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# LEM

## WORKING PAPER SERIES

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

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# *Liberalizing Art*

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

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*We analyze the Paris art market between the government-controlled Salon as a centralized organization of art exhibition and the system liberalized by the Republican government based on competition between independent exhibitions. The jury of the old Salon decided on submissions with a bias toward conservative art of the academic insiders, reducing demand for the outsiders, as confirmed by the impact on prices of the acceptance of Impressionists. With a difference-in-difference estimation we provide evidence that the end of the government-controlled Salon in 1880 started the increase of the prices of the Impressionists relative to the insiders.*

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

**JEL Classification:** C23, Z11

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The struggle of the Impressionists to reach recognition in the art market of Paris at the end of the 1800s poses serious questions on the ability of such a market to reward innovators and price art efficiently. Painters such as Claude Monet, Pierre-Auguste Renoir, Camille Pissarro, Alfred Sisley, Edgar Degas, Paul Cézanne as well as Édouard Manet and the post-impressionists have been unable, for a large part of their careers, to sell their works for payments above the minimum in the profession. This and their later success are in sharp contrast with the path of the academic painters of the time, who were constantly acclaimed at the Salon, the most important art exhibition in Paris, as well as highly paid during the 1800s, but were largely forgotten later on. How could the market fail in such a flagrant way at pricing quality (and expected return) of art? In this work we provide an answer to this question presenting the first empirical analysis of art trade in that period, and arguing that it was the institutional organization of the market that was responsible for a persistent bias against perception and pricing of the artistic innovations until liberalization took place.

Art exhibitions in Paris have been organized in a centralized way for a long time, with a unique Salon controlled by the on-going government. During the 1800s, artists submitted paintings at this Salon and they were subject to acceptance or rejection by a jury whose members were chosen by the regime and a restricted and conservative Academy (Mainardi, 1994). The purpose of the jury 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 of course be traded in the art market, demand was virtually confined to the painters who were accepted at the Salon, and the willingness to pay for the artists who were not exhibited there was much lower. As Galenson and Jensen (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.” That is why the acceptance of a submission at the Salon was critical for discriminated painters as the Impressionists, while the insiders of the system could compete for the available demand well protected by entry barriers. As long as the Salon was the only access to the public and the Impressionists were repeatedly rejected, they could not reach any critical or monetary recognition (Rewald, 1973).

The centralized organization of the government-controlled Salon ended in 1880 when the Republicans had just obtained the political majority and their government adopted reforms in favor of *laissez-faire* policies and against state monopolies. In particular, they abolished the public control of the Salon liberalizing the organization of art exhibitions. 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 solo exhibitions for emerging artists (Brauer, 2013).<sup>1</sup> The main consequence of this liberalization was that painters that had been

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<sup>1</sup> Of course, the importance of this institutional change has been noticed in the art historical literature. For instance, the Salon jury system is described in the influential account of Boime (1971, p. 17) as “under control of the Academy and high-ranking bureaucrats chosen by the administration” until the last of many petitions by painters reiterated a request of reform in 1879: “Outspoken against the Academy, the petition accused the juries of flagrant bias. It suggested that all artists having exhibited previously in the Salon should have the right to elect the Juries. The administration accepted the idea and it went into effect beginning with the Salon of 1881. This Salon was the first entirely managed by artists, and it

discriminated in the government-controlled Salon as the Impressionists could finally display their works in multiple exhibitions and reach the public through them. Such a decentralized system allowed market forces to operate and increase demand and prices for painters who had been outsiders of the centralized system. Our main claim is that the end of the government-controlled Salon in 1880 was the turning point that started the increase in prices of *avant-garde* painters as the Impressionists relative to the academic painters.

We have collected a unique dataset on the price of paintings by French artists between 1859 and 1914 from a variety of sources. Figure 1 presents the price index based on our full dataset (27,500 prices adjusted for inflation, with unitary value in 1880): as far as we know, this is the first price index made available for this period. At a preliminary level, it shows a generalized increase in the price of paintings. We also present the corresponding price index for the paintings of the Impressionists, which clearly confirms that they were priced well below average until the end of the 1800s and that a substantial increase in their market evaluations took place since the beginning of the 1900s.<sup>2</sup> Differences in prices are largely related to the characteristics of the paintings, such as size, genre and destination, the mix of heterogeneous painters and changing demand between buyers, all factors we will control for in hedonic regressions. We will first analyze the Salon system in the period 1859-1880, and show that the acceptance of an additional painting of an Impressionist painter at an average Salon increased on impact the market price of works by the same painter of about 26%, while there was no significant impact of exhibiting an additional painting for the other artists. This confirms that the government-controlled Salon exerted a discrimination against the Impressionists, maintaining a low value for their works due to systematic rejections that denied access to the market.

We then apply a difference in difference (DiD) identification strategy on a sample including paintings traded between 1859 and 1900 by the Impressionists and by a control group of academic insiders, identified as the winners of major prizes at the government-controlled Salons (namely Medals of Honor, First Class Medals and Second Class Medals).<sup>3</sup> Controlling for common changes in prices with a complete set of time dummies, for 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 DiD estimate provides an economically large impact of the liberalization, and this is confirmed in a variety of specifications, with more or less restrictive definitions of Impressionists and of the same insiders.

