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# *Liberalizing Art*

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

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*We analyze the art market in Paris between the government-controlled Salon and the post-1880 system, when the Republican government liberalized art exhibitions. The jury of the old Salon decided on submissions with a bias in favor of 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 price increase of the Impressionists relative to the insiders.*

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

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## 1. INTRODUCTION

For more than two centuries the Paris Salon organized the art exhibition where French artists selected by an official jury could display their works. Such a system controlled by the on-going regime ended with the liberalization of 1880, which started the creation of a variety of privately organized salons. The artistic innovations of Impressionist painters, such as Claude Monet, Pierre Auguste Renoir, Camille Pissarro, Alfred Sisley, Edgar Degas, Paul Cézanne as well as Édouard Manet, had been marginalized in the government-controlled Salon and in the Paris art market, which were dominated by more traditional Academic artists. We argue that the liberalization was crucial to lower entry barriers in the market, create demand for outsiders as the Impressionists, and start the increase of the prices of their works relative to those of the insiders of the Salon. For this purpose, we analyze 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 the Salon during the 1800s was based on the submission of paintings and acceptance or rejection decided by a jury whose members were chosen by the government and a restricted 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 market, mainly through few dealers and auctions, the Salon acted as a focal point signaling the kind of paintings that were valuable, with prizes awarded by the jury and major purchases decided by the government for public display (see Boime, 1971, and Kearns and Mills, 2015). Hence, market demand was largely shaped by the decisions of the jury and virtually confined to the painters who were accepted at the Salon. As Galenson and Jensen (2002) 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.” For this reason 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 attention and the Impressionists were repeatedly rejected, they could not reach any critical or monetary recognition (Rewald, 1973).

The government-controlled Salon ended in 1880, when the Republicans had just obtained the political majority and adopted reforms in favor of *laissez faire* policies and against state monopolies. In particular, after the elections of 1879, the reformer Jules Ferry was appointed Minister of Public Education and Fine Arts and he soon attacked the academic jury for its conservative decisions, announced a new policy of “liberty in art” and abolished the public control of the Salon liberalizing the organization of art exhibitions starting from 1881 (see Mainardi, 1994, and Brauer, 2013). According to a prominent art historian, the privatisation of art exhibitions was a “Third Republic creation, aiming to provide a market place for art whose very quantity and diversity would be a measure of democratic ‘liberty’” (Green, 2000, p.39). 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 competition with each other, while various art dealers started to promote group exhibitions and even the first solo exhibitions (Brauer, 2013). The main

consequence of this liberalization was that painters that had been marginalized at the official Salon 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 insiders of the Salon.<sup>1</sup>

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. 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 Salon had an immediate economic impact. If this was the case, we expect that each acceptance of a painting by an outsider as an Impressionist at a given Salon increased visibility and demand for the other paintings of the same artist traded in the market in that year, therefore increasing their prices. On the other hand, the acceptance of a painting of an insider is expected to have a much smaller impact on his or her prices given the limited signaling value of the acceptance of an already widely known artist. 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 his or her artworks by about 30% during the same 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 insiders, identified as the winners of major prizes at the government-controlled Salon (namely Medals of Honor, and First and Second Class Medals). Controlling for common changes in prices with 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 just after 1880, when the liberalization took place. The difference in difference estimate reveals an economically and statistically significant impact of the liberalization. This result is confirmed in a battery of robustness checks, such as using more restrictive definitions of Impressionists and insiders, alternative controls for time effects and the size of paintings, an extended dataset including the beginning of the new century and a reduced one limited to transactions with buyers from Paris, as well as controlling for painting fixed effects through a restricted sample of repeated sales. 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, Huemer

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<sup>1</sup> This should be regarded as a gradual change in relative prices since the art market was characterized by what in economic terms can be described as imperfect substitutability of artworks with high persistence of preferences.

and Oosterlinck (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 Pagani (2012, 2013) and Etro and Stepanova (2015, 2016, 2017) on a Schumpeterian approach to artistic creativity. Moreover, we relate to the economic history literature that has examined the importance of market organization for economic evolution, from the work of Mokyr (1990) and North (1990) on the impact of social environment on technological progress, to the literature on the political economy of institutions and their reforms to enhance development (e.g., Acemoglu, Johnson and Robinson, 2001). Our analysis is also related to the literature on market liberalization (e.g., Roland, 2000), which emphasizes the benefits, in terms of competition and innovation, of eliminating barriers to entry and cronyism associated to government favours in a market under government monopoly. Difference-in-difference analysis is a common tool in the study of policy changes. Important works that are methodologically related with ours are those of Card and Krueger (1994) or Myers (2017) on labor market reforms, Slaughter (2001) on trade liberalization and Mastrobuoni and Pinotti (2015) on immigration policy.

