cultural as well as political history, for this was the year that the state abandoned the fine arts exhibition that it had sponsored for almost two hundred years.” Since then the decentralized forces of the market allocated paintings between private salons, group exhibitions and art galleries of dealers. According to Brauer (2014, p. 1) “while Paris has long been regarded as the cultural capital of the nineteenth century, it was only after the Republic of the Republicans came to power when the ‘old’ Salon was dissolved that it was able to operate as the ‘modern art centre’”.

## 2.2 The art market after the liberalization of 1880

The years after the end of the government-controlled Salon experienced a proliferation of privately organized art exhibitions. The first consequence of the liberalization of the market for art exhibitions was a rivalry between artists’ societies to take over the old Salon (Brauer, 2014, Ch. 2). The Free Society of French Artists prevailed and, since 1881, the election of the jury of the new *Salon des Artistes Français* took place under universal suffrage and a variety of rules guaranteeing turnover of the jurors and transparency of decisions (such as public access to the minutes of the meetings of the jury). All the main artistic constituencies were represented in this open salon, fostering competition between conservative and modern views: in 1881 the Salon prizes were awarded to classical artists such as Bertrand and Lucas, but also Manet and the pre-impressionist Boudin were awarded a medal, and in 1882 Cézanne was finally accepted for the first time.

Other salons were soon organized, starting with groups of artists that had been discriminated within the old Salon, such as women, whose *Salon de l’Union des Femmes Peintres* took place in the same location of the French Artists’ Salon since 1882, and independent painters through the *Salon des Artistes Indépendants* taking place since 1884. This independent salon committed to have no jury of admission and constantly exhibited impressionist and post-impressionist paintings. Later on, two other major salons will be organized: the elitist *Salon National des Beaux-Arts* taking place initially at Champ-de-Mars and led by a group of dissidents of the French Salon headed by Meissonier and Puvis de Chavannes, and the more radical *Salon d’Automne*, which will become another main reference for the *avant-garde*. These major salons had to compete fiercely to obtain the best exhibition places for which they had to apply every year, to attract exhibiting painters and paying visitors, and to secure commissions for their artists (Brauer, 2014). The only attempt of the government to directly organize another exhibition in competition with the private ones was the *Triennale* of 1883, but it ended up in

a failure of participation both of painters and public and was not replicated. Meanwhile, other private salons emerged<sup>10</sup> and a variety of smaller “salonnets” followed the major ones during all the seasons, offering unprecedented opportunities of exhibition for all the painters in Paris, and attracting foreign artists as well.

Since the end of the government-controlled Salon, also group-exhibitions were flourishing, including new ones by the Impressionists in 1881, 1882 and 1886, when the tide was slowly beginning to turn in their favor, those of watercolor painters, pastel painters, and so on. In 1883, just between February and June, Paul Durand-Ruel organized solo-exhibitions dedicated respectively to Boudin, Monet, Renoir, Pissarro and Sisley. Other prominent dealers active in Paris included George Petit (who organized an important exhibition since 1883), Theo van Gogh, brother of Vincent, who was working for Goupil, Ambroise Vollard (who “discovered” Cezanne and later Picasso) and the Bernheim-Jeune brothers, often contending impressionist artists to Durand-Ruel. Solo-exhibitions were the new tool to advertise and sell works by emerging painters: it has been estimated (by Félicie de Maupeou; see [Patry, 2015](#)) that during the 1870s the number of solo-exhibitions staged in Paris was 35, but this number increased to 88 in the 1880s and literally exploded to 300 in the 1890s.<sup>11</sup> All this promoted product differentiation by artists and increased competition between dealers in discovering and proposing new innovative artists to the public. Such competition was open to outsiders of the academic system, and was going to allow them to start extracting some of the rents of the dealers, as one would expect under vertical contracts with price setters. More in general, the liberalization had reduced barriers to entry in the art market fostering price competition (something that in economics was being formalized in those years by [Bertrand, 1883](#)).

Looking for foreign demand, the main Parisian art dealers started to exhibit abroad. Durand-Ruel organized a show on the Impressionists in London in 1883, and in the same year he sent eighty works to an exhibition in Boston and others to Rotterdam and Berlin. In 1886, he was invited by the American art promoter James Sutton to put together a major exhibition of three hundred works by Impressionists in New York, at the galleries of Madison Square. While sales were still poor and remained so after another exhibition in 1887, this moment has been often considered as a turning point for the international recognition of the Impressionists ([Patry, 2015](#)). In the following years new American buyers started purchasing paintings of the new

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<sup>10</sup>Some of the most notable were the *Salon des Artistes peintres, sculpteurs et graveurs* of Anquetin, the *Salon de la Rose-Croix*, the *Salon des Orientalists* and many others (see [Brauer, 2014](#)).

<sup>11</sup>As [Jensen \(1994, p. 112\)](#) notices “no one understood better than Durand-Ruel that the retrospective could be used decisively to develop the taste for a particular kind of art, that retrospectives could form the basis for establishing an alternative canon of artists to that offered by the Academy and the Salon.”

school, first led by pioneering collectors such as the Cassatts, the Havemeyers and the Potter Palmers, who built the first American collections of Impressionists, and then by dealers such as Michael Knoedler. Slowly, the exhibitions of innovative painters started to be more successful also in Paris, even if the resistance of the academic painters was far from over. The Universal Exposition of 1889 featured a few impressionist works and a joint exhibition of Monet and the sculptor Rodin (though the more radical group led by Paul Gauguin had to organize a separate show) and some of the Impressionists obtained better compensations during the 1890s, when other *avant-garde* painters were emerging. The British market discovered the Impressionists with the 1905 exhibition organized in London by Durand-Ruel. But was with the increasing interest of German, Swiss and Russian collectors from the beginning of the 1900s that the prices of the Impressionists really took off (see [Jensen, 1994](#)).

The new art system has been characterized by [White and White \(1965\)](#) as a “dealer-critic system” based on the novel role of art dealers and independent critics. The artistic leadership of Paris had concentrated there a high number of dealers, mostly active around the Louvre on the right bank of the Seine or around the Institute de France on the left bank, and an increasing number of art critics becoming the new arbiters of taste, with interactions between these players and the same artists often taking place in café replacing the centrality of academic circles. The role of new entrepreneurial dealers was moving from a trade in canvases toward an investment in careers or in schools of artists with whom they had a continuing relation. Already Francis Petit, Hector Brame and Jean Durand had been investing in the emerging Barbizon school, while Adolphe Goupil was mostly trading in works of the academic school (see [David et al., 2014](#)). But a forward-looking dealer as Paul Durand-Ruel was the first dealer (and the only one until the 1880s) to invest systematically in the impressionist school well before it became successful (even borrowing from banks to do so, and using paintings as collateral, with a new financial approach to art investment) and he supported the prices of his stable of artists for years (to insure their valuations in a thin market).<sup>12</sup> Moreover, he was the first to guarantee the income of his painters in difficult moments paying monthly fees and bills (so that artists could continue their artistic career) in exchange for an exclusive representation of their works (to monopolize their supply). For instance, he reached exclusive dealing with Sisley, Pissarro, Renoir and Monet over long periods, though all of them tried to withdraw repeatedly from these agreements during the 1880s and deal with rivals such as Petit or van Gogh, or they simply tried to put dealers in competition and extract higher prices.

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<sup>12</sup>It has been estimated that Durand-Ruel bought about 1,500 works by Renoir, 1,000 by Monet, 800 by Pissarro, 400 each by Degas, Sisley and Cassatt and 200 by Manet (see [Patry, 2015](#), p. 12).

Recently, Galenson and Jensen (2009, 2007) have challenged the theory of White and White (1965) of a new “dealer-critic system” arguing that the role of the dealers during the late 1800s was not yet comparable to the one of the 1900s, while it was the direct initiative of the artists, primarily the Impressionists, that created new exhibitions and changed the structure of the market. Our view is that it was the liberalization of 1880 that opened the way to effective plurality of art exhibitions, allowing access to the art market for all painters, and fostering competition on the merit between them. Competition between salons and between art dealers were complementary phenomena facilitated by the endorsement of a free market policy by the Republican government. As Brauer (2014, p. 3) notes, this “generated an unsurpassable art industry that was far from an interregnum between the fall of the Salon and the rise of the art dealer. Offering an unparallel choice of art identities and alliances, together with undreamed of opportunities for sales, commissions, prizes and art criticism, these great Salons guaranteed the centripetal and centrifugal power of Paris as the ‘modern art centre’.”

The *laissez-faire* reforms of the Republican government liberalized the system of art exhibitions. While it took some time for the salons to open, for outsiders to exhibit in new salons, for new art dealers to trade innovative artists and for the buyers to acknowledge the new schools, the compensations of some of the Impressionists started to increase, especially in the 1890s. The same Durand-Ruel managed to pay off all his debts by the end of the century, and to obtain substantial profits in the next years.<sup>13</sup> Only at the beginning of the new century, however, the Impressionists will achieve the definitive success in the art market and in art history.

### 3 Research design and the dataset

In the last four decades of the 1800s, the prices of the impressionist paintings were not only below their future levels, but also well below those of the average paintings by contemporary artists active in the Paris art market. We have argued that the Salon system erected entry barriers against independent and innovative artists as the Impressionists, who could not reach visibility of the buyers through the only existing art exhibition. Now, we will provide evidence that this had a tangible impact on the art market by reducing the prices of the artworks of these outsiders, and that the liberalization of 1880 contributed to end this marginalization and foster

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<sup>13</sup>For instance, at the auction of the art critic Duret in 1894 two Manets were sold at more than 10 thousand francs, some “Dancers at the bar” and “Race Horses” by Degas were sold for 7,500 and 7,100 francs respectively, the oils by Monet were sold on average beyond seven thousand francs each, those by Pissarro, Renoir and Sisley around 1,500 on average, and even Cezanne was sold around 700 francs (Bodelsen, 1968). Manet’s “A Bar at the Folies Bergère” was sold for 23,000 francs in 1896, “Déjeuner sur l’herbe” for 55,000 in 1900, when the landscapes by Monet started to sell at 10 thousand francs.

demand for them. For this purpose, we test separately two hypothesis employing standard econometric techniques of fixed effects estimation.