Analyzing the full sample of artists we confirm that not only the prices of the Impressionists increased and the prices of the insiders decreased after the liberalization compared to the average painters active in Paris, but there was also a moderate increase of the prices of the painters of the Barbizon school, the group of landscape painters that anticipated the innovations of the Impressionists and had been discriminated at the

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is not fortuitous that the *juste milieu* artists honoured Manet with a medal against the wishes of the Academic jurors.” However, the implications of the subsequent liberalization for the art market have not been explored in detail.

<sup>2</sup> The index derives from a basic regression of the logprice on time dummies and an interaction of time dummies with a dummy for the impressionist painters, without further controls. We describe the data in more detail below.

<sup>3</sup> A DiD estimate studies the differential impact of a treatment on a treatment group compared to a control group in a natural experiment.

Salon a generation earlier. As a last test, we identify more than a thousand paintings traded more than once, and we confirm the impact of liberalization in a repeated sale regression with fixed effects for paintings.

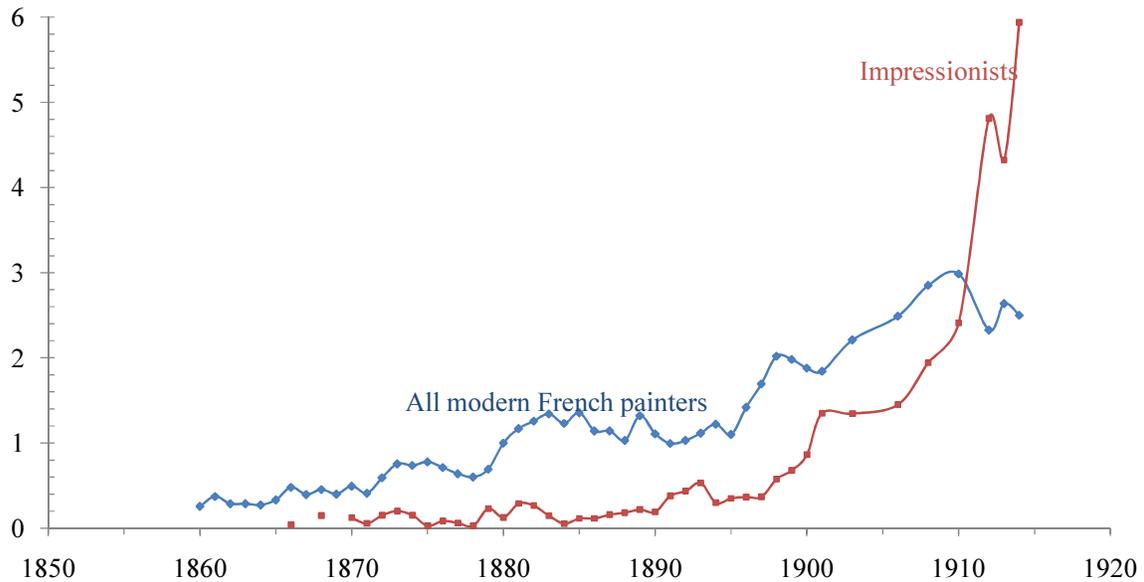


Figure 1: Price indexes for French artists (1860-1914)

Our work relates to multiple strands of literature. At a preliminary level, it belongs to the recent interdisciplinary literature on the economic determinants of artistic creativity (Hulst, 2017), including works by Galenson (2006, 2007, 2009) on the careers of artists, 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 (2016, 2017a) on the Schumpeterian approach to artistic creativity in competitive environments.<sup>4</sup> We show that centralized and decentralized organizations of the art market can affect the reward of artistic innovations in dramatically different ways.

Moreover, we relate to the economic literature that has examined the importance of market organization for economic dynamics, starting from the work of North (1990) on the impact of institutional change on economic performance to arrive to the literature on the political economy of centralized organizations and their reforms to enhance development (Acemoglu, Johnson and Robinson, 2001). Important works on DiD analysis of policy changes are those of Card and Krueger (1994) or Myers (2017) on labor market reforms and Slaughter (2001) on trade liberalization (see also Meyer, 1995). In our context, the power of the government and the Academy on the election of the jury of the Salon determined decisions that affected the art market, and generated a *status quo* bias in the organization of the same institution: we argue that the liberalization of art exhibitions led market forces to correct earlier distortions.

<sup>4</sup> See also Lovo and Spaenjers (2018) for a recent work on the theory of return rates in art investment and some evidence.

Our analysis is broadly related to the industrial organization literature on market liberalization (see Vickers and Yarrow, 1988), which emphasizes the benefits of eliminating barriers to entry to foster competition (in our case between painters through the creation of new salons as marketplaces), and emphasizes the role of contracts between art producers and art dealers in affecting competition (see Caves, 2000). Another related literature is that on the labor economics of insiders-outsiders relations and unions, which has analyzed the behavior of economic agents in labor markets where some participants, as incumbents or unionized workers, have more privileged positions than others, as unemployed or non-unionized workers (Lindbeck and Snower, 1986, 2001). Incumbent workers often enjoy more favorable employment opportunities than the outsiders, typically under the protection of a union, whose activity is usually driven by the same insiders. An important consequence for our application is that discrimination leads to persistent unemployment or to a segmented market with lower compensations for the outsiders (unable to effectively underbid the insiders).