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 (2002) 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 in 1874. An alternative view is that the 1886 exhibition on the Impressionists 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 (2013), we argue that it was the liberalization of the art exhibitions of 1880 that was the key event that shifted the structure of the art market from imperfect competition between insiders toward a contestable market. In this new setting, all artists had the chance to differentiate their products and attract buyers by exhibiting in alternative salons and through competition between dealers. While 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), we are not aware of any systematic analysis on art pricing that goes beyond descriptive statistics.<sup>2</sup> In a period of a generalized increase of the prices of paintings, we believe that it is important to analyze the behavior of relative prices and how the liberalization of 1880 affected them. The next section frames the organization of the art market in Paris during the 1800s and the institutional change taking place since 1880. The subsequent section presents the data. The next one describes econometric methods and results. The last section provides final remarks.

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<sup>2</sup> An interesting analysis by Greenwald (2018) has recently studied the correlation between exhibition of paintings of rural subject at the Salon until 1880 and characteristics of the painters, but ignoring market prices and the impact of the liberalization of 1880.

## 2. THE SALON OF PARIS AND THE RISE OF IMPRESSIONISM

For more than two centuries the Paris Salon has been the official institution for the exhibition of art in France. During the *Ancien Regime* it 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. Exhibited paintings 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.

### 2.1 *The government-controlled Salon before 1880*

After the French Revolution the responsibility of the Salon was moved to the government, introducing the possibility for all artists to submit their works. This started a new phase in which the selection of paintings became crucial for the artists, because the Salon was not just an exposition of “pictures to see” but also an exhibition of “pictures to sell” (Mainardi, 1994). An *Académie des Beaux-Arts* was soon recreated around the neoclassical school, promoting history paintings and retaining the control of the selection of painters to the exhibition, which would determine the visibility needed to reach the demand of the private collectors (see Etro and Stepanova, 2015). 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 academic insiders with barriers to entry against outsiders (something that was being formalized in economic theory by Cournot, 1838).

During the Second Empire (1852-1870), admissions to the Salon were under the direct control of the regime, through the direction of the Comte de Nieuwerkerke. The Salon, taking place almost every year in spring, was by now the most important art event of the world, and 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 insured by historical paintings in the neoclassical style of Jean-Auguste-Dominique Ingres and his circle, as well as other edifying figurative subjects by conservative masters such as Alexandre Cabanel, Jean-Léon Gérôme or Ernest Messonier: their works were repeatedly purchased by the same government, shaping the taste of the public with a persistent impact on the art market. The interest of the academic painters was protected by favoring the insiders of the Salon: 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 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 has shown that it was only a small minority of artists that could hope for an official recognition due to cronyism, government favours and a nepotistic system (where scholars elected jurors who allocated awards to scholars). These insiders attracted most of the demand of art purchases, which were taking place at the same

Salon, or at the galleries of few art dealers and in auctions, whose organization was centralized at the *Hôtel Drouot* since 1852. For painters excluded from the Salon, the market was confined to a few art lovers with a limited willingness to pay. Therefore, acceptance at the Salon was a crucial signal for the market, affecting demand and prices, while repeated rejections stopped careers of painters without other sources of income. The set of accepted paintings could slowly change over time, for instance welcoming a synthesis between the well finished style of the neoclassical school and the sketchy one of the romantic and realistic schools (led by Eugène Delacroix and Gustave Courbet), or gradually accepting landscapes of the Barbizon painters who had been marginalized for a long time (though the market prices for Jean-Baptiste Camille Corot, Théodore Rousseau and Jean-François Millet increased substantially only in the 1880s). However, the hysteresis in the decision process had a positive impact on the best followers of the mainstream tradition and their monetary recognition in the primary market, and could not reward in due time (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.<sup>3</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 other paintings by Manet - whose controversial submissions had already been rejected in 1859. Among 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, and 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, all submissions by Monet, Sisley and Cézanne were rejected again in 1869, and Monet was rejected also in 1870. Summing up, after more 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 (Durand-Ruel, 2014). 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

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<sup>3</sup> 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.

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 new Director of Fine Arts Blanc 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 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, 2013, Ch. 1). For another decade, again, Impressionism did not manage to reach any relevant visibility or recognition at the official art exhibition.

Since 1874, the Impressionists opted for an unprecedented strategy, the organization of a group exhibition, but it was received with mixed reactions, misunderstood by the public and heavily criticized by the conservative press. Moreover, it was hardly remunerative for the painters, as was the case for the auction organized by Durand-Ruel at the *Hôtel Drouot* 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 had to stop 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 economic terms, this was acknowledging some form of strategic complementarity (*à la* Rosen, 1981) where buyers wanted to buy what other buyers bought and the Salon acted as a coordinating device signaling which artists and paintings were going to be valuable in the market.