The first hypothesis is about the existence of entry barriers against outsiders under the government-controlled Salon. While the discrimination against the Impressionists is an *ex post* judgment of art historical accounts, its economic effect can be recovered from the impact of acceptance of painters at the Salon on the price of their paintings traded in the market. If entry barriers or discrimination in the Salon denied effective access to the market for the outsiders, the occasional acceptance of a painting by an outsider at a Salon should immediately increase visibility and demand and therefore increase the prices of the artworks of the same painter traded in the market. Our focus is on the impact in the year immediately following a Salon, so that the effect of exhibition at the Salon is more likely to be direct and not mixed with other factors. Such an impact is not expected, or should be smaller, for other painters, and especially for the insiders of the Salon whose reputation was already established in the market and whose demand should be marginally affected by the exhibition of an additional painting. This leads to the following hypothesis:

**H1: In the pre-1880 period, exhibition of a work by an Impressionist painter at a Salon induced an upward jump in the prices of all works by the same Impressionist painter traded in the subsequent year.**

We have argued that the end of the government-controlled Salon in 1880 shifted the structure of the art market from an imperfect competition with barriers to the entry against outsiders toward a decentralized and contestable market where artists could attract buyers displaying their works in competing salons and exhibitions. This contributed to increase the demand and the relative prices of artists who had been marginalized until then. Accordingly, our main research design has as goal to employ the policy change of 1880 and a comparison group of painters defined as Insiders to test the following hypothesis:

**H2: The prices of the works of the Impressionists started to increase relative to those of the Insiders after the liberalization of 1880.**

Our baseline definition of the comparison group of the Insiders of the Salon includes all the painters who were awarded a Medal of Honor, a First or Second Class Medal or higher recognitions at the Salons between 1859 and 1880 because these were painters of the same generation of the Impressionists who were not discriminated by the Salon and indeed represented its inner circle. While we realize that the institutional change must have led to a gradual opening up of the market and a *fortiori* a gradual change in market prices, our timing choice is as conservative as possible as we will adopt a difference in difference estimation to verify if

there was an increase in the price of Impressionists relative to the Insiders immediately after the liberalization.<sup>14</sup>

In the rest of this Section we provide a description of our data and we show some descriptive statistics. The empirical analysis is based on a unique dataset about primary and secondary sales of paintings executed by artists based in Paris (though buyers may be abroad), which was built by merging information from nine different sources:

- the records of the early Impressionist sales (1874-94) reported by [Bodelsen \(1968\)](#);
- the catalogue of the recent exhibition on Durand-Ruel, the leading art dealer on impressionist art ([Patry, 2015](#));
- the memoirs of the same [Durand-Ruel \(2014\)](#);
- the Sales books of Goupil & Cie later renamed Boussod, Valadon & Cie (1846-1919), the major art gallery in Paris at the time, founded by Adolphe Goupil;
- the Sales books of Knoedler & Co. in New York (1872-1970), the major art gallery in New York for French art at the time, developed from the American branch of Goupil by Michael Knoedler;
- the Archive Center of the Museum d'Orsay, the most important collection of French art of this period in the world;
- the Online collection of the Metropolitan Museum of Art;
- the Online collection of the Chicago Art Institute;
- the *Dictionnaire des Ventes d'Art* of [Mireur \(1911\)](#).

The information of a typical painting reports the artist's name, the title, the genre, the surface area, the payment date, the price paid, the name of seller and buyer, the location of the buyer, the location of the buyer and (occasionally) the year of execution. On this basis, we have been able to delete overlapping observations across the different sources of the dataset and correct contradictory information by checking further art historical sources. Furthermore, data from the original Salon catalogues, or *livrets* (see [Janson, 1977](#)), allow us to know how many paintings were accepted at each Salon for each painter and to know which painters were

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<sup>14</sup>We should note that the initial phase of impressionism was, if anything, more innovative than the late phase, therefore a relative increase in the price of paintings by the Impressionists cannot be explained with an exogenous and sudden increase in their quality. The econometric analysis will control for quantifiable aspects of paintings (such as size) that are at least correlated with quality.

awarded Medals of Honor and other medals at each Salon, which will be our objective source to define the Insiders of the Salon system.<sup>15</sup>

Paintings' prices are all expressed in French francs and corrected for the cost of living (from Allen, 2001). In case of sale abroad, we converted prices from another currency (mainly American dollars, English pounds or Dutch guilders). We have selected only oil paintings for homogeneity of technique and to be consistent with earlier historical investigations. The original dataset contains approximately 27,500 observations, of which about twenty thousand observations are for the period 1859-1900 which is the focus of our empirical analysis, and provides wide information regarding paintings' and painters' characteristics. Within this sample we also have 1,628 paintings for which we have repeated transactions in different years (from two to six transactions per painting, with an average holding period of five years), of which 1,099 refer to the period 1859-1900 (corresponding to 2,248 observations) including 129 paintings by Impressionists (for 295 transactions): for this reduced sample we can implement repeated sales regressions controlling for fixed effects of paintings rather than for their characteristics.

The surface area has been converted in square meters and is available for almost seven thousand observations; we classified six size groups with a residual one for works without information on size. From the description of each painting, we could derive the information on each painting's genre: landscapes, portraits, still life paintings, genre paintings and figurative paintings including historical, mythological and religious subjects. About a thousand sales are primary sales from the painter to the buyer, while the rest are secondary sales intermediated by a dealer or through an auction. In many cases, we have information on the destination of the sale and even on buyers' names, who could be either collectors or market dealers. Buyers were widely dispersed with the exception of a few famous art dealers (Goupil, Boussod-Valadon, Durand-Ruel, Petit, Theo van Gogh and Vollard in Paris, Tooth in London, Knoedler and Williams & Everett in the U.S.) and collectors from Paris (for instance Hoschede, Jean-Baptiste Faure, Isaac de Camondo) and abroad (mainly Americans as Havemeyer, Frick, Rockefeller or Rothschild) or purchases from museums.

We focus on artists active in the art market of Paris, and we classify them in four groups. The first group of "Impressionists" includes strict Impressionists such as Monet, Degas, Renoir, Pissarro, Sisley and Morisot, plus Manet, who was often considered as their artistic mentor, and Cézanne, Gauguin, van Gogh and Toulouse-Lautrec who were later considered post-Impressionists (but notice that Cézanne and Gauguin also participated to the group exhibitions

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<sup>15</sup>Our information is limited by the absence of systematic records of the rejected paintings. Some *livrets* are available also for a few years after the liberalization, but the organization of the Salon was largely changing.

Table 1: Descriptive statistics on prices (all painters 1859-1900)

Variable	N. obs.	%	Mean	SD. Price	Min.	Max.
All	20,112	100	10,257	18,835	7	854,494
Genre	9,792	49	9,792	16,087	19	364,730
Figurative	1,014	5	15,106	24,858	18	318,717
Landscape	8,511	42	10,298	21,183	7	854,494
Still life	469	2	4,206	6,389	23	72,984
Portrait	326	2	11,211	17,108	28	153,828
Primary	934	5	5,273	7,964	54	107,527
Missing size	13,521	67	9,615	16,460	14	555,700
Size 0 – 0.25 sq m	3,158	16	7,575	18,653	21	854,494
Size 0.25 – 0.50 sq m	1,774	9	11,408	20,473	7	412,371
Size 0.50 – 1 sq m	1,120	6	16,889	26,129	62	213,115
Size 1 – 2 sq m	379	2	25,159	38,721	118	453,041
Size 2 – 6 sq m	145	1	20,698	25,065	549	148,936
Size > 6 sq m	15	0	44,353	29,052	4,396	96,000
Missing destination	9,746	48	9,183	14,642	14	318,717
Paris	5,439	27	8,725	17,816	7	555,700
US	2,976	15	16,218	29,798	131	854,494
Europe	1,951	10	10,796	16,767	47	260,695
Impressionists	1,948	10	3,757	8,096	7	145,225
Insider	6,234	31	9,814	14,833	18	364,730
Barbizon school	7,590	38	13,216	25,047	14	854,494
Other artists	4,340	22	8,636	12,822	19	260,695

Note: prices in 1880 french francs

of the Impressionists). The group of “Insiders” is defined as including all the winners of Medals of Honor or First Class and Second Class Medals and equivalent awards during the period 1859-1880, as in the cases of Pascal Dagnan-Bouveret, Eugène Fromentin, Jules Joseph Lefebvre, Pierre Auguste Cot, Emile Auguste Carolus-Duran, Edouard Detaille and others, including older established academic painters such as Cabanel, Gérôme, Meissonier, Bouguereau, Bonnat and Ingres. The third group is made of the so called “Barbizon school” artists, who had been initially marginalized in the official Salons and were then gradually recognized in both the Salon and the art market (including Corot, Daubigny, Rousseau, Millet and the today less famous Narcisse Diaz De La Peña, Jules Dupré, Henri Harpignies, Charles Jacque, Constant Troyon, Alexandre Defaux and Félix Ziem). Finally, we have a residual group of “Others” which includes both traditional painters and older independent painters: for instance they include Boudin, Courbet, Delacroix, Puvis de Chavannes, Jules Bastien-Lepage, Jehan Vibert, Léon Lhermitte and many others. The complete list of artists is in the Appendix.

Descriptive statistics on the dataset used in the regressions are in Table 1. The most

expensive paintings are the figurative ones, while the most common ones are genre paintings and landscapes. For less than half of the observations we know the precise surface area of the paintings, which is rather small on average (a bit more than a quarter of a square meter) reflecting a typical domestic destination. For the majority of observations we know the location of the buyer, which is Paris in most of the cases. Paintings sold elsewhere in Europe have higher prices on average, and those sold in the U.S. have even higher prices, reflecting the fact that only the works of best quality were exported. The dataset includes almost two thousand transactions of paintings by the Impressionists, whose average price is less than half of the average price of the other artists, and almost a third of the price of the Insiders, reflecting the marginal role of this group of artist in the art market. The most frequent group of painters in the dataset is however the Barbizon group, whose earlier appreciation, compared to the Impressionists, justifies higher prices on average.