We are not the first to study institutional aspects in the emergence of impressionism. One of the first quantitative approaches to the evolution of French art during the 1800s is 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 of 1874. An alternative view is that the exhibition of Impressionists in New York of 1886 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),<sup>5</sup> we argue that the liberalization of the art exhibitions with the end of the government-controlled Salon in 1880 was the key event that shifted the structure of the art market from imperfect competition between insiders toward a contestable market where all artists had a chance to differentiate their products and attract buyers by exhibiting in alternative salons (and through competition between dealers). The anecdotal evidence on the discrimination of the Impressionists at the Salon and their slow appreciation is well known in art history (see for instance Rewald, 1973). However, we are not aware of any systematic analysis on art pricing that goes beyond descriptive statistics,<sup>6</sup> and, in a period of generalized increase of the nominal prices of paintings, it is important to analyze the behavior of relative prices and how the liberalization of 1880 affected them.

The rest of the work is organized as follows. The next section frames the organization of the art market in Paris during the 1800s and the institutional change taking place since 1880. The subsequent sections present the data and describe methods and results: the reader interested in the quantitative analysis may move to them at a first reading. The last Section summarizes and concludes.

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<sup>5</sup> See also Mainardi (1987) and Kearns and Mills (2015) on the organization of the old Salon.

<sup>6</sup> An interesting econometric analysis by Greenwald (2018) has recently studied correlations between exhibition of paintings of rural subject at the Salon before 1880 and characteristics of the painters, but ignoring prices and the impact of the liberalization of 1880.



Plate 1. Claude Monet, "Poppies" (1873, Musée d'Orsay, Paris). Artwork in the public domain.

#### THE SALON OF PARIS AND THE EMERGENCE OF IMPRESSIONISM

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

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

After the French Revolution the old corporations were abolished, and the responsibility of the Salon was moved to the Ministry of the Interior in 1791, introducing the possibility for all artists to participate at the Salon. This started a new phase in which the selection of paintings became crucial for the artists, because the Salon was becoming not just an exposition of “pictures to see” but also an exhibition of “pictures to sell” (Mainardi, 1994).<sup>7</sup> However, this institutional change was more formal than substantial, and an *Académie des Beaux-Arts* was soon recreated around the neoclassical school, retaining the control of the Salon and, most of all, of selections and monetary prizes.

During the First Republic and the Empire of Napoleon, it was always understood that the government had to support the tradition of monumental history painting, which represented the pride of the French school and could not prosper without public commissions, as a sort of (impure) public good. Therefore, the main purpose of the Salon remained the promotion of history painting of a rather homogeneous style and, indirectly, of the academic painters and their aesthetic values. Most of the prizes and recognitions kept being awarded to history painters, who gained from this a substantial advantage in terms of reputation, further commissions and higher prices.<sup>8</sup> The fortune of this bias toward a closed and exclusive “aristocracy of art” against a more commercial and inclusive role of the Salon as an open marketplace for paintings of differentiated genres demanded by the bourgeoisie, followed the political events of the century, but was never overturned until the final collapse of the Salon in 1880. In periods in which the academicians gained more power, as under the Restoration (1815-1830), they contrasted the commercialization of the Salon by reducing the number of accepted artists.<sup>9</sup> The insiders of the Salon gained the visibility needed to reach the demand of the private clients and could compete by offering a limited number of paintings for sale, while the artists who were excluded from the Salon could hardly find any buyers. If the Salon of the 1700s delivered a monopoly of the academicians on the primary art market, the one of the early 1800s delivered a market structure close to imperfect competition between insiders with barriers to entry against outsiders (something which was being formalized in economic theory by Cournot, 1838).

During the so-called July Monarchy (1830-1848) the king turned the Salon into a yearly event and delegated the jury entirely to the Academy. Its fourteen member painters were old and dogmatic artists, tied to the

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<sup>7</sup> Secondary exhibitions did take place in provincial towns, but they were marginal compared to the Paris Salon. On the secondary art market in Paris in this period see also Etro and Stepanova (2015). Notice that the commercial nature of art exhibitions was already common in London; see Etro and Stepanova (2017b).

<sup>8</sup> Napoleon set standard prices for art acquisitions following the hierarchy of genres (White and White, 1965, p. 63): a large Napoleonic history painting had to be paid 12,000 francs (but exceptions reached the 65,000 francs of the “Coronation of Napoleon”), a large painting of classical subject 4,000-10,000 francs, a full-length portrait of a minister 4,000 francs, and pictures of emperor’s horses 130 francs.

<sup>9</sup> As noticed by Mainardi (1987, p. 10), “the Academy maintained a contradictory attitude towards the Salons: it wanted to abolish them or hold them as infrequently as possible, for they still bore the odious taint of commercialism; at the same time it wanted to maintain total control of them and limit participation to Academicians... Implicit in both attitudes was the principle that the most distinguished artist worked only on commission and would exhibit solely for didactic purposes; to exhibit unsold work was like being a shopkeeper.”

neoclassical style of Jean-Auguste-Dominique Ingres, and ready to reject repeatedly the innovations of the time, as first the romantic colorism of Eugène Delacroix, then the landscapes associated with Jean-Baptiste Camille Corot, Théodore Rousseau, Jean-François Millet, Charles-François Daubigny and the other members of the Barbizon school,<sup>10</sup> and finally the realism of Gustave Courbet.<sup>11</sup> The decisions of the jury started to be criticized as narrow-minded by an increasing number of artists. In 1838 the *Journal des Artistes* published a heavy criticism of the Salon asking for a permanent exhibition with free entry, and in 1840 and 1843 large groups of artists signed petitions for reforms of the jury aimed at opening access to more painters. In spite of this, the jury was becoming always more restrictive and by the 1840s the majority of the submitted works were rejected. The analysis of the *livrets* that record the artworks exhibited at the Salon shows that during the July Monarchy a third of the accepted paintings were still history paintings or portraits, and the field of genre painting was expanding its share (including historical anecdotes, oriental scenes or battle scenes that could be praised also by the conservatives), but landscapes were in decline and still lifes remained completely marginal (Kearns and Mills, 2015, p. 151-3).