The political power turned suddenly in favor of a Republican majority after the elections for the Senate of 1879. Jules Grévy was elected President of France and appointed Jules Ferry as the new Minister of Public Education and Fine Arts. The Republicans were against state monopolies and in favor of *laissez-faire* in economics, and they implemented a variety of liberal reforms, including laws guaranteeing free association and freedom of press, as well as a major reform of public education. The new under-secretary of State for the Fine Arts Edmond Turquet opted initially for expanding the electorate of the jury of the Salon to all artists



who had exhibited in at least three earlier Salons and separating juries and awards for history paintings and other genres. 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 unprecedented speech at the awards ceremony of the 1879 Salon, the Minister Ferry attacked its Academic jury as despotic and unable to recognize great artists such as Delacroix, Rousseau, Daubigny and Corot, and announced that “liberty in art” would have been his new program. The Salon tried to introduce major changes to its rules during 1880 (including the abolition of the principle of *hors concours*), but their implementation was never going to happen because on December 27, 1880, Ferry decided that the French government would hand over the responsibility of the Salon to the artists. On January 17, 1881 Turquet announced officially the end of the government-sponsored Salon. As Mainardi (1994) 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 (2013, 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 in Paris 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 was a rivalry between artists’ societies to take over the old Salon (Brauer, 2013, 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 new 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.<sup>4</sup> 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 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 neo-impressionist paintings. Later on, two other major salons will be organized: the elitist *Salon National des Beaux-Arts* led 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, 2013).

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<sup>4</sup> 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.

Meanwhile, other private salons emerged<sup>5</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, those of watercolor painters, pastel painters, and so on. In 1883, just between February and June, 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” Cézanne and later Picasso) and the Bernheim-Jeune brothers, often contending impressionist artists to Durand-Ruel. Also *solo-exhibitions* were introduced 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. 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. 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).

The trade of paintings in Paris was taking place within the various exhibitions and, on a permanent basis, in an increasing number of art galleries. New auctions were also organized to satisfy the increasing demand of art trade. Moreover, in this period the main Parisian art dealers started to exhibit abroad in search for foreign demand. 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 to put together a major exhibition of three hundred works by Impressionists in New York. 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 school, led by pioneering collectors such as the Cassatts, the Havemeyers and the Potter Palmers, and dealers as Michael Knoedler. The exhibitions of innovative painters started to be 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 the prices of innovative works started to increase not only in the secondary market but also in the primary market during the 1890s, when different forms of symbolist art were emerging.

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

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<sup>5</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, 2013).

high number of art dealers, largely clustered around the Louvre on the right bank of the Seine or around the Institute de France on the left bank. Most of these dealers were focused on old master painters and recent academic painters, but in the last two decades of the century an increasing number started to trade also modern painters: this was the natural adjustment to their increasing representation in the exhibitions (Durand-Ruel, 2014). On the other side, Paris featured also an increasing number of art critics who were always more open to artistic innovations, especially after the removal of government restrictions to the freedom of press with a law of 1881 (which fostered the professionalisation of art criticism; see Green, 2000, p. 51). In this environment, the role of new entrepreneurial dealers was moving from trade in canvases toward investment in careers or 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, Huemer and Oosterlinck, 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). 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).<sup>6</sup>

More recently, Galenson and Jensen (2002, 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 (2013, 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 unparalleled 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’.

### *2.3. Research design*

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

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<sup>6</sup> 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.

of these outsiders, and that the liberalization of 1880 contributed to end this marginalization and foster 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 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 for this painter and therefore increase the prices of his or her artworks traded in the market. Our focus is on the impact 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 increase in the prices of all works by the same Impressionist painter traded in that year.**

We have also 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 relative demand (not necessarily the absolute demand, which may vary with the aggregate market conditions) 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 occasional 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, 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>7</sup>

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<sup>7</sup> We should note that the initial phase of Impressionism was, if anything, more innovative than the later phase (with the exception of the late work by Cézanne), therefore a relative increase in the price of paintings by the Impressionists cannot be explained with an exogenous and sudden increase in their quality. In any case, the econometric analysis will control for quantifiable aspects of paintings (such as size) that are at least correlated with quality.

### 3. THE DATASET

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:

- (1) the records of the early Impressionist sales (1874-94) reported by Bodelsen (1968);
- (2) the catalogue of the recent exhibition on Durand-Ruel, the leading art dealer on impressionist art (Patry 2015);
- (3) the memoirs of the same Durand-Ruel (2014);
- (4) 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;
- (5) 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;<sup>8</sup>
- (6) the Archive Center of the Museum d'Orsay, the most important collection of French art of this period in the world;
- (7) the Online collection of the Metropolitan Museum of Art;
- (8) the Online collection of the Chicago Art Institute;
- (9) 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 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 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>9</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. 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'

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<sup>8</sup> Records from both sales books are administered by the Getty Research Institute.

<sup>9</sup> Our information is limited by the absence of systematic records of the rejected paintings. Notice that *livrets* are available also after the liberalization, but the organization of the Salon was largely changing, which prevents us from using the number of paintings exhibited as a count variable measuring the extent to which painters could be regarded as Insiders.

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.