## 4 Empirical Analysis

In this Section we analyze regressions that relate the log of the real price of paintings to a number of explanatory variables and time dummies. The empirical analysis starts with the year 1859 because the Salon took place almost every year since then and we have a substantial number of recorded transactions for the following years. We restrict the analysis to the transactions taking place before 1900 in order to focus on two decades before and two decades after the end of the Salon, to include primary commissions as well as immediately subsequent sales of paintings and to avoid considering the new century in which the international success of the Impressionists rapidly pushed their prices at the top range for contemporary painters (but we also provide robustness checks with regressions on transactions until 1914). The nature of our data allows us to introduce painter and buyers fixed-effects to evaluate the extent to which price heterogeneity is related to unobservable characteristics among painters. The full sample includes up to 68 artists and 460 buyers.

### 4.1 The impact of exhibition at the government-controlled Salon

Our first investigation is focused on the years in which the official Salon was under the control of the government, that is until 1880, and it verifies whether the Salon policy was inducing a bias on the art market. We do this by testing for the impact of exhibition of a painter in a Salon on the immediately subsequent prices of his or her paintings in the art market. If all artists

had similar access to the market, we would not expect a differential impact of exhibition at the Salon across painters: this is what we expect for most artists. However, in case of entry barriers against outsiders, we expect for them a positive impact of exhibition at the Salon on the price of immediately subsequent transactions: this is what we expect for the Impressionists. We should stress that we have complete information on how many paintings by each artist were exhibited in each Salon, but we do not have systematic information on all submissions and rejections at the Salon: the artists did not necessarily submit a painting at every Salon and we do not know how many paintings they did submit and how many were rejected. Accordingly, our purpose is to estimate the impact of having a painting exhibited at the Salon (rather than having a submission accepted or rejected).

The price equation we estimate in the full specification is the following:

$$p_{nijt} = \alpha + \beta_i \sum G_i \cdot E_{it} + v_1 K_{it} + v_2 K_{it}^2 + \gamma X_{ni} + \theta_i + \psi_j + \tau_t + \varepsilon_{nijt} \quad (1)$$

where  $p_{nijt}$  is the natural logarithm of the real price of painting  $n$  by artist  $i$  sold to buyer  $j$  at time  $t$ ,  $\alpha$  is a constant,  $X_{ni}$  denotes the observable painting-varying exogenous characteristics of both artists and paintings (including size dummies, genre dummies and location of sale),  $\theta_i$  is the pure artist effect,  $\psi_j$  is the buyer fixed effect,  $\tau_t$  denotes a time dummy and  $\varepsilon_{nijt}$  is the statistical residual.

The key variable  $E_{it}$  refers to the normalized number of exhibited paintings per artist  $i$  at the last Salon in year  $t$  (or, if the Salon did not take place, in  $t - 1$ )<sup>16</sup> and it is interacted with the group of artists  $G_i$  to which painter  $i$  belongs, namely Impressionists, Insiders, Barbizon painters or the (omitted category of) others. The coefficients  $\beta_i$  are our coefficients of interest. Since the jury decided on submissions at the beginning of the year but paintings could be sold over the entire year, the coefficient provides a lower bound on the impact of exhibition on prices. The total number of accepted paintings changed between Salons depending on how restrictive the jury was, from a minimum of 1,491 in 1873 to a maximum of 3,957 in 1880, with an average over the period of interest of 2,287 accepted paintings. Accordingly, we normalize the number of accepted paintings per artist by expressing it as a percentage of the total number of paintings exhibited in the same Salon.<sup>17</sup> We also consider cumulated effects of the exhibitions

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<sup>16</sup>The Salon did not take place in 1860, 1862 and 1871. All the following results are robust when we exclude transactions from these years.

<sup>17</sup>We did not find relevant non-linearities in the impact of exhibition. We also used, with analogous results, a simpler measure of exhibition at the Salon represented by a dummy equal to one for all paintings of an artists who had at least one painting accepted in the last Salon (this happened 80% of the time for Insiders and Others but only 26% of the time for the Impressionists and 28% for the painters of the Barbizon school). Notice that, when accepted, the Impressionists had one or two paintings accepted (only Morisot could exhibit four works in

at the Salons. A new exhibition could exert either a temporary effect or a permanent effect, increasing the reputation of an artist while the stock of exhibited paintings increases over time: our interest is in showing that even taking into account the impact of accumulated exhibitions, a new one had a differential impact for the Impressionists relative to the Insiders. For this reason, we also use a variable  $K_{it} = \sum_{s=1859}^{t-1} E_{is}$  representing the stock of (relative) number of exhibited paintings exhibited before the current Salon as well as its quadratic term to account for non-linearities. The coefficients  $v_1$  and  $v_2$  will tell us whether permanent effects do exist and whether they are increasing or decreasing with the number of exhibitions.

Our main results are summarized in Table 2. All specifications control for five years dummies to take into account changes in price trends. In column (1), the logprice is regressed only on the number of exhibited paintings per artist, which shows a positive and largely significant impact of an additional exhibited painting on the prices of works by the same author traded in the same year. The price of a painting appears to increase by 8% for every additional work by the artist accepted in an average Salon (corresponding to  $1.758 \cdot 100 / 2,287$ ). This result, however, may simply reflect the higher quality of the average paintings by the accepted artists, and therefore it does not directly support our hypothesis. Accordingly, in the following columns, we regress the price on the full set of paintings' characteristics and interact the exhibition measure with the category of a painter.

Before commenting on the impact of exhibition at the Salon, we emphasize the basic determinants of art prices emerging from the analysis in column (2) of Table 2. We can verify the traditional positive correlation of prices with the surface area of the painting (the coefficients of the size dummies are compared to the omitted category of paintings whose size is unknown in the dataset, and they increase monotonically with the size group). There are some clear differences in prices across genres, with figurative paintings paid more than portraits, with landscapes and genre paintings paid less than the portraits but not in a significant way, and still life paintings paid much less than all the other genres: this may reflect the persistent bias of the market of this period in favor of traditional paintings belonging to the figurative type. Primary sales are not paid in a significantly different way compared to secondary sales, while in these two decades the sales taking place in Paris are paid marginally better, though the differentials with sales to U.S. and elsewhere in Europe are not significant (suggesting that, in this period, a painting of a given quality was sold at similar prices abroad). Most relevant for our purposes, the paintings of the Insiders are better paid than any other paintings, while those of the Barbizon school are paid below the average and the paintings of the Impressionists are

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1864).

paid by far less than any other paintings in this period.

With this background in mind, we can now notice that the exhibition of an additional painting with given characteristics at the Salon has no impact on the average painter of the residual category, but has a drastically positive impact on the market compensation of the Impressionists, and such an impact is absent for the other groups. While this specification clarifies that there is something peculiar to the Impressionists, the impact of exhibition on their prices may be still due to differences in quality (as perceived by the market) between Impressionists who were more often accepted at the Salon (such as Manet or Degas) and those who were rarely or never accepted (Monet or Cézanne).

In column (3) of Table 2 we control for artist fixed effects (Corot is the omitted artist), and the impact of exhibition at the Salon remains positive and strongly significant only for the Impressionists. Quantitatively, we can observe a price increase of 31% for every exhibited painting at an average Salon. Notice that price differentials between genre paintings, landscapes, portraits and still life paintings disappear after controlling for the characteristics of paintings, painters and buyers, and only figurative paintings command a higher price, in line with a residual bias of this market toward traditional art (or the imperfect control for the size of paintings). This specification makes clear that the impact of exhibition emerges forcefully only for the category of painters that was marginalized in the government-controlled Salon, namely the Impressionists, supporting our first hypothesis.

In column (4), we add dummies also for the buyers (with at least 10 observations in the estimation sample). The prices of impressionist paintings increase substantially for every additional work of the author accepted in an average Salon, while the prices of the other painters do not show any significant change after exhibition at the Salon. In particular, neutrality of the Salon holds for the Insiders, who were favorite in the market and had no problems of visibility in front of the buyers, but also for the members of the Barbizon school, who had been marginalized early on, but were largely recognized by the 1860s-1870s, as well as for the residual category of artists.

Finally, column (5) represents the full specification. The cumulative effect of past exhibitions is positive with a clear concave shape, suggesting that exhibition at the Salon was increasing the reputation of painters in the art market, but with diminishing returns to acceptance. Nevertheless, the impact of an additional exhibition remains positive for the Impressionists (and only for them), with a price increase of 28% for every additional exhibited painting. All this provides a solid evidence that any new opportunity for the Impressionists to be exhibited in

Table 2: Price determination and effect of exhibition at the Salon, 1859-1880 (other artists as reference group)

	(1)	(2)	(3)	(4)	(5)
	Baseline	Painting Characteristics	Artists FEs	Artists & Buyers FEs	Artists & Buyers FEs
(Relative) N. exhibited paintings	1.758*** (0.292)	-0.613 (0.496)	-0.229 (0.503)	-0.133 (0.496)	0.024 (0.502)
(Relative) N. exhibited paintings x Impressionist		10.967*** (2.005)	7.411*** (2.167)	6.191*** (2.318)	6.456*** (2.304)
(Relative) N. exhibited paintings x Insider		-2.252*** (0.61)	1.051* (0.583)	0.916 (0.575)	0.726 (0.575)
(Relative) N. exhibited paintings x Barbizon		-1.734*** (0.632)	-0.88 (0.833)	-0.94 (0.83)	-1.011 (0.849)
(Relative) N. exhibited paintings accumulated					0.695*** (0.182)
(Relative) N. exhibited paintings accumulated squared					-0.307*** (0.076)
Impressionist		-3.024*** (0.139)			
Insider		0.520*** (0.058)			
Barbizon		-0.250*** (0.057)			
Paris vs <i>Unknown destination</i>		0.229*** (0.04)	0.125*** (0.035)		
US vs <i>Unknown destination</i>		0.173*** (0.04)	0.091*** (0.032)		
Europe vs <i>Unknown destination</i>		0.194*** (0.045)	0.141*** (0.038)		
Size smaller than 0.25		0.051 (0.137)	-0.174* (0.1)	-0.203** (0.098)	-0.214** (0.097)
Size between 0.25 and 0.50 sq m		0.317** (0.135)	0.212* (0.123)	0.144 (0.117)	0.136 (0.116)
Size between 0.50 and 1 sq m		1.114*** (0.135)	0.646*** (0.116)	0.541*** (0.114)	0.535*** (0.113)
Size between 1 and 2 sq m		1.452*** (0.149)	1.300*** (0.133)	1.157*** (0.131)	1.138*** (0.13)
Size between 2 and 6 sq m		1.541*** (0.162)	1.367*** (0.172)	1.242*** (0.178)	1.218*** (0.176)
Genre vs <i>Portrait</i>		-0.152 (0.119)	0.021 (0.091)	0.06 (0.09)	0.071 (0.089)
Figurative vs <i>Portrait</i>		0.498*** (0.129)	0.342*** (0.099)	0.377*** (0.099)	0.387*** (0.099)
Landscape vs <i>Portrait</i>		-0.146 (0.124)	0.015 (0.094)	0.055 (0.098)	0.064 (0.097)
Still life vs <i>Portrait</i>		-0.720*** (0.145)	-0.018 (0.121)	0.035 (0.117)	0.042 (0.118)
Primary		0.03 (0.116)	0.212** (0.089)	0.1 (0.087)	0.114 (0.087)
Year FE	(YES)	(YES)	(YES)	(YES)	(YES)
Artist FE	(NO)	(NO)	(YES)	(YES)	(YES)
Buyer FE	(NO)	(NO)	(NO)	(YES)	(YES)
Constant	7.219*** (0.081)	7.543*** (0.147)	7.119*** (0.171)	7.333*** (0.169)	4.017*** (0.443)
Observations	6,977	6,977	6,977	6,977	6,977
R-squared	0.053	0.268	0.51	0.529	0.531