The liberalization of admissions to the Salon of 1848, when the revolutionary government decided to accept all the works that had been submitted, was only a temporary fruit of the Second Republic (1848-1852), which never undermined the prominent role of history paintings in its cultural policy, but simply switched the rationale for public intervention toward didactic and patriotic purposes. As noticed by Mainardi (1994, p. 15), the new fine arts administrator, the art critic Charles Blanc, defended the idea that “the state has an obligation to commission monumental painting, destined to live as long as the buildings it decorates, encouraging to regain the dignity and sobriety of Italian fresco”, while the other genres were the interest of private collectors and not of the government. In the subsequent years, the jury was in part appointed by the government and in part elected by the painters that had received prizes in earlier Salons, and the elected jurors remained rather conservative artists. White and White (1965) have analyzed statistically the sales of paintings over a century of major auctions recorded by the same Blanc (1858): they have shown that both the number and the average price of French history paintings increased during the first half of the century, especially for living artists and compared both to foreign masters and to genre and landscape painters. This confirms the persistent bias of the Salon in favor of figurative painting and an effective discrimination which exerted an upward pressure on the prices reached by the insiders of the academic system relative to the “proletariat” of the other artists (Jensen, 1994).

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<sup>10</sup> The tin paint tube, that allowed artists to paint entirely outdoor, was invented in the 1830s and imported from England in the 1840s. It is hard to underestimate the impact that this had on realistic landscape painting of the artists gathering around the forest of Barbizon and, later, on *en plein air* painting of the Impressionists. In this sense, their innovations were largely supply-driven rather than demand-driven innovations.

<sup>11</sup> After his rejection in 1847, Courbet will write that “it is bias on the part of the gentlemen of the jury: they refuse all those who do not belong to their school, except for one or two, against whom they can no longer fight, such as MM. Delacroix, Decamps, Diaz, but all those who are not well known by the public are sent away without a word. That does not bother me in the least, from the point of view of their judgment, but to make a name for oneself one must exhibit, and, unfortunately, that is the only exhibition there is” (cited in Galenson and Jensen, 2002). Contrary to this, the leader of conservative painters, Ingres, was criticizing the same exhibitions as “bazaars in which mediocrity is impudently flaunted. They are useless and dangerous.”

During the Second Empire (1852-1870), admissions to the Salon were again under the direct control of the regime, which reinstated the Academy as the jury, under the direction of the conservative Comte de Nieuwerkerke. As an important fruit of its centralized organization financed by the government, the Salon was by now the most important art event of the world. As such, it was also a powerful weapon to promote French *grandeur*, support the image and the ideology of the *regime* and protect the prestige and the economic interests of the academic painters. The promotion of national pride was always fed by the academic *art pompier*, though leading painters such as Alexandre Cabanel, Jean-Léon Gérôme and Ernest Meissonier were also engaged in edifying genre paintings. The promotion of French art was also the aim of the retrospective exhibitions on living French artists at the 1855 Universal Exposition of Paris, with wide space for Ingres, Vernet and finally Delacroix. The glorification of the regime was mostly served by paintings in the grand tradition and celebrative portraits: it has been calculated that 38% of the public budget for art during the Second Empire was still destined to religious works (the Church had supported the *coup d'état*), 18% to history paintings, largely of contemporary events, and 16% to portraits of the Emperor or the Empress (Mainardi, 1987, p. 38). The interest of the academic painters was protected by favoring the insiders of the Salon: for instance, the gradual introduction of the principle of *hors concours*, for which winners of medals and other recognitions were “exempt” from future jury decisions, increased the bias of admissions against the outsiders. The promotion of official art was also pursued through preferential positioning in the rooms of the Salon by the powerful “hanging committee”, and through a variety of recognitions, such as the Medal of Honor and other medals of different importance, such as First, Second and Third Class medals. All this contributed to increase the willingness to pay of the buyers for the insiders compared to independent artists active outside the academic tradition.

A statistical analysis by White and White (1965) on the careers of painters exhibiting at the official Salon, based on the records in Auvray (1882), has shown that it was only a small minority of artists that could hope for an official recognition in a largely nepotistic system (where scholars elected jurors who allocated awards to scholars) so as to improve reputation in the market as well.<sup>12</sup> For the outsiders of the system, instead, the market was confined to few art lovers with a limited willingness to pay. For this reason, acceptance at the Salon was not neutral on art trade (neutrality could hold in a market with full information of the buyers on the available supply, where prices reflect the maximum willingness to pay for each painting), but it was actually affecting demand and price of discriminated artists. Extreme consequences of acceptance at the Salon were not unusual: for instance, the pre-impressionist painter Jongkind sold a landscape before the Salon of 1863 but had to reimburse it after his submission was not accepted. Repeated rejections stopped careers of painters without other sources of income.<sup>13</sup> Of course, the set of accepted paintings at the Salon was slowly changing over time, for instance welcoming a synthesis between the well finished style of the

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<sup>12</sup> In particular, White and White (1965) estimate that 33% of the painters present in Salons received any public commission, 26% received any medal, 8% held any official job and even less reached one of the four classes of the *Légion d'Honneur*. Interestingly, they also estimate that 18% of the painters attended the *École des Beaux-Arts*, and 41% was born in Paris.