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

Variable	N. obs.	%	Mean	SD. Price	Min.	Max.
All	20.112	100	10257	18835	7	854494
Genre	9.792	49	9792	16087	19	364730
Figurative	1.014	5	15106	24858	18	318717
Landscape	8.511	42	10298	21183	7	854494
Still life	469	2	4206	6389	23	72984
Portrait	326	2	11211	17108	28	153828
Primary	934	5	5273	7964	54	107527
Missing size	13.521	67	9615	16460	14	555700
Size 0-0.25 sq m	3.158	16	7575	18653	21	854494
Size 0.25-0.50 sq m	1.774	9	11408	20473	7	412371
Size 0.50-1 sq m	1.120	6	16889	26129	62	213115
Size 1-2 sq m	379	2	25159	38721	118	453041
Size 2-6 sq m	145	1	20698	25065	549	148936
Size > 6 sq m	15	0	44353	29052	4396	96000
Missing destination	9.746	48	9183	14642	14	318717
Paris	5.439	27	8725	17816	7	555700
US	2.976	15	16218	29798	131	854494
Europe	1.951	10	10796	16767	47	260695
Impressionists	1.948	10	3757	8096	7	145225
Insider	6.234	31	9814	14833	18	364730
Barbizon school	7.590	38	13216	25047	14	854494
Other artists	4.340	22	8636	12822	19	260695

We focus on artists active in the art market of Paris, and 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 and van Gogh who were later considered post-Impressionists (but notice that Cézanne and Gauguin also participated to group exhibitions of the Impressionists).<sup>10</sup> 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, Rousseau, Millet as well as Charles-François Daubigny, 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.

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: this reflects the low valuation of the Impressionists in a market with a persistent preference (in marketing terms one would refer to “brand loyalty”) for a different kind of art, and it will take decades before the average price of Impressionists will overcome the one of earlier Insiders. Such a gradual process took place also for the Barbizon group, whose higher initial valuations deliver an average price that goes already beyond the same group of the Insiders in the full period 1859-1900.

#### 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

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<sup>10</sup> Georges Seurat, Paul Signac and Henri Toulouse-Latrec cannot be included in the main analysis for lack of transactions before 1880.

painters (but we also provide robustness checks with regressions on transactions until 1914). The nature of our data allows us to introduce painter and buyer 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 to find a differential effect of having a painting exhibited at the Salon on immediately subsequent transactions across painters (H1). On the other end, in the presence of entry barriers against outsiders, we do expect to detect a positive effect of exhibiting at the Salon only for the outsiders, as compared to the other painters. We should emphasize 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:

$$p_{nijt} = \alpha + \beta_0 E_{it} + \beta_{1i} \sum G_i * E_{it} + \vartheta_1 K_{it} + \vartheta_2 K_{it}^2 + \gamma X_{ni} + \theta_i + \psi_j + \tau_t + \varepsilon_{nijt} \quad (1)$$

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>11</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, after including all the constitutive terms in the regressions (see Friederich, 1982, and Brambor, Clark and Golder, 2006). 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

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<sup>11</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.



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>12</sup> We also consider cumulated effects of the exhibitions 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. We are interested to show 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, in the full specification we also use a variable  $K_{it} = \sum_{s=1}^{t-1} E_{is}$  representing the stock of (relative) number of paintings exhibited before the current Salon as well as its quadratic term to account for non-linearities. The coefficients 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, whose coefficient  $\beta_0$  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  $1.758 \times 100 / 2,287$ ). 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 fact may reflect the persistent bias of the market of this period in favor of traditional paintings belonging to the historical 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, conditional on not exhibiting at the Salon, 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 paid by far less than any other paintings in this period.

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<sup>12</sup> We did not find relevant non-linearities in the impact of the number of exhibited paintings. We also tried, 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 1864).

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 Degas or Manet) and those who were rarely or never accepted (Monet or Cézanne).

**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	Artist FEs	Artist & Buyer FEs	Artists & Buyer 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)
<b>(Relative) N. exhibited paintings * Impressionist</b>		<b>10.967*** (2.005)</b>	<b>7.411*** (2.167)</b>	<b>6.191*** (2.318)</b>	<b>6.456*** (2.304)</b>
(Relative) N. exhibited paintings * Insider		-2.252*** (0.610)	1.051* (0.583)	0.916 (0.575)	0.726 (0.575)
(Relative) N. exhibited paintings * Barbizon		-1.734*** (0.632)	-0.88 (0.833)	-0.94 (0.830)	-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*** (0.040)	0.125*** (0.035)		
US vs <i>Unknown destination</i>		0.173*** (0.040)	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* (0.100)	-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*** (0.130)
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 (0.090)	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.****Artist fixed effects from regression (4)**

Artist	coef.	st. error	Artist	coef.	st. error
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**

Dealer	coef	st. error	Dealer	coef	st. error
Vollard	1.202***	(0.416)	Knoedler	-0.089***	(0.034)
Museums	1.012***	(0.300)	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)			

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. 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. The impact of a new exhibition is positive for the Impressionists (and only for them). In Fig. 1 we present the marginal effects of the percentage number of paintings exhibited at the Salon on the price difference between Impressionists and others, with the 90% confidence intervals (similar results hold for the earlier specifications). In all the relevant range (up to an exhibition of 0.2% of the paintings, corresponding to 4/5 paintings exhibited in an average Salon), the price of the Impressionists is significantly below the price of the others, but increases with the number of exhibitions. The exhibition of a single painting in an average Salon increases the price of an Impressionist painter by about 28 percent - about  $(6.5/2,287) \times 100\%$ . All this provides a solid evidence that any new opportunity for the Impressionists to be exhibited in front of the market was exerting a positive impact on their market evaluation.<sup>13</sup>

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<sup>13</sup> The full specification shows that the top prices were associated with Insiders such as Meissonier, Gérôme, Cabanel, Dagnan-Bouveret, Fromentin and others who were significantly better paid than Corot (omitted fixed effect). All the Impressionists were instead associated with significantly lower prices, with the lowest ones for Renoir, Sisley, Cézanne, 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 were 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, purchased artworks at a discount compared to predicted prices.