Robust standard errors in parentheses, \*\*\* p< 0.01, \* p< 0.05, \* p< 0.1

Table 2 (cont'd): Price determination and effect of exhibition at the Salon, 1859-1880.

Artists' fixed effects from regression (4)					
	coef.	(st.err)		coef.	(st.err)
Meissonier (1815-1891)	1.974***	(0.138)	Daubigny (1817-1878)	-0.173**	(0.088)
Gérôme (1824-1904)	1.131***	(0.127)	Moreau (1826-1898)	-0.186	(0.149)
Cabanel (1823-1889)	1.006***	(0.147)	Neuville (1835-1885)	-0.203	(0.136)
Dagnan-Bouveret (1852-1929)	0.936***	(0.153)	Vibert (1840-1902)	-0.224	(0.143)
Merle (1823-1881)	0.685***	(0.134)	Lobrichon (1831-1914)	-0.308**	(0.137)
Fromentin (1820-1876)	0.676***	(0.136)	Fichel (1826-1895)	-0.589***	(0.147)
Millet (1814-1875)	0.674***	(0.191)	Jacque (1813-1894)	-0.697***	(0.118)
Bonnat (1833-1922)	0.655***	(0.159)	Carolus Duran (1837-1917)	-0.699**	(0.281)
Bouguereau (1825-1905)	0.644***	(0.127)	Vollon (1833-1900)	-0.703***	(0.136)
Detaille (1848-1912)	0.606***	(0.141)	Jacquet (1846-1909)	-0.728***	(0.131)
Rousseau (1844-1910)	0.532	(0.494)	Courbet (1819-1877)	-0.731**	(0.295)
Gilbert (1819-1895)	0.524**	(0.21)	Goupil (1839-1883)	-0.784***	(0.168)
Troyon (1810-1865)	0.481**	(0.217)	Henner (1829-1905)	-0.863***	(0.301)
Lefebvre (1836-1911)	0.431*	(0.255)	Bernebellecour (1838-1910)	-0.865***	(0.152)
Marcke de Lummen (1827-1890)	0.365***	(0.125)	Degas (1834-1917)	-0.925***	(0.212)
Breton (1827-1906)	0.334**	(0.151)	Lambert (1825-1900)	-1.097***	(0.167)
Roybet (1840-1920)	0.229	(0.17)	Ribot (1823-1891)	-1.406***	(0.536)
Delacroix (1798-1863)	0.146	(0.284)	Defaux (1826-1900)	-1.653***	(0.123)
Ingres (1780-1867)	0.141	(0.446)	Harpignies (1819-1916)	-2.105***	(0.095)
Dupre (1811-1889)	0.133	(0.126)	Manet (1832-1883)	-2.321***	(0.214)
Diaz De la Pena (1807-1876)	0.034	(0.123)	Lhermitte (1844-1925)	-2.571***	(0.329)
Toulmouche (1829-1890)	-0.028	(0.156)	Morisot (1841-1895)	-2.771***	(0.266)
Perrault (1832-1908)	-0.078	(0.136)	Monet (1840-1926)	-2.967***	(0.171)
Ziem (1821-1911)	-0.086	(0.114)	Boudin (1824-1898)	-3.032***	(0.428)
Constant (1845-1902)	-0.127	(0.19)	Pissarro (1830-1903)	-3.242***	(0.24)
Cot (1837-1883)	-0.161	(0.154)	Cezanne (1839-1906)	-3.539***	(0.448)
Chaplin (1825-1891)	-0.164	(0.165)	Sisley (1839-1899)	-3.560***	(0.173)
Couture (1815-1879)	-0.168	(0.184)	Renoir (1841-1919)	-3.704***	(0.192)

Buyers with at least ten observations

	coef.	(st.err)		coef.	(st.err)
Vollard	1.202***	(0.416)	Knoedler	-0.089***	(0.034)
Museums	1.012***	(0.3)	Petit	-0.115	(0.094)
Faure	0.273*	(0.163)	Theo van Gogh	-0.190**	(0.084)
Paul Durand-Ruel	0.244**	(0.099)	Arthur Tooth	-0.219	(0.229)
Williams and Everett	0.230*	(0.131)	Forbes	-0.224	(0.137)
Wallis and sons	0.208**	(0.091)	McLean	-0.369***	(0.117)
Noyes and Blakeslee Inc.	0.161	(0.126)	Goupil	-0.373***	(0.025)
Everard and Cie	0.112	(0.114)	Avery	-0.456***	(0.096)
Schaus	0.064	(0.158)	Haseltine	-0.971***	(0.189)
Bague and Cie	-0.022	(0.196)			

Robust standard errors in parentheses, \*\*\* p < 0.01, \* p < 0.05, \* p < 0.1

front of the market was exerting a positive impact on their market evaluation.<sup>18</sup>

## 4.2 The impact of liberalization of art exhibitions

We now present the results of a difference-in difference (DiD) estimation to show that the liberalization started with the end of the government-controlled Salon in 1880 was a key factor in determining the end of the marginalization of the Impressionists and the consequent recognition of these painters in the art market. For this reason, our treatment variable *Post1880* is a dummy that turns one after the treatment occurs. The control group is represented by the Insiders, a group of painters who were not discriminated in the market before the liberalization because they were internal to the Salon system. Our aim is to verify whether the liberalization had a differential impact on Insiders and Impressionists. In Figure 1, we provide a preliminary insight on this, reporting the average prices of the two categories of painters around 1880. While the single dots represent the actual annual average price of both groups of artists, the dashed and solid lines stand for the trend in prices of Insiders and Impressionists, respectively. As we can see, the average price of the Insiders reached a peak in the year of the last government-controlled Salon and started to decline in the following year, while the average price of the Impressionists had an increase in the very first year after the end of the government-sponsored Salon, that anticipated a slow process of increase over the next years. Of course, this does not control for the characteristics of the paintings and differences between artists to be considered in the econometric analysis.

Methodologically, we exploit the cross-sectional variation between Impressionists and Insiders and apply a classic DiD regression of the following type:

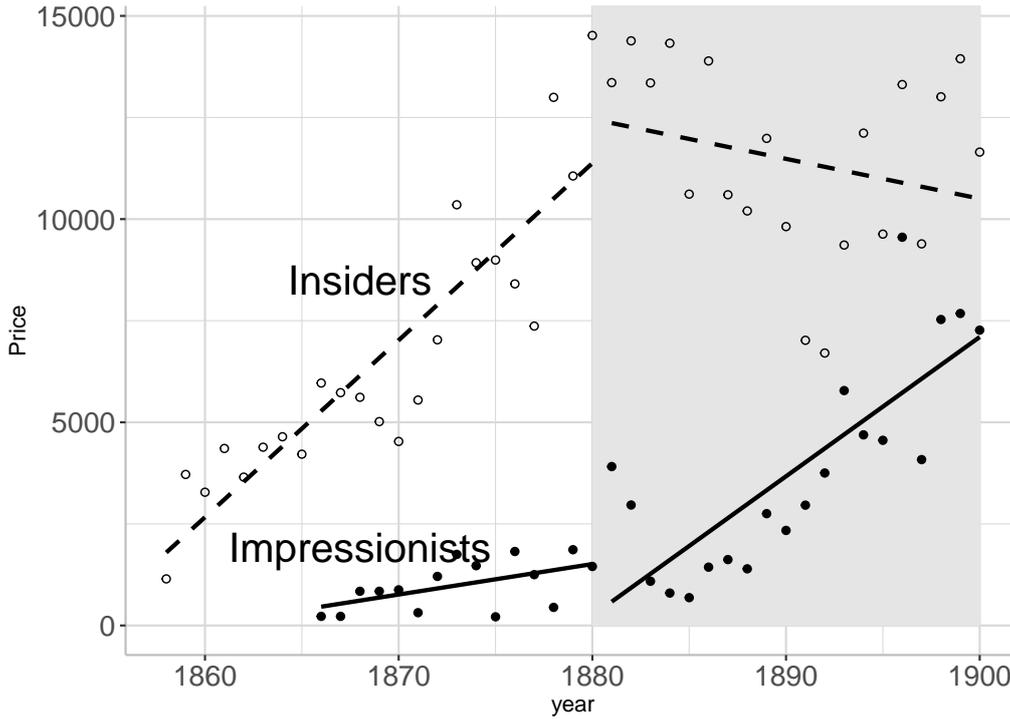
$$\begin{aligned}
 p_{nijt} = & \alpha + \delta Post1880 + \mu Impr + \rho(Post1880 \cdot Impr) + \\
 & + \beta_0 E_{it} + \beta_1 Impr \cdot E_{it} + \gamma X_{nit} + \theta_i + \psi_j + \tau_t + \varepsilon_{nijt}
 \end{aligned}
 \tag{2}$$

where *Impr* is a dummy variable that takes on the value of one for Impressionists and zero otherwise, *Post1880* is a dummy that turns one after the treatment occurs, and the other

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<sup>18</sup>Notice that the top prices are associated with Insiders such as Meissonier, Gérôme, Cabanel, Dagnan-Bouveret, Fromentin and others who were significantly better paid than Corot (the omitted artist). All the Impressionists are instead associated with significantly lower prices, with the lowest ones for Renoir, Sisley, Czanne, Pissarro, Monet and Morisot, with only Boudin (a pre-Impressionist indeed) comparable to them. Manet was barely better priced, and Degas was at the time the best paid between the Impressionists, though well below average. Between the painters from the Barbizon school, Millet, Rousseau and Troyon had already reached substantial prices while Daubigny, Jacque, Defaux and Harpignies were well below the prices of Corot. The buyers paying most in this period are museums, together with enlightened dealers such as Vollard and Durand-Ruel who were supporting underestimated artists. Instead, more conservative dealers such as Goupil, Petit and Knoedler in this period, appear to be able to purchase artworks at a discount compared to predicted prices.