<sup>13</sup> In extreme cases, rejections led to suicides: a documented case is the one of Holzapffel after the Salon of 1866 (Rewald, 1973, p. 70), and even Monet attempted suicide in 1868 by throwing himself into the Seine.

neoclassical school and the sketchy style of the romantic school, or gradually accepting works of the Barbizon school which had been discriminated for a long time (though the market prices for Corot, Rousseau and Millet increased substantially only in the 1880s). The hysteresis in the decision process of the Salon system had a positive impact on the best followers of the mainstream tradition and their monetary recognition in the primary market, but it could not reward in due time (let alone, discover or promote) deeper innovators. This was the case of Manet and the Impressionists, whose personal and artistic network started during the 1860s, together with the first submissions and rejections at the Salon. As well known, the radical innovation of impressionism was to emphasize the perception of light and movement, through a light palette and small but visible brush strokes (leaving an impression of “unfinished” to the contemporary audience) mainly to depict landscapes or genre paintings, typically *en plein air* and from unusual or altered perspectives.<sup>14</sup>



Plate 2. Pierre Auguste Renoir, "Dance at Le Moulin de la Galette" (1876, Musée d'Orsay, Paris). Artwork in the public domain.

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 also rejected works could be seen by the public. Between

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<sup>14</sup> See Rewald (1973) and Schapiro (1997) for classic introductions to the history of impressionism. Similar innovations were independently developed in Italy by the *Macchiaioli*, including painters later active in Paris, such as Boldini and Zandomenighi (who will also participate to group exhibitions of the Impressionists).

them were the scandalous “Déjeuner sur l'herbe” and two other paintings by Manet - whose controversial submissions had already been rejected at the Salon of 1859. Among the Impressionists at the *Refusés* there were also Pissarro, who had been rejected for the second time, and Cézanne. After that, the jury was reformed, including only artists who had received medals in earlier Salons and representatives of the administration, always under the strict control of Nieuwerkerke. The new governance did not allow for a change on the merit, but contributed to weaken the role of the *Salon des Refusés* which was not conceded to the artists 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, Sisley and Bazille, who planned, without success, a separate group exhibition. In the same year another Universal Exposition was held in Paris, with a restrictive jury that reserved 500 of the 700 places for French artists to the “exempt” ones and rejected all the submissions of Manet. At the next Salon Nieuwerkerke had to concede a more liberal jury, two-thirds of which was elected by artists who had been accepted in previous Salons, while the rest was still appointed by the government. The Impressionists benefited from this enlarged (male) suffrage: some of them were accepted, but Nieuwerkerke was personally responsible for rejecting a submission by Monet.<sup>15</sup> At the Salon of 1869 all submissions by Monet, Sisley and Cézanne were rejected again, and Monet was rejected also in 1870. Summing up, after more 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.<sup>16</sup>

During the Franco-Prussian war (1870-71) Monet and Pissarro moved to London where they met the enlightened French dealer Paul Durand-Ruel, who immediately started purchasing their works for few hundred francs.<sup>17</sup> Back in Paris, Durand-Ruel visited the studio of Manet in 1872 for the first time and bought literally all what was available, starting with twenty-three paintings for 35,000 francs and others later on (including for instance “The boy with a sword”, which was paid 1,500 francs and will be sold only in 1881). Durand-Ruel will do the same with all the other Impressionists, paying between 100 and 300 francs for works by Sisley, Pissarro and Renoir, and a bit more for those of Edgar Degas, and storing many of them for years (as “Dancers in pink” which was bought from Degas for 3,000 francs and will be again sold in 1881). As a reference for prices in the secondary art market, top prices could overcome a hundred thousand

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<sup>15</sup> Also Cézanne and Guillaumin were rejected, and the latter had to remain a part-time painter while working in the public sector.

<sup>16</sup> The contradictions of this discriminating system were pointed out clearly by Emile Zola, an early admirer of Manet and the Impressionists and later author of *L'œuvre*, who was anticipating future trade-offs for the Salon in 1868: “The administration will delay in vain, it will be forced, sooner or later, to reinstate the Academy or to throw the doors wide open.”

<sup>17</sup> In his memories, written in 1910-1912, and published by Lionello Venturi in 1939, Durand-Ruel writes: “Monet’s paintings cost me 300 francs, Pissarro’s 200 francs. Those are the prices I continued to pay them for years. No one else would have been so generous, since they were forced to let them go at 100 francs, then at 50 francs or even less, when I was no longer able to continue buying” (Durand-Ruel, 2014, p. 80).

francs for works by Gérôme, Messonier, and other academic painters led by Léon Bonnat and Adolphe Bouguereau.<sup>18</sup>

The first decade of the Third Republic did not change substantially the organization of the Salon. The Director of Fine Arts, now transferred to the Ministry of Public Instruction, was again Blanc, who restored the power of the Academy and introduced conservative rules with the Salon of 1872: only “exempt” artists were eligible for the jury and the government would directly choose part of its members. The rate of acceptance dropped drastically, generating new petitions, including one signed by Manet, Renoir, Pissarro, Cézanne and others. Such a “return to order” was pursued also by the conservative follower of Blanc, the legitimist Marquis de Chennevières: since 1874 only academicians and artists awarded medals could elect members of the jury, and a sort of “state art” was promoted by these “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 Salon.<sup>19</sup>