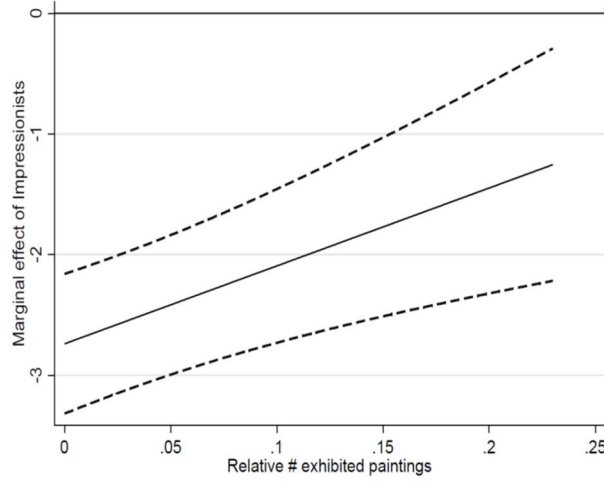


Figure 1: Marginal effect of Impressionists on (log) prices (Table 2, column 5). The graph depicts 90% confidence intervals.

#### 4.2. The impact of the 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 (H2). For this reason, our treatment variable *Post1880* is a dummy equal to 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 Impressionists and Insiders.

In Figure 2, 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.

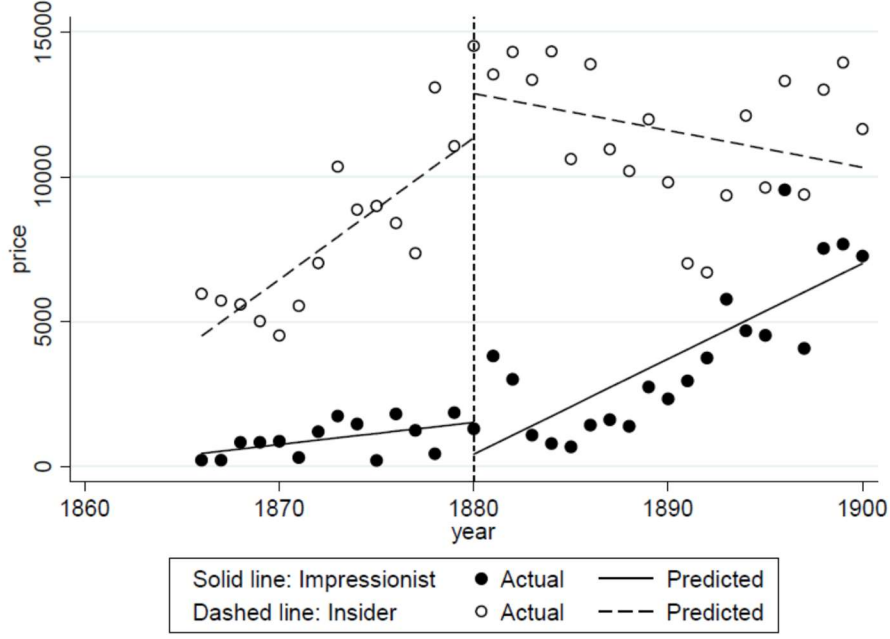


Figure 2: Trends in average prices: Impressionists vs Insiders

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

$$p_{nijt} = \alpha + \mu Impr + \delta Post1880 + \rho(Impr * Post1880) + \beta_0 E_{it} + \beta_1 Impr * E_{it} + \gamma X_{nit} + \theta_i + \psi_j + \tau_t + \varepsilon_{nijt} \quad (2)$$

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 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. 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 the characteristics of the paintings (accounting for possible changes between treatments), for the effect of having a painting exhibited at the government-controlled Salon (accounting for price differences between groups before the liberalization), 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 artist and buyer 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 the choice

of liberalization adopted by the Republican government (or the same fact that the Republicans controlled the government since 1879).<sup>14</sup>

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

	(1)		(2)		(3)		(4)	
	Baseline		Painting Characteristics		Artist FEs		Artist & Buyer FEs	
Post 1880	0.016	(0.074)	-0.046	(0.066)	0.002	(0.069)	-0.009	(0.061)
<b>Impr * 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>(0.100)</b>
Impr	-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 * Impr	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)	0.079***	(0.008)
Paris vs <i>Unknown destination</i>			-0.168***	(0.040)	-0.075**	(0.034)		
US vs <i>Unknown destination</i>			0.390***	(0.036)	0.288***	(0.030)		
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***	(0.120)
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	(0.080)	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***	(0.100)	0.033	(0.101)	0.032	(0.097)
Primary			-0.088**	(0.044)	-0.247***	(0.038)	-0.108***	(0.040)
Time dummies (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	(1.000)
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