Figure 1: Trends in average prices: Impressionists vs Insiders



variables are the same as before. The coefficient  $\rho$  is the DiD treatment effect estimator that amounts to:

$$\rho = (\text{Impressionists Post1880} - \text{Impressionists at Salon}) - (\text{Insiders Post1880} - \text{Insiders at Salon})$$

We use the same time dummies as in the previous section to control for time trends that are common to all painters.<sup>19</sup> This implies that the coefficient  $\delta$  of the treatment variable *Post1880* depends on the particular time dummies omitted before and after 1880, but the relevant coefficient  $\rho$  is not affected by this.

To limit threats to the internal validity of the experiment, we control for characteristics of the paintings (accounting for possible changes between treatments), for the effects of exhibition at the government-controlled Salon (accounting for price differences between groups before the liberalization due to entry barriers), for sales to different destinations (accounting for the increasing demand for French and impressionist art in the U.S after the New York exhibitions of Durand-Ruel) and for artists and buyers fixed effects (accounting for other omitted variables).

It is hard to envision substantial problems of endogeneity of the policy change, in the sense that changes in the relative prices of the impressionist paintings are unlikely to have affected

<sup>19</sup>As reported below, our results are robust to a more conservative specification in which we control for annual time dummies.

the choice of liberalization adopted by the Republican government (or the same fact that the Republicans controlled the government since 1879).<sup>20</sup>

Finally, we need to keep in mind that we have a DiD where both Insiders and Impressionists were affected by the treatment, while normally the control group is not: in our case, after 1880, the Insiders (the control group) lost their advantage due to the old Salon while Impressionists (the treated group) were able to have access to a more open market. Hence, we are actually measuring the effect of removing barriers to entry for a group (the Impressionists) not with respect to a *status quo* but with respect to a group (the Insiders) which lost a positional rent (in other words it is a DiD in which we expect some groups to react differently to a similar treatment).

Our main results are summarized in Table 3. In column (1) we start by estimating a baseline price equation where the natural logarithm of price is regressed only on the treatment variable, the treatment group and the interaction between the two. The coefficients confirm that the Impressionists were priced substantially below the Insiders, but after the liberalization of the Salon, the prices of the Impressionists increased substantially relative to those of the Insiders.

With column (2) we start adding the full set of paintings' characteristics to control for other differences between artists. One of this is related to the age cohort of the painter at the time the work is traded, which may uncover career effects: indeed, the variable *Seniority*, equal to the difference between year of sale and year of birth of the artist, has a consistently positive coefficient.<sup>21</sup> Besides confirming other results emerging in the earlier regressions on price differentials depending on surface areas and genres, we find that primary sales are sold at a discount compared to the secondary market and we unveil a price premium for paintings sold to the U.S. compared to those sold to Paris. This last result is in contrast with findings for the earlier period, and appears consistent with the increasing willingness to pay of American collectors for French art at the end of the century. After controlling for these characteristics of paintings and sales, we confirm that the price differential between Impressionists and Insiders decreased substantially since 1880.

In columns (3) and (4) we add respectively artists' fixed effects and buyers' fixed effects.

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<sup>20</sup>We cannot exclude that the liberalization and an exogenous change of preferences in favor of the Impressionists may have happened at the same time mixing the effects, but it is unlikely that the change in preference over a small group of artists as the Impressionists had a causal impact on the liberalization, which is our main concern.

<sup>21</sup>This may also reflect age effects for experimental innovators in the sense of Galenson (2006) to the extent that the market can reflect quickly the innovative content of paintings, *Seniority* is positively correlated with the age of the artists at the time of execution, and only few artists were conceptual innovators (i.e. with a peak in the value of their works early in the career). However, limited data on the age of execution of the traded paintings do not allow us to test for this.

Table 3: Price determination, DiD regressions, 1859-1900 (Insiders as reference group)

	(1)		(2)		(3)		(4)	
	Baseline		Painting Characteristics		Artists FEs		Artists & Buyers FEs	
Post 1880	0.016	(0.074)	-0.046	(0.066)	0.002	(0.069)	-0.009	(0.061)
<b>Impressionist x Post 1880</b>	<b>1.658***</b>	<b>(0.102)</b>	<b>1.237***</b>	<b>(0.103)</b>	<b>1.074***</b>	<b>(0.091)</b>	<b>1.400***</b>	<b>(0.1)</b>
Impressionist vs <i>Insiders</i>	-2.997***	(0.094)	-2.418***	(0.109)				
(Relative) N. exhibited paintings	-0.003***	(0.0004)	-0.003***	(0.0004)	0.000	(0.000)	0.000	(0.000)
(Relative) N. exhibited paintings x Impressionist	0.023***	(0.002)	0.013***	(0.002)	0.014***	(0.002)	0.013***	(0.002)
Seniority			0.034***	(0.002)	0.082***	(0.008)	0.07***	(0.008)
Paris vs <i>Unknown destination</i>			-0.168***	(0.04)	-0.075**	(0.034)		
US vs <i>Unknown destination</i>			0.390***	(0.036)	0.288***	(0.03)		
Europe vs <i>Unknown destination</i>			0.090*	(0.048)	0.029	(0.038)		
Size smaller than 0.25			-0.565***	(0.042)	-0.567***	(0.037)	-0.476***	(0.039)
Size between 0.25 and 0.50 sq m			-0.080*	(0.048)	-0.148***	(0.041)	-0.094**	(0.042)
Size between 0.50 and 1 sq m			0.497***	(0.052)	0.355***	(0.044)	0.431***	(0.045)
Size between 1 and 2 sq m			0.901***	(0.089)	1.021***	(0.091)	1.082***	(0.091)
Size between 2 and 6 sq m			1.320***	(0.114)	1.576***	(0.121)	1.611***	(0.12)
Size greater than 6 sq m			2.109***	(0.299)	1.799***	(0.111)	1.759***	(0.113)
Genre vs <i>Portrait</i>			0.192**	(0.087)	0.097	(0.08)	0.113	(0.078)
Figurative vs <i>Portrait</i>			0.340***	(0.102)	0.209**	(0.092)	0.216**	(0.089)
Landscape vs <i>Portrait</i>			0.027	(0.091)	0.077	(0.089)	0.094	(0.087)
Stilllife vs <i>Portrait</i>			-0.479***	(0.1)	0.033	(0.101)	0.032	(0.097)
Primary			-0.088**	(0.044)	-0.247***	(0.038)	-0.108***	(0.04)
Year FE (5 year dummies)	(YES)		(YES)		(YES)		(YES)	
Artist FE	(NO)		(NO)		(YES)		(YES)	
Buyer FE (at least 10 obs in sample)	(NO)		(NO)		(NO)		(YES)	
Constant	9.405***	(0.089)	7.239***	(0.148)	-0.429	(1.007)	-0.059	(1)
Observations	8,182		8,182		8,182		8,182	
R-squared	0.265		0.396		0.581		0.604	

Robust standard errors in parentheses, \*\*\* p < 0.01, \* p < 0.05, \* p < 0.1

While we broadly confirm earlier results, we can also notice that price differentials between genres are eliminated except for a premium on figurative paintings (which is less significant compared to what found in the earlier period). In the full specification, the prices of the Impressionists are shown to increase since 1880 by three times (corresponding to  $\exp(1.4)-1$  times) relative to those of the Insiders. Overall, the coefficient of the interaction term is always positive and strongly significant, at the one percent level, in all specifications presented in Table 3, which confirms our second hypothesis that the Impressionists benefited from a substantial

increase in prices after the end of the government-controlled Salon.

### 4.3 Robustness checks for the DiD analysis

In the rest of this Section we subject our main result to a battery of robustness checks and falsification tests to evaluate the strength of our hypothesis and compare it with alternative ones.

#### 4.3.1 Alternative specifications

A general concern could be that our results may be driven by the selection of artists in the treatment and control groups, by the set of control variables or by the temporal framework chosen for the investigation. In Table 4 we present some alternative specifications to show that the results are quite robust. First, we have considered a more “conservative” definition of Impressionists limited to the pure Impressionists and Manet, therefore excluding Cézanne, Gauguin, Van Gogh and Toulouse Lautrec as post-impressionists, and the results are nearly identical: the impact of liberalization was indeed crucial for the early group of Impressionists.<sup>22</sup>

Second, we have considered only artists born after 1825, which excludes the oldest academic Insiders (in particular Ingres, Cabanel, Gérôme, Meissonier and Bouguereau), leaving a comparison group with Insiders of the same generation of the Impressionists, and the results remain largely unchanged. We have also experimented (in unreported regressions) whether some of the price changes may be affected by the death of some painters due to *supply effects* (inducing spurious results on the impact of the liberalization), but we have not found a significant effect of *post-mortem* dummies (i.e. permanent effects) or of dummies for the years immediately following the death of artists (i.e. temporary effects), neither their introduction in the regressions weakens the results of the DiD analysis.

Third, we have replicated our analysis controlling for annual time dummies (rather than five-year dummies as in the analysis before the liberalization) and the impact of the end of the government-controlled Salon on the relative price of the Impressionists is actually strengthened compared to the baseline model.