Since 1874 the Impressionists opted for an unprecedented strategy: the organization of a group exhibition.<sup>20</sup> Galenson and Jensen (2002, 2007) have convincingly argued that this was a key event in the development of a modern art market where artists create their own shows. Nevertheless, this exhibition was received by mixed reactions, misunderstood by the public and heavily criticized by the conservative press, and it was hardly remunerative for the painters either, as was the case for the auction organized by Durand-Ruel at the *Hôtel Drouot*<sup>21</sup> in 1875, when seventy-two works were sold (or bought in) at an average price of 150 francs. The marginalization of the Impressionists in both the Salon and the art market forced them to try again a group exhibition in 1876 (when also Manet organized his own independent show) and 1877, but without better reactions from the press.<sup>22</sup> This aggravated their economic problems (especially for Pissarro, Sisley

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<sup>18</sup> The correlation between prices and academic recognitions was high. For instance, after winning the Prix de Rome, Bouguereau “could charge 5,000 francs for a painting at his Salon debut; after his first Salon Medal, 10,000 francs; after his first State acquisition, 20,000 francs; on receipt of the Legion of Honour, 30,000 francs, until finally he was able to hit the jackpot upon entry to the Academy and charge up to one hundred thousand francs for a single picture” (Brauer, 2013, p. 94).

<sup>19</sup> Renoir was rejected both in 1872 and 1873, when Berthe Morisot was the only one admitted (in the same year she could reach a price of 500 francs for her “View of Paris from the Trocadero”). To give a sense of the bias of the following years, the American painter Mary Cassatt was rejected in 1875 a work in the new impressionist style which will be accepted the following year just after she darkened the background. Manet and Cézanne were rejected at the Salon of 1876, and “Nana” by Manet was also rejected in 1877. Even the Universal Exposition of 1878 was still driven by the most conservative principles, with a jury elected in equal parts by the Academy, the government and the artists.

<sup>20</sup> The joint stock company of the impressionists was a cooperative named *Société Anonyme Coopérative des Artistes, Peintres*. As well known, the term “impressionism” was applied to them mockingly by the press after Monet’s “Impression: Sunrise”.

<sup>21</sup> This was the auction house where public sales in Paris took place since 1852. In 1874 a first Hoschedé sale featured promising prices for Renoir, Monet and Pissarro (twelve canvases sold around 450 francs each on average) and for Degas (with a “Horse race” reaching 1,100 francs), which led the impressionists to organize their own sale. A second impressionist sale took place in 1877 where forty paintings by Pissarro, Renoir and Sisley were again sold at an average of 150 francs. See Bodelsen (1968).

<sup>22</sup> While the public was laughing at these apparently unfinished paintings, a famous art critic, Albert Wolff, was writing as follows for the *Figaro*: “These self-styled artists call themselves ‘intransigents’. They take canvas, paint and brushes, splash on a few daubs of colour here and there at random, then sign the result... Try telling Pissarro that trees are not purple, or the sky the colour of butter; that the things he paints cannot actually be seen anywhere in nature... Try getting

and Monet), and did not help to solve those of Durand-Ruel, who was forced to sell at loss many paintings and 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 later 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.” Renoir reacted by submitting again to the Salon and managed to have some paintings accepted and to increase his earnings: for instance, in 1878 he sold a “Dancer” for 1,000 francs and then two portraits for 1,500 francs each, and in 1880 “Mussel-fishers at Berneval” was sold for 2,500 francs.

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

With an unexpected move, on December 27, 1880, the Ministry decided that the French government would hand over the responsibility to the artists, and Turquet announced on January 17, 1881 the end of the government-sponsored Salon (Mainardi, 1994, p. 176). As Mainardi (1994, p.81) states, the year 1880 “marked a milestone in French cultural as well as political history, for this was the year that the state abandoned the fine arts exhibition that it had sponsored for almost two hundred years.” Since then, paintings will be displayed in different private salons, art galleries, group exhibitions and solo exhibitions, and they will meet demand through such a variety of channels organized in a decentralized way. According to Breuer (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’.

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M Degas to see reason; tell him about drawing, colour, execution, purpose... Try to explain to M Renoir that a woman’s torso is not a rotting mass of flesh, with violet-toned green spots all over it” (see Roe, 2006, p. 154).

### *The art market after the liberalization of 1880*

The years after the end of the government-controlled Salon experienced a proliferation of privately organized art exhibitions that turned Paris into the international capital of modern art. The first consequence of the liberalization of the market for art exhibitions was a rivalry between artists' societies to take over the old Salon (Brauer, 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 a variety of rules guaranteeing turnover of the jurors and transparency of decisions (such as public access to the minutes of the meetings of the jury). All the main artistic constituencies were represented in this open salon, fostering competition between conservative and modern views: in 1881 the Salon prizes were awarded to classical artists such as Bertrand and Lucas, but also Manet and Boudin were awarded a medal, and in 1882 Cézanne was finally accepted for the first time.