<sup>14</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. We should mention that 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 measuring the effect of removing barriers to entry for a group (the Impressionists) not necessarily with respect to a status quo but with respect to a group (the Insiders) which lost a positional rent (in other words this 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 before the liberalization, 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. 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 artist fixed effects and buyer fixed effects. 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). 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 benefitted 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 particular 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 and Van Gogh as post-impressionists, and the results are nearly identical: the impact of liberalization was indeed crucial for the early group of Impressionists.<sup>15</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

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<sup>15</sup> The purpose of this check is not to address possible issues of endogeneity of the group of Impressionists, but to verify whether the post-impressionists may have driven the baseline results.



of the same generation of the Impressionists, and the results remain largely unchanged.<sup>16</sup> 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.

**Table 4: Price determination, DiD regressions (Robustness)**

	(1)		(2)		(3)		(4)		(5)	
	Only pure Impressionists and Manet		Only painters born after 1825		Annual time dummies		Observations with exact surface area		1859-1914	
Post 1880	0.000	(0.060)	0.046	(0.084)	-0.929***	(0.271)	-0.317	(0.199)	-0.011	(0.060)
<b>Impressionist * Post 1880</b>	<b>1.427***</b>	<b>(0.099)</b>	<b>1.294***</b>	<b>(0.115)</b>	<b>1.555***</b>	<b>(0.100)</b>	<b>1.074***</b>	<b>(0.372)</b>	<b>1.740***</b>	<b>(0.099)</b>
(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 * 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***	(0.010)	0.047***	(0.004)	0.107***	(0.014)	0.061***	(0.008)
Size (in square meters)							1.194***	(0.083)		
Size squared							-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)			0.010	(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***	(0.090)			0.984***	(0.085)
Size between 2 and 6 sq m	1.617***	(0.120)	1.666***	(0.145)	1.544***	(0.115)			1.670***	(0.130)
Size greater than 6 sq m	1.760***	(0.114)	1.782***	(0.097)	1.760***	(0.134)			1.857***	(0.134)
Genre vs Portrait	0.112	(0.080)	0.078	(0.082)	0.095	(0.078)	-0.129	(0.145)	0.086	(0.069)
Figurative vs Portrait	0.215**	(0.091)	0.048	(0.107)	0.195**	(0.089)	-0.186	(0.168)	0.200**	(0.080)
Landscape vs Portrait	0.102	(0.089)	0.019	(0.095)	0.061	(0.086)	-0.035	(0.152)	0.074	(0.079)
Stilllife vs Portrait	0.018	(0.101)	-0.030	(0.108)	0.023	(0.097)	-0.097	(0.170)	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)
Time dummies	YES		YES		YES		YES		YES	
Artist FE	YES		YES		YES		YES		YES	
Buyer FE (at least 10 obs in sample)	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		0.690		0.562	

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

<sup>16</sup> This check avoids a comparison with Insiders whose reputation was established before the other painters.

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, 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.<sup>17</sup> What is more, in such reduced sample, we also confirm the positive impact of the liberalization on the prices of works by Impressionists, 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 *avant-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. *Comparison with all artists and repeated sales regressions*

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>18</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

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<sup>17</sup> On efficiency of art markets in different historical periods see Etro, Marchesi and Pagani (2015) and Etro and Stepanova (2019).

<sup>18</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 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.

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 paintings of the Impressionists increased relative to those of the others after the liberalization. Since repeated sales regressions represent the 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		Artist FEs		Artist & Buyer FEs		Painting 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 * Post 1880</b>	<b>1.483***</b>	<b>(0.101)</b>	<b>0.959***</b>	<b>(0.100)</b>	<b>0.856***</b>	<b>(0.091)</b>	<b>1.141***</b>	<b>(0.096)</b>	<b>1.335***</b>	<b>(0.205)</b>
Insider * Post 1880	-0.148**	(0.063)	-0.326***	(0.060)	-0.203***	(0.059)	-0.237***	(0.057)	0.264	(0.231)
Barbizon * 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 * Impressionist	0.022***	(0.002)	0.010***	(0.002)	0.016***	(0.002)	0.013***	(0.002)		
(Relative) N. exhibited paintings * Insider	0.000	(0.000)	-0.003***	(0.001)	0.001	(0.001)	0.001	(0.001)		
(Relative) N. exhibited paintings * 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)
Time dummies (5 year dummies)	YES		YES		YES		YES		YES	
Artists FEs	NO		NO		YES		YES		NO	
Buyers FEs (at least 10 obs in sample)	NO		NO		NO		YES		NO	
Paintings FEs	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		0.90	

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 the prices of the best paintings which were exported to the U.S. 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 in an integrated international market this would have affected also prices in Paris. However, we cannot exclude that the art market was not (yet) integrated and that the high willingness to pay of a few American collectors for a limited sample of French paintings, including impressionist paintings since 1886, may have not affected the entire market of painters active in Paris. In such a case, it is interesting to verify whether the 1880 liberalization of art exhibitions in Paris had an impact on prices of paintings traded in Paris that was preceding, and independent from, the impact of the subsequent rise of foreign demand for French paintings. With this aim, we restrict our sample to transactions between sellers and buyers based in Paris and exclude all foreign sales. The results 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, but did not start, a process of appreciation of impressionist paintings that had already begun in Paris at the time of the liberalization of art exhibitions. However, further empirical investigations on the American art market would be definitely useful.