Fourth, we have confined the analysis to paintings for which we have exact data on the surface area, which allows us to run a regression on a reduced sample controlling precisely for size, which is arguably the main quantitative control variable for the value of individual paintings,

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<sup>22</sup>We have also tried separate effects for different impressionist painters, finding a bigger impact of liberalization on the prices of Pissarro and Cézanne (who initially lagged behind others in terms of monetary compensation and were also experimental innovators in the sense of Galenson (2006) , reaching their best achievements later in the career). We are grateful to David Galenson for suggesting these and other robustness checks.

Table 4: Price determination, DiD regressions (Robustness)

	(1)		(2)		(3)		(4)		(5)	
	Only Impressionists & Manet		Only painters born after 1825		Annual time dummies		Observations with exact surface area		1859-1914	
Post 1880	0.000	(0.06)	0.046	(0.084)	-0.929***	(0.271)	-0.317	(0.199)	-0.011	(0.06)
<b>Impressionist x Post 1880</b>	1.427***	(0.099)	1.294***	(0.115)	1.555***	(0.1)	1.074***	(0.372)	1.740***	(0.099)
(Relative) N. exhibited paintings	0.000	(0.000)	0.000	(0.001)	-0.001***	(0.000)	0.007	(0.004)	0.000	(0.000)
(Relative) N. exhibited paintings x x Impressionist	0.013***	(0.002)	0.012***	(0.002)	0.013***	(0.002)	0.002	(0.005)	0.013***	(0.002)
Seniority	0.075***	(0.008)	0.093***	(0.01)	0.047***	(0.004)	0.107***	(0.014)	0.061***	(0.008)
Size ( <i>in square meters</i> )					(0.000)		1.194***	(0.083)		
Size squared					(0.000)		-0.074***	(0.009)		
Size smaller than 0.25	-0.485***	(0.039)	-0.458***	(0.042)	-0.478***	(0.038)			-0.397***	(0.038)
Size between 0.25 and 0.50 sq m	-0.087**	(0.044)	-0.018	(0.046)	-0.072*	(0.042)			0.01	(0.042)
Size between 0.50 and 1 sq m	0.448***	(0.046)	0.549***	(0.051)	0.429***	(0.045)			0.510***	(0.046)
Size between 1 and 2 sq m	1.084***	(0.091)	1.383***	(0.138)	1.037***	(0.09)			0.984***	(0.085)
Size between 2 and 6 sq m	1.617***	(0.12)	1.666***	(0.145)	1.544***	(0.115)			1.670***	(0.13)
Size greater than 6 sq m	1.760***	(0.114)	1.782***	(0.097)	1.760***	(0.134)			1.857***	(0.134)
Genre vs <i>Portrait</i>	0.112	(0.08)	0.078	(0.082)	0.095	(0.078)	-0.129	(0.145)	0.086	(0.069)
Figurative vs <i>Portrait</i>	0.215**	(0.091)	0.048	(0.107)	0.195**	(0.089)	-0.186	(0.168)	0.200**	(0.08)
Landscape vs <i>Portrait</i>	0.102	(0.089)	0.019	(0.095)	0.061	(0.086)	-0.035	(0.152)	0.074	(0.079)
Stilllife vs <i>Portrait</i>	0.018	(0.101)	-0.03	(0.108)	0.023	(0.097)	-0.097	(0.17)	0.027	(0.092)
Primary	-0.117***	(0.041)	-0.072*	(0.044)	-0.117***	(0.039)	-0.057	(0.048)	-0.134***	(0.041)
Year FE	(YES)		(YES)		(YES)		(YES)		(YES)	
Artist FE	(YES)		(YES)		(YES)		(YES)		(YES)	
Buyer FE	(YES)		(YES)		(YES)		(YES)		(YES)	
Constant	0.497	(1.007)	1.777***	(0.396)	4.239***	(0.242)	4.857***	(0.451)	2.432***	(0.536)
Observations	8,044		5,795		8,182		2,847		9,192	
R-squared	0.594		0.573		0.615		0.69		0.562	

Robust standard errors in parentheses, \*\*\* p< 0.01, \* p< 0.05, \* p< 0.1

using a quadratic specification. As expected, the relation between price and size is positive and concave. Remarkably, in this case none of the price differentials between genres of the paintings (for given size) is either economically or statistically significant. This shows that in the period including the liberalization episode, painters could not increase their compensations by changing genre, as we should expect in an efficient art market and as found in other historical periods (for instance see [Etro et al., 2015](#)). Given this, also in such reduced sample we confirm the positive impact of the liberalization on the prices of works by Impressionists, which

appear to almost double relative to the prices of the Insiders, taking as given the quantifiable characteristics of the paintings.

Finally, we have considered the full period 1859-1914, which includes the beginning of the new century when new *avante garde* art was flourishing, and in this expanded dataset we strengthen our results. Overall, the impact of liberalization on the price differential between Impressionists and Insiders appears robust to a variety of alternative specifications.

#### 4.3.2 All artists included

Another main concern relates to the comparison of the Impressionists with a special group of artists as the Insiders, rather than all the artists active in the Paris market. Therefore, we now extend the analysis to all the painters in our dataset. Table 5 presents the results of a specification in which we compare the effect of the liberalization on the Impressionists, the Insiders and also painters of the Barbizon school with the effect on the painters of the residual category with further robustness checks. The expanded dataset confirms virtually all the results obtained above for the main control variables. Insiders remain the best-paid artists overall, but the Barbizon group becomes the best paid group after 1880 (consistently with our earlier descriptive statistics). As above, the coefficients of the interaction between Impressionists and the post-1880 treatment are always positive and highly significant, at the one percent level, while those of the Insiders are always negative and significant at the one percent level. Moreover, we find a moderate, but equally significant, price increase after the end of the Salon for the painters of the Barbizon school, while there is not a significant impact for the residual category.<sup>23</sup>

The last column of Table 5 contains a crucial robustness check. We have identified repeated sales at a distance of more than a year between each other (for more than a thousand paintings including 129 by impressionists, 305 by Insiders, 399 by members of the Barbizon school and 266 by others). We have then run a regression including fixed effects for paintings and a few remaining controls, such as dummies for primary sales and locations of the buyers as well as time dummies. Once again, the results confirm that the prices of the Impressionists increased relative to the others after the liberalization. Since repeated sales regressions represent the

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<sup>23</sup>The ranking of artists from these regressions (not reported) is similar to the one for the earlier period, with the best prices for some of the Insiders and other painters such as Bastien-Lepage or Vibert, and prices still below average especially for Cézanne, Gauguin and van Gogh as well as for Pissarro and Sisley between the pure Impressionists. Between buyers, important collectors such as Camondo, Havemayer, Morgan, Palmer, Frick and Faure appear to have paid a premium on their purchases, while dealers such as Knoedler, Bernheim, Goupil and Vollard bought at a discount relative to expected prices. Paul Durand-Ruel appears to have paid slightly above predicted prices, confirming the same behavior of the period before the liberalization.

ideal control for the characteristics of the paintings, this is in strong support of our thesis.

Table 5: Price determination, DiD regressions, 1859-1900 (other artists as reference group)

	(1)		(2)		(3)		(4)		(5)	
	Baseline		Painting Characteristics		Artists FEs		Artists & Buyers FEs		Paintings FEs	
Post 1880	0.000	(0.000)	0.152***	(0.051)	0.075	(0.051)	0.077	(0.05)	-0.334*	(0.181)
<b>Impressionist x Post 1880</b>	1.483***	(0.101)	0.959***	(0.1)	0.856***	(0.091)	1.141***	(0.096)	1.335***	(0.205)
Insider x Post 1880	-0.148**	(0.063)	-0.326***	(0.06)	-0.203***	(0.059)	-0.237***	(0.057)	0.264	(0.231)
Barbizon x Post 1880	0.711***	(0.057)	0.433***	(0.054)	0.327***	(0.054)	0.323***	(0.052)	0.714***	(0.181)
Impressionist	-2.669***	(0.091)	-2.065***	(0.097)						
Insider	0.320***	(0.058)	0.552***	(0.053)						
Barbizon	-0.187***	(0.045)	-0.290***	(0.047)						
(Relative) N. exhibited paintings	-0.003***	(0.001)	0.000	(0.000)	-0.001	(0.001)	0.000	(0.000)		
(Relative) N. exhibited paintings x x Impressionist	0.022***	(0.002)	0.010***	(0.002)	0.016***	(0.002)	0.013***	(0.002)		
(Relative) N. exhibited paintings x x Insider	0.000	(0.000)	-0.003***	(0.001)	0.001	(0.001)	0.001	(0.001)		
(Relative) N. exhibited paintings x x Barbizon	-0.001	(0.001)	-0.004***	(0.001)	-0.002***	(0.001)	-0.003***	(0.001)		
Seniority			0.023***	(0.001)	0.066***	(0.006)	0.064***	(0.006)	0.052***	(0.013)
Paris vs <i>Unknown destination</i>			-0.081***	(0.022)	-0.103***	(0.02)			-0.216***	(0.052)
US vs <i>Unknown destination</i>			0.372***	(0.023)	0.273***	(0.02)			0.089*	(0.053)
Europe vs <i>Unknown destination</i>			0.051*	(0.027)	0.014	(0.023)			-0.085	(0.068)
Size smaller than 0.25			-0.696***	(0.027)	-0.638***	(0.024)	-0.552***	(0.026)		
Size between 0.25 and 0.50 sq m			0.097***	(0.032)	0.060**	(0.028)	0.122***	(0.029)		
Size between 0.50 and 1 sq m			0.653***	(0.036)	0.550***	(0.031)	0.612***	(0.032)		
Size between 1 and 2 sq m			0.998***	(0.057)	0.987***	(0.054)	0.997***	(0.054)		
Size between 2 and 6 sq m			1.157***	(0.083)	1.291***	(0.086)	1.207***	(0.087)		
Size greater than 6 sq m			1.814***	(0.246)	1.755***	(0.182)	1.730***	(0.19)		
Genre vs <i>Portrait</i>			-0.074	(0.071)	0.029	(0.064)	0.013	(0.063)		
Figurative vs <i>Portrait</i>			0.167**	(0.08)	0.213***	(0.071)	0.177**	(0.069)		
Landscape vs <i>Portrait</i>			-0.247***	(0.073)	-0.009	(0.064)	-0.019	(0.066)		
Stilllife vs <i>Portrait</i>			-0.794***	(0.088)	-0.289***	(0.087)	-0.314***	(0.086)		
Primary			-0.125***	(0.036)	-0.240***	(0.032)	-0.117***	(0.032)	-0.174**	(0.082)
Year FE (5 year dummies)	(YES)		(YES)		(YES)		(YES)		(YES)	
Artist FE	(NO)		(NO)		(YES)		(YES)		(NO)	
Buyer FE (at least 10 obs in sample)	(NO)		(NO)		(NO)		(YES)		(NO)	
Paintings FE	(NO)		(NO)		(NO)		(NO)		(YES)	
Constant	9.121***	(0.089)	7.643***	(0.107)	2.882***	(0.575)	3.187***	(0.569)	2.615***	(0.632)
Observations	20,112		20,112		20,112		20,112		2,253	
R-squared	0.22		0.338		0.5		0.521		0.9	