Other salons were soon organized, starting with groups of artists that had been discriminated within the old Salon, such as women, whose *Salon de l'Union des Femmes Peintres* took place in the same location of the French Artists' Salon since 1882, and independent painters through the *Salon des Artistes Indépendants* taking place since 1884. This independent salon committed to have no jury of admission and constantly exhibited impressionist and post-impressionist paintings. Later on, two other major salons will be organized: the elitarian *Salon National des Beaux-Arts* taking place initially at Champ-de-Mars and led by a group of dissidents of the French Salon headed by Meissonier and Puvis de Chavanne, and the more radical *Salon d'Automne*, which will become another main reference for the *avant-garde*. These major private salons had to compete fiercely to obtain the best exhibition places (as the *Grand Palais des Champs-Élysées* built for the Universal Exposition of 1900) for which they had to apply every year, to attract exhibiting painters and paying visitors, and to secure commissions for their artists (Brauer, 2013). The only attempt of the government to directly organize another exhibition in competition with the private ones was the *Triennale* of 1883, but it ended up in a failure of participation both of painters and public and was not replicated.<sup>23</sup> Meanwhile, other private salons emerged<sup>24</sup> and a variety of smaller “salonnets” followed the major ones during all the seasons, offering unprecedented opportunities of exhibition for all the painters in Paris, and attracting foreign artists as well.

Since the end of the government-controlled Salon, also group-exhibitions were flourishing, including new ones by the Impressionists in 1881, 1882 and 1886, when the tide was slowly beginning to turn in their favor, those of watercolor painters, pastel painters, and so on. In 1883, just between February and June, Paul Durand-Ruel organized solo-exhibitions dedicated respectively to Boudin, Monet, Renoir, Pissarro and

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<sup>23</sup> Ironically, Manet was still submitting five works, but the academic jury of the Triennale asked a revision of “A Bar at the Folies Bergère” and then rejected it. No painting by Manet was exhibited, not even the portrait of the former Minister of Fine Arts Antonin Proust who had given him the *Légion d'Honneur* in 1882. Manet passed away in 1883. At the sale of his works, “The balcony” was bought for 3,000 francs, “A Bar at the Folies Bergère” for 5,850 francs, while “Olympia” was withdrawn without a single bid (Bodelsen, 1968).

<sup>24</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).

Sisley. Other prominent dealers active in Paris included George Petit (who organized an important exhibition since 1883), Theo van Gogh who was working for Goupil (and supported the brother Vincent van Gogh collecting his paintings), Ambrose Vollard (who “discovered” Cézanne and later Picasso) and the Bernheim-Jeune brothers, often contending impressionist artists to Durand-Ruel.<sup>25</sup> Solo-exhibitions were the new tool to advertise and sell works by emerging painters: it has been estimated (by Félicie de Maupeou; see Patry, 2015) that during the 1870s the number of solo-exhibitions staged in Paris was 35, but this number increased to 88 in the 1880s and literally exploded to 300 in the 1890s.<sup>26</sup> All this promoted product differentiation by artists and increased competition between dealers in discovering and proposing new innovative artists. Such competition was fully open to outsiders of the academic system, and was going to allow them to increase market shares and then start extracting some of the rents of the dealers, as one would expect under vertical contracts with price setters (Bonanno and Vickers, 1987). More in general, the liberalization had indeed eliminated barriers to entry in the art market fostering price competition (something that in economics was being formalized in those years by Bertrand, 1883).

Looking for foreign demand, the main Parisian art dealers started to exhibit and establish galleries abroad. Durand-Ruel, who overcame his major financial problems since 1881, organized a show on the Impressionists in London in 1883, and in the same year he sent eighty works to an exhibition in Boston and others to Rotterdam and Berlin. In 1886 he was invited by the American art promoter James Sutton to put together a major exhibition of three hundred works by Impressionists in New York, at the galleries of Madison Square. A new unbiased audience and open-minded critics were finally interested in the Impressionists. 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).<sup>27</sup> 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 who built the first American collections of Impressionists (now respectively in the museums of Philadelphia, New York and Chicago) and dealers such as Sutton and, most of all, Michael Knoedler. Slowly, the exhibitions of innovative painters started to be more successful also in Paris, even if the resistance of the academic painters was far from over.<sup>28</sup> The Universal Exposition of 1889, held in a Paris renovated by the Haussmann’s boulevards and the *Tour Eiffel*, featured a few impressionist works and a joint exhibition of Monet and the

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<sup>25</sup> Only one painting by van Gogh is known to have been sold during his lifetime, “The Red Vineyard” for 400 francs in 1890. It has been conjectured that the subsequent suicide of the painter was not unrelated to the hope of an appreciation *post-mortem* of his paintings owned by the brother. On the launch of the other post-impressionists see Vollard (1936).

<sup>26</sup> As Jensen (1994, p. 112) notices “no one understood better than Durand-Ruel that the retrospective could be used decisively to develop the taste for a particular kind of art, that retrospectives could form the basis for establishing an alternative canon of artists to that offered by the Academy and the Salon.”

<sup>27</sup> In 1887 Durand-Ruel opened a gallery in Fifth Avenue, which will contribute to a flourishing trade of art. Durand-Ruel will organize a hundred and thirty shows in New York, and in 1920 will be awarded the *Legion d’Honneur*, not for his contribution to art, but to foreign trade.

<sup>28</sup> Well known is the resistance of the French authorities to accept in 1890 the “Olympia” of Manet (bought from his widow for 20,000 francs through a public subscription organized by Monet and the American artist Sargent) and in 1894 the impressionist bequest of Caillebotte. At the Universal Exposition of 1900, Gérôme would have dissuaded the French President from visiting the impressionist room as follows: “*Nous vous arrêtez pas, Monsieur le Président, c’est ici le déshonneur de l’art français.*”

sculptor Rodin (though the more radical group led by Paul Gauguin had to organize a separate show) and some of the Impressionists obtained better compensations during the 1890s, when other *avant-garde* innovators were also emerging. The British market largely discovered the Impressionists with the 1905 exhibition organized in London by Durand-Ruel, but it was with the increasing interest of German, Swiss and Russian collectors from the beginning of the 1900s that the prices of the Impressionists really took off (see Jensen, 1994).