Figure 3: Change in levels: Impressionists vs Insiders

Notes: The graph plots the size and the standard errors of interaction's coefficients **PostXXXX dummy \* 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).

#### 4.3.4. Placebo Dates of treatment

In order to exclude the possibility that we are capturing the effect of some other event taking place in Paris 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 3 plots the evolution of the interaction coefficients (and their standard errors) of the DiD model estimated at each placebo date in our sample period. We can observe that this coefficient starts to become positive and significant only in 1879, when the Republicans went at the government and started to expand admissions at the Salon, reaching a peak one year later, that is after 1880, when the actual liberalization took place. In particular, the coefficient of the interaction is not significant using *Post1874* as a treatment period, namely the period after the first group exhibition of the Impressionists. On the other side, the coefficient remains significantly positive in the 1880s, confirming the earlier conclusion 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 3, there is a 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 *avant-garde* art in general was spreading in the art market of Paris.

Very similar results are found when we test for the existence of a structural break with an alternative methodology, the Bai and Perron (2003) test. We built price indexes for Impressionists and Insiders, using the full specification (2) on transactions taking place in Paris. In Figure 4 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 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.

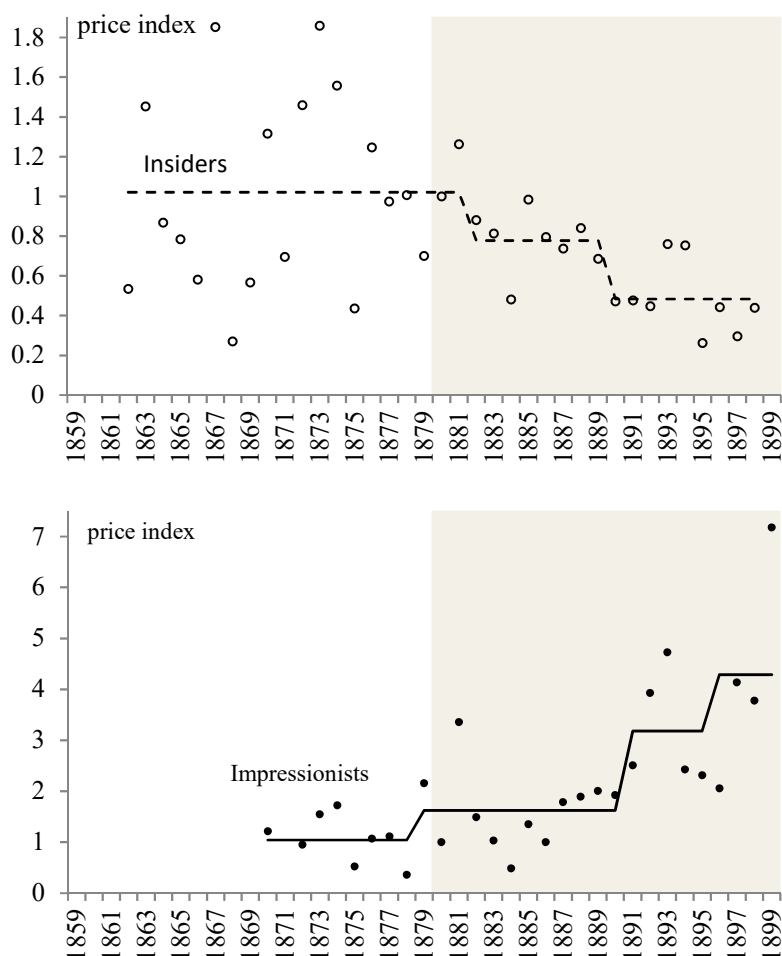


Figure 4: Bai-Perron test of structural breaks: Impressionists vs. Insiders

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.

#### 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 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. CONCLUSIONS

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 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 art shows 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 (Jensen, 1994; Galenson, 2006, 2007). It is also possible that the radical artistic revolutions that emerged at the beginning of the new century (expressionism, cubism, abstractism and surrealism), most of which originated in a Paris that was attracting artists from all the world in a thriving art market (Green, 2000), were a fruit of the new environment where artists had incentives to invest in risky innovations and dealers could invest in risky artistic schools. 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 the acceptance of new ideas and promote mainstream thinking, while a more competitive framework promotes conceptual innovations.