Robust standard errors in parentheses, \*\*\* p < 0.01, \* p < 0.05, \* p < 0.1

### 4.3.3 Transactions in Paris

In the art historical literature, the main alternative explanation for the rise of the market evaluation of the Impressionists has been associated with the increasing foreign demand after the exhibition in New York of 1886 (see for instance [Patry, 2015](#)): according to this hypothesis, it was the additional demand of impressionist paintings by American (and other foreign) collectors that increased their sales and ultimately their export prices. The impact of an exhibition in stimulating the demand of a group of buyers (in this case foreign ones) is totally consistent with our general message, and this may have also happened without affecting the Paris market in a relevant way. For our purposes it is interesting to verify whether the 1880 liberalization of art exhibitions in Paris had an impact on prices in Paris that was preceding, and independent from, the impact of the rise in foreign demand for the Impressionists. With this aim, we restrict our sample to transactions between sellers and buyers based in Paris and exclude all foreign sales. The results (displayed in Table 6 in the Appendix) confirm that the prices of the Impressionists increased relative to the Insiders right after the liberalization, though the impact in the full specification is smaller than in the baseline regression. This suggests that the internationalization of the art market at the end of the century strengthened a process of appreciation of impressionist paintings that had already started in Paris at the time of the liberalization of art exhibitions.<sup>24</sup>

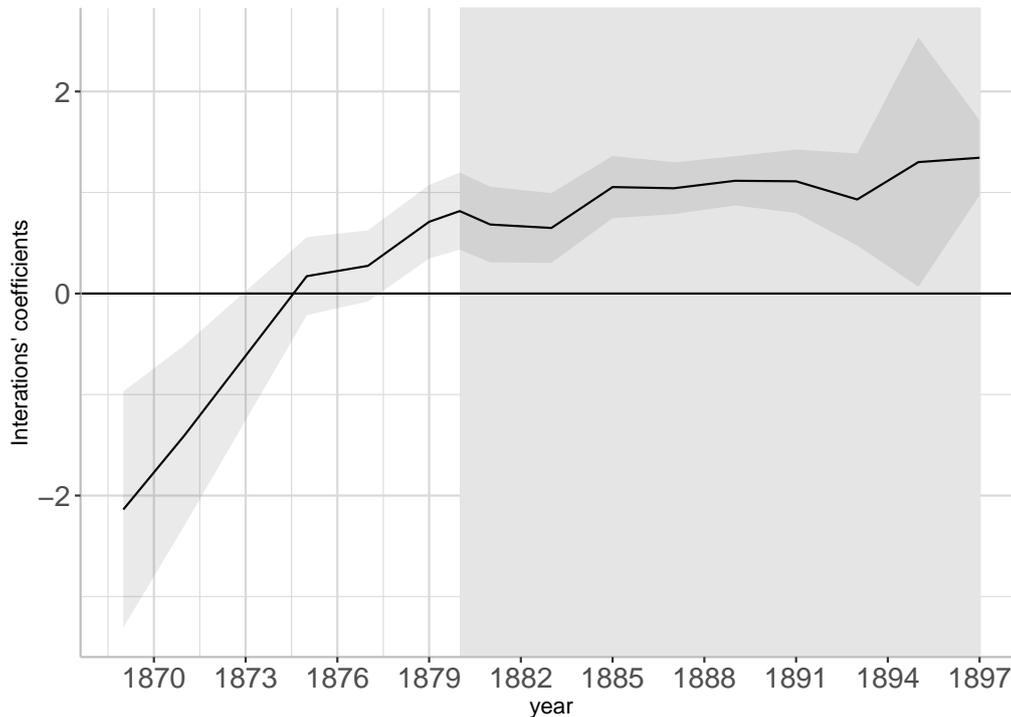
### 4.3.4 Placebo Dates of treatment

In order to exclude the possibility that we are capturing the effect of some other event besides the liberalization of art exhibitions, as for instance the beginning of the group exhibitions of the Impressionists in 1874 (emphasized by [Galenson and Jensen, 2007](#)) we run a series of falsification tests at different placebo dates. To avoid possible confounding effects of the increasing exposure to foreign markets, we keep restricting the sample to transactions in Paris (but similar results hold in general). In the spirit of structural break tests with unknown breakpoints ([Andrews, 1993](#); [Mastrobuoni and Pinotti, 2015](#)), Figure 2 plots the evolution of the interaction coefficients (and their standard errors) of the DiD model estimated at each placebo date in our sample period (the thirty regressions for each date are available from the authors). We can observe that this coefficient starts to become positive and significant only after 1879, reaching a peak one year later, i.e., after 1880, when the actual liberalization took place. In particular, the coefficient of the interaction is not significant when using *Post1874* as a treatment period,

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<sup>24</sup>It would be interesting to study further how price differ for foreign buyers and/or foreign painters pre/post-Salon.

Figure 2: Change in levels: Impressionists vs Insiders

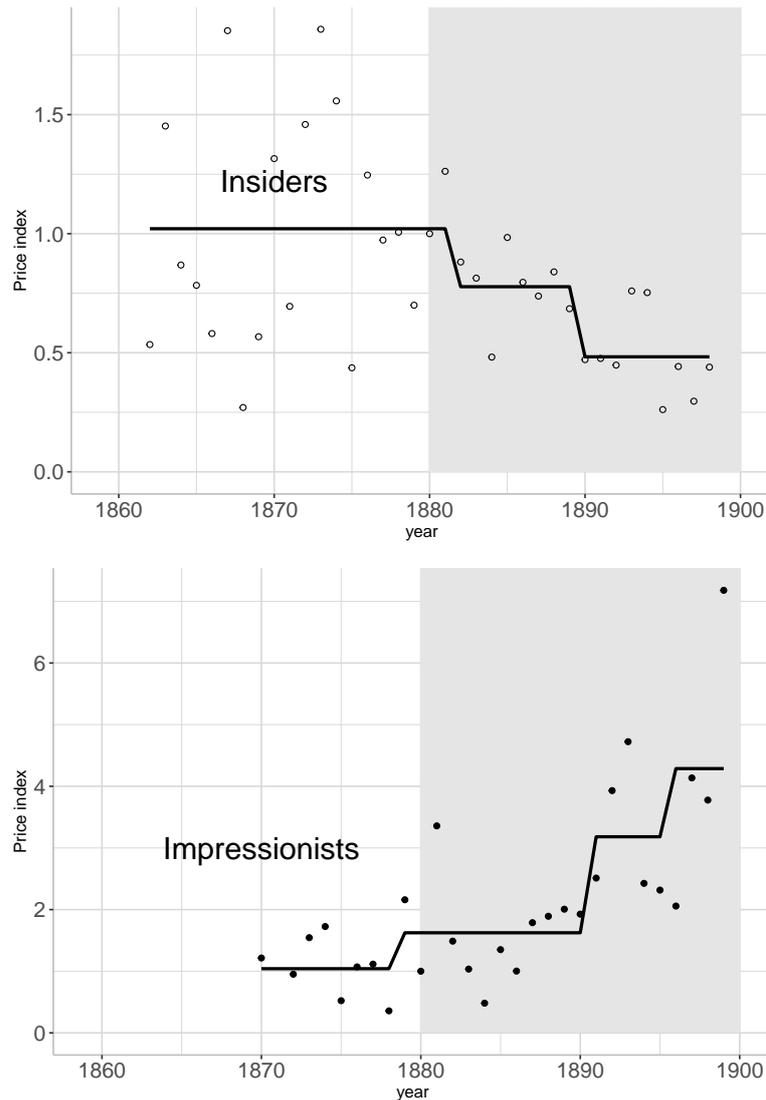


Notes: The graph plots the size and the standard errors of interaction's coefficients  $PostXXXXdummy \cdot Impressionist$  where  $XXXX$  is the placebo date. The estimates refer to the Paris market. The vertical solid line is the actual date of the liberalization of art exhibitions ( $XXXX = 1880$ ).

namely the period after the first group exhibition of the Impressionists. On the other side, the coefficient remains significantly positive in the 1880s, suggesting that the liberalization started the process of increase of the relative prices of Impressionists, but this process was persistent and powered by subsequent events. As we can see in Figure 2, there is an higher coefficient after 1884 (the year of the launch of the *Salon des Artistes Indépendants*) and another likely break point (i.e. a peak of the interaction's coefficient) at the end of the decade, but we know that during the 1890s *avante garde* painting was spreading in the art market of Paris. Notice that the coefficient of the interaction is not significant when using  $Post1874$  as a treatment period, namely the period after the first group exhibition of the Impressionists.

Very similar results are found when we test for the existence of a structural break with an alternative methodology, the Bai-Perron test of structural breaks (Bai, 1997; Bai and Perron, 2003). We built price indexes for Impressionists and Insiders, using the full specification (2) on transactions taking place in Paris. In Figure 3 the lines indicate optimal breakpoints that are endogenously defined by the Bai-Perron test. In the case of Impressionists, all structural breaks found in our analysis are associated with *price* increases. Structural breaks for the Impressionists happen in 1880, 1891 and 1895, and there is a 60% price increase in the break

Figure 3: Bai-Perron test of structural breaks: Impressionists vs. Insiders



Notes: The estimates refer to the Paris market.

Impressionists: black dots - price index, solid line - structural breaks,

Insiders: white dots - price index, dashed line - structural breaks,

Shaded area - *Post1880* period

that we can associate with the liberalization of art exhibitions in 1880. Insiders, in turn, experienced a first price fall in 1881 and a second one in 1889. Even if this analysis controls only for the shifts of average price levels and is not able to take into account common market trends (the test is performed separately on indexes of the two artistic groups), we find that 1880 is pivotal to both artistic groups.

#### 4.3.5 Interrupted time series analysis

Finally, one may wonder if the impact of art liberalization on relative prices of Impressionists and Insiders reflects a more gradual change in the trend of their relative prices: in particular,

the liberalization may have started an appreciation of the former group and a depreciation of the latter. Accordingly, we have implemented an interrupted time-series analysis, which, in fact, corresponds to a DiD in slopes. In an interrupted time-series analysis, an outcome variable is observed over multiple, equally spaced time periods before and after the introduction of an intervention that is expected to interrupt its level and trend. Therefore, we simply augmented our full specification with additional terms allowing us to test the significance of the coefficients denoting changes in trend and in level, corresponding to our treatment date. The results (displayed in the Appendix, Table 7) confirm that there is a positive and statistically significant difference between Impressionists and Insiders after 1880 (as compared with the pre-1880 period) in terms of trend: while the prices of the paintings of the Impressionists started to follow an increasing trend, the prices of the paintings of the Insiders started to follow a decreasing trend. Once again, and from a different perspective, this confirms the general result that the prices of the paintings by the Impressionists started to increase relative to the academic Insiders after the liberalization of art exhibitions in Paris.

## 5 Conclusion

We have analyzed the art market at the origins of Impressionism through a unique dataset on sales of French art in the last four decades of 1800s. Our findings show that the well-known delay in the appreciation of the Impressionists in the public perception and in the art market was at least in part, a fruit of market conditions. The centralized system based on the government control of art exhibitions contributed to erect entry barriers in the art market against outsiders of the academic system. When this system was liberalized and effective competition for art exhibitions was introduced, both through the organization of new independent exhibitions and the advertising of innovative artists in private shows organized by competing dealers, the demand for independent artists increased and market forces led to a reduction of the price differentials between them and the academic painters.

This institutional change had long lasting consequences on the art market and the career of artists (Galenson, 2006, 2007). It is also possible that the radical artistic revolutions that emerged in the new century were a fruit of the new environment where art dealers could invest in risky innovations and artists could invest for them. These consequences deserve further scrutiny. So it does the analysis of similar institutional changes in other fields of intellectual creativity where centralized organizations can marginalize radical ideas and promote mainstream thinking, while a more competitive framework promotes conceptual innovations.

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# APPENDIX

We report here the regressions tables relative to two robustness checks of the main DiD analysis. The first one concerns the analysis restricted to transactions in Paris.

Table 6: Price determination, DiD regressions, 1859-1900, Only Paris sample

	(1)		(2)		(3)		(4)	
	Baseline		Painting Characteristics		Artists FEs		Artists & Buyers FEs	
Post 1880	-0.284	(0.177)	-0.199	(0.165)	-0.193	(0.156)	-0.17	(0.162)
<b>Impressionist x Post 1880</b>	1.841***	(0.165)	1.277***	(0.175)	0.783***	(0.175)	0.871***	(0.187)
Impressionist vs <i>Insiders</i>	-3.321***	(0.145)	-2.940***	(0.17)				
(Relative) N. exhibited paintings	-0.008***	(0.001)	-0.006***	(0.001)	0.001	(0.001)	0.001	(0.001)
(Relative) N. exhibited paintings x Impressionist	0.023***	(0.003)	0.010***	(0.002)	0.006**	(0.002)	0.004*	(0.003)
Seniority			0.029***	(0.004)	0.148***	(0.017)	0.145***	(0.018)
Size smaller than 0.25			-0.343***	(0.078)	-0.378***	(0.072)	-0.325***	(0.075)
Size between 0.25 and 0.50 sq m			0.064	(0.076)	0.043	(0.068)	0.047	(0.07)
Size between 0.50 and 1 sq m			0.749***	(0.084)	0.584***	(0.072)	0.609***	(0.074)
Size between 1 and 2 sq m			1.345***	(0.164)	1.503***	(0.16)	1.456***	(0.159)
Size between 2 and 6 sq m			1.733***	(0.157)	1.824***	(0.162)	1.739***	(0.164)
Size greater than 6 sq m			1.757***	(0.219)	1.481***	(0.184)	1.451***	(0.17)
Genre vs <i>Portrait</i>			0.157	(0.163)	0.153	(0.139)	0.132	(0.136)
Figurative vs <i>Portrait</i>			-0.261	(0.206)	-0.046	(0.18)	-0.07	(0.179)
Landscape vs <i>Portrait</i>			0.083	(0.167)	0.163	(0.15)	0.113	(0.146)
Stilllife vs <i>Portrait</i>			-0.432**	(0.197)	-0.036	(0.175)	-0.099	(0.171)
Primary			-0.174**	(0.072)	-0.174***	(0.061)	-0.084	(0.067)
Year FE (5 year dummies)	(YES)		(YES)		(YES)		(YES)	
Artist FE	(NO)		(NO)		(YES)		(YES)	
Buyer FE (at least 10 obs in sample)	(NO)		(NO)		(NO)		(YES)	
Constant	8.357***	(0.414)	7.030***	(0.496)	-7.003***	(2.102)	-6.670***	(2.118)
Observations	2,272		2,272		2,272		2,272	
R-squared	0.405		0.511		0.66		0.681	

Robust standard errors in parentheses, \*\*\* p < 0.01, \* p < 0.05, \* p < 0.1

The second analysis concerns the interrupted time-series analysis. More specifically, we estimate the following equation:

$$\begin{aligned}
p_{nijt} = & \alpha + \delta_1 T_t + \delta_2 Post1880 + \delta_3 (Post1880 \cdot T_t) + \delta_4 Impr + \delta_5 (Impr \cdot T_t) + \\
& + \delta_6 (Impr \cdot Post1880) + \delta_7 (Impr \cdot Post1880 \cdot T_t) + \\
& + \beta_0 E_{it} + \beta_1 Impr \cdot E_{it} + \gamma X_{nit} + \psi_j + \varepsilon_{nijt}
\end{aligned} \tag{3}$$

where  $\delta_1$  is the coefficient of the time trend,  $\delta_2$  and  $\delta_3$  the coefficients of the dummy after liberalization and its interaction with trend,  $\delta_4$  ( $\delta_5$ ) represent the difference in level (slope) between Impressionists and Insiders prior to 1880,  $\delta_6$  is the difference in level between Impressionists and Insiders in the period immediately following 1880, and  $\delta_7$  is the difference in slope between Impressionists and Insiders after 1880, as compared with the pre-1880 period. The other variables are the same as in the main regressions. The result of the regression on the Paris sample are displayed in Table 7, and confirm that there is a positive and statistically significant (at the 1 percent level) difference in slope between Impressionists and Insiders after 1880, as compared with the pre-1880 period.

Table 7: Price determination, DiD regressions (change in slopes), 1859-1900, Only Paris sample

	(1)	(2)	(3)	(4)
	Baseline	Painting Characteristics	Artists FEs	Artists & Buyers FEs
Trend	0.007 (0.026)	-0.001 (0.023)	-0.01 (0.029)	0.011 (0.021)
Post 1880	1.156 (0.688)	1.305** (0.531)	1.153 (0.683)	0.802* (0.45)
Trend x Post 1880	-0.065** (0.026)	-0.066*** (0.022)	-0.059* (0.029)	-0.033* (0.019)
Trend x Impressionist	-0.171* (0.091)	-0.201*** (0.071)	-0.176** (0.068)	-0.155*** (0.056)
Impressionist x Post 1880	-6.848*** (1.358)	-7.656*** (1.282)	-7.205*** (1.284)	-6.417*** (1.03)
<b>Impressionist x Post 1880 x Trend</b>	0.360*** (0.078)	0.382*** (0.065)	0.361*** (0.064)	0.309*** (0.053)
Impressionist vs <i>Insiders</i>	-0.567 (1.613)	0.342 (1.424)	-0.161 (1.346)	
(Relative) N. exhibited paintings	-0.008* (0.004)	-0.006* (0.003)	-0.006* (0.003)	0.001 (0.001)
(Relative) N. exhibited paintings x Impressionist	0.025*** (0.005)	0.011* (0.005)	0.008 (0.006)	0.005 (0.004)
Seniority		0.027* (0.013)	0.025* (0.013)	0.019 (0.012)
Size smaller than 0.25		-0.383* (0.213)	-0.339* (0.199)	-0.342** (0.166)
Size between 0.25 and 0.50 sq m		0.023 (0.134)	0.015 (0.121)	0.03 (0.113)
Size between 0.50 and 1 sq m		0.713*** (0.112)	0.715*** (0.126)	0.597*** (0.1)
Size between 1 and 2 sq m		1.353*** (0.396)	1.258*** (0.378)	1.391*** (0.326)
Size between 2 and 6 sq m		1.782*** (0.222)	1.653*** (0.214)	1.750*** (0.134)
Size greater than 6 sq m		1.403*** (0.275)	1.291*** (0.308)	1.271*** (0.232)
Genre vs <i>Portrait</i>		0.105 (0.179)	0.061 (0.162)	0.093 (0.139)
Figurative vs <i>Portrait</i>		-0.223 (0.205)	-0.257 (0.196)	-0.095 (0.197)
Landscape vs <i>Portrait</i>		0 (0.313)	-0.05 (0.279)	0.12 (0.18)
Stilllife vs <i>Portrait</i>		-0.473 (0.323)	-0.495 (0.312)	-0.108 (0.202)
Primary		-0.163 (0.119)	-0.185 (0.113)	-0.105 (0.086)
Artist FE	(NO)	(NO)	(NO)	(YES)
Buyer FE (at least 10 obs in sample)	(NO)	(NO)	(YES)	(YES)
Constant	9.047*** (0.697)	7.729*** (0.634)	8.000*** (0.681)	6.724*** (0.927)
Observations	2,272	2,272	2,272	2,272
R-squared	0.433	0.539	0.571	0.689

Robust standard errors in parentheses, \*\*\* p < 0.01, \* p < 0.05, \* p < 0.1