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## APPENDIX

### List of artists by group

#### Impressionists

Monet, Claude  
Degas, Edgar  
Renoir, Pierre Auguste  
Pissarro, Camille  
Sisley, Alfred  
Morisot, Berthe  
Manet, Édouard  
Cézanne, Paul  
Gauguin, Paul  
Van Gogh, Vincent  
(Toulouse-Lautrec, Henri)

#### Barbizon School

Corot, Jean Baptiste Camille  
Daubigny, Charles François  
Defaux, Alexandre  
Diaz De La Peña, Narcisse Virgile  
Dupré, Jules  
Harpignies, Henri  
Jacque, Charles Emile  
Millet, Jean François  
Rousseau, Théodore  
Troyon, Constant  
Ziem, Félix

#### Others

Bastien-Lepage, Jules  
Boudin, Eugène Louis  
Chaplin, Charles  
Constant, Jean Joseph Benjamin  
Courbet, Gustave  
Couture, Thomas  
De Chavannes, Puvis  
Delacroix, Eugène  
Gilbert, Victor Gabriel  
Lhermitte, Léon Augustin

#### Insiders

Berne-Bellecour, Etienne Prosper  
Bonnat, Léon Joseph Florentin  
Bouguereau, Adolphe William  
Breton, Jules Adolphe Aimé Louis  
Cabanel, Alexandre  
Carolus-Duran, Emile Auguste  
Cazin, Jean Charles  
Cot, Pierre Auguste  
Dagnan-Bouveret, Pascal Adolphe Jean  
Detaille, Jean Baptiste Edouard  
Fichel, Eugène  
Flameng, François  
Fromentin, Eugène  
Gérôme, Jean Léon  
Goupil, Jules Adolphe  
Henner, Jean Jacques  
Ingres, Jean Auguste Dominique  
Jacquet, Gustave Jean  
Lambert, Eugène  
Lefebvre, Jules Joseph  
Lévy, Henri Leopold  
Lobrichon, Timoléon  
Meissonier, Jean Louis Ernest  
Morot, Aimé Nicolas  
Roybet, Ferdinand Léon Victor  
Vollon, Antoine

Lépine, Stanislas Victor Edouard  
Lévy, Émile  
Marcke De Lummen, Emile Van  
Merle, Hugues  
Moreau, Adrien  
Neuville, Alphonse Marie Adolphe De  
Perrault, Léon Bazile  
Ribot, Théodule  
Toulmouche, Auguste  
Vibert, Jehan Georges

## APPENDIX (not for publication)

We report here the regressions tables relative to two robustness checks of the main DiD analysis discussed in the text. 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		Artist FEs		Artist & Buyer FEs	
Post 1880	-0.284	(0.177)	-0.199	(0.165)	-0.193	(0.156)	-0.170	(0.162)
<b>Impressionist * Post 1880</b>	<b>1.841***</b>	<b>(0.165)</b>	<b>1.277***</b>	<b>(0.175)</b>	<b>0.783***</b>	<b>(0.175)</b>	<b>0.871***</b>	<b>(0.187)</b>
Impressionist vs <i>Insider</i>	-3.321***	(0.145)	-2.940***	(0.170)				
(Relative) N. exhibited paintings	-0.008***	(0.001)	-0.006***	(0.001)	0.001	(0.001)	0.001	(0.001)
(Relative) N. exhibited paintings * 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	(0.070)
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***	(0.160)	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***	(0.170)
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	(0.180)	-0.070	(0.179)
Landscape vs <i>Portrait</i>			0.083	(0.167)	0.163	(0.150)	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)
Time dummies (5 year dummies)	YES		YES		YES		YES	
Artist FE	NO		NO		YES		YES	
Buyer FE (at least 10 obs in esample)	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		0.660		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:

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

where  $\delta_1$  is the coefficient of the time trend,  $\delta_2$  and  $\delta_3$  are the coefficients of the dummy for the liberalization and its interaction with the trend,  $\delta_4$  and  $\delta_5$  represent the difference in level and 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 results 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		Artist FEs		Artist & Buyer FEs	
Trend	0.007	(0.026)	-0.001	(0.023)	-0.010	(0.029)	0.011	(0.021)
Post 1880	1.156	(0.688)	1.305**	(0.531)	1.153	(0.683)	0.802*	(0.450)
Trend * Post 1880	-0.065**	(0.026)	-0.066***	(0.022)	-0.059*	(0.029)	-0.033*	(0.019)
Trend * Impressionist	-0.171*	(0.091)	-0.201***	(0.071)	-0.176**	(0.068)	-0.155***	(0.056)
Impressionist * Post1880	-6.848***	(1.358)	-7.656***	(1.282)	-7.205***	(1.284)	-6.417***	(1.030)
Impressionist * Post1880 * Trend	0.360***	(0.078)	0.382***	(0.065)	0.361***	(0.064)	0.309***	(0.053)
Impressionist vs Insider	-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 * 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)	0.030	(0.113)
Size between 0.50 and 1 sq m			0.713***	(0.112)	0.715***	(0.126)	0.597***	(0.100)
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 Portrait			0.105	(0.179)	0.061	(0.162)	0.093	(0.139)
Figurative vs Portrait			-0.223	(0.205)	-0.257	(0.196)	-0.095	(0.197)
Landscape vs Portrait			-0.000	(0.313)	-0.050	(0.279)	0.120	(0.180)
Stilllife vs Portrait			-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 Fixed Effect	NO		NO		NO		YES	
Buyers FEs (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