The new art system has been characterized by White and White (1965) as a “dealer-critic system” based on the novel role of art dealers and independent critics. The artistic leadership of Paris had concentrated there a high number of dealers, mostly active around the Louvre on the right bank of the Seine or around the Institute de France on the left bank, and an increasing number of art critics becoming the new arbiters of taste, with interactions between these players and the same artists often taking place in café (as the *Café Guerbois* and *La Nouvelle Athènes* for the Impressionists) replacing the centrality of academic circles. The role of new entrepreneurial dealers was moving from a trade in canvases toward an investment in careers or in schools of artists with whom they had a continuing relation. Already Francis Petit, Hector Brame and Jean Durand had been investing in the emerging Barbizon school, while Adolphe Goupil was mostly trading in works of the academic school. But a forward-looking dealer as Paul Durand-Ruel was the first one (and the only one until the 1880s) to invest in the impressionist school well before it became successful (even borrowing from banks to do so, and using paintings as collateral, with a new financial approach to art investment) and he supported the prices of his stable of artists for years (to insure their valuations in a thin market).<sup>29</sup> Moreover, he was the first to guarantee the income of his painters in difficult moments paying monthly fees and bills (so that artists could continue their innovative career) in exchange for an exclusive representation of their works (to monopolize their supply).<sup>30</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 (non-written) agreements during the 1880s to deal with rivals such as Petit or van Gogh, or they simply tried to put dealers in competition and extract higher prices.<sup>31</sup>

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 key role that art dealers will have in 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

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<sup>29</sup> It has been estimated that Durand-Ruel bought about 1,500 works by Renoir, 1,000 by Monet, 800 by Pissarro, 400 each by Degas, Sisley and Cassatt and 200 by Manet (see Paltry, 2015, p. 12).

<sup>30</sup> Monet will write in 1924: “We would have died of hunger without Durand-Ruel, all we impressionists. We owe him everything. He persisted, stubborn, risking bankruptcy 20 times in order to back us. The critics dragged us through the mud, but, he, was even worse! They wrote: ‘These people are crazy but a dealer who buys their work is even crazier’.”

<sup>31</sup> Still in 1892, Durand-Ruel was warning Pissarro as follows: “If, by chance, you sell directly... the price should be three times what you ask from me. That is the only way I can manage to sell your paintings decently, and it can make both of us rich... Otherwise, a price war will break out... Only with the monopoly that I am requesting from you can I successfully campaign... This was the system that enabled me, five or six years ago now, to sell Monets in America at the prices they still fetch today. And if prices haven’t increased in the past five years that is because other dealers have obtained some of them, and naturally cut each other’s throat, often settling for just 5% profit.” (Durand-Ruel, 2014, p. 188).

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 made possible 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 unparallel choice of art identities and alliances, together with undreamed of opportunities for sales, commissions, prizes and art criticism, these great Salons guaranteed the centripetal and centrifugal power of Paris as the ‘modern art centre’.”

The *laissez-faire* reforms of the Republican government liberalized the exhibition system eliminating the main distortions that the old Salon was exerting on the art market. While it took some time for the salons to open, for new art dealers to trade innovative artists and for the buyers to acknowledge the new schools, the compensations of some of the Impressionists started to increase by the end of the century. The same Durand-Ruel managed to pay off all his debts by the end of the century,<sup>32</sup> and to obtain substantial profits in the next years: if mispricing took place for decades, he was the main arbitrageur active in the market. But only at the beginning of the new century the Impressionists will achieve the definitive success in the art market and in art history. Durand-Ruel concludes his memories in 1912 as follows: “The pictures by Manet that found no buyer at 500 francs are today worth 60,000 or 80,000 francs. Everyone now wants paintings by Degas, which sell for up to 100,000 and 150,000 francs” (Durand-Ruel, 2014, p. 159).

### *Research design*

In the last four decades of the 1800s the prices of the impressionist paintings were not only below their future levels, but also well below those of the average paintings by contemporary artists in the Paris art market. The Salon system was crucial for such initial distortion by discriminating against independent artists who could not reach visibility at the Salon. Our claim is that the institutional change of 1880 was critical because the liberalization of the art exhibitions made it possible for the works by all artists to be displayed in front of the buying audience in a variety of exhibitions and be priced accordingly. We will therefore test separately two hypothesis employing standard econometric techniques of fixed effects estimation (see Angrist and Pischke, 2008). The first hypothesis is about the existence of a discrimination against outsiders in the old Salon system:

**H1: In the pre-1880 period, acceptance of the works of an Impressionist painter at a Salon’s edition induced an upward jump in the prices of all his or her works traded that year.**

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<sup>32</sup> For instance, at the auction of the art critic Duret in 1894 two Manets were sold at more than 10 thousand francs, some “Dancers at the bar” and “Race Horses” by Degas were sold for 7,500 and 7,100 francs respectively, the oils by Monet were sold on average beyond seven thousand francs each, those by Pissarro, Renoir and Sisley around 1,500 on average, and even Cézanne was sold around 700 francs (Bodelsen, 1968). Manet’s “A Bar at the Folies Bergère” was sold for 23,000 francs in 1896, “Déjeuner sur l’herbe” for 55,000 in 1900, when the landscapes by Monet started to sell at 10 thousand francs.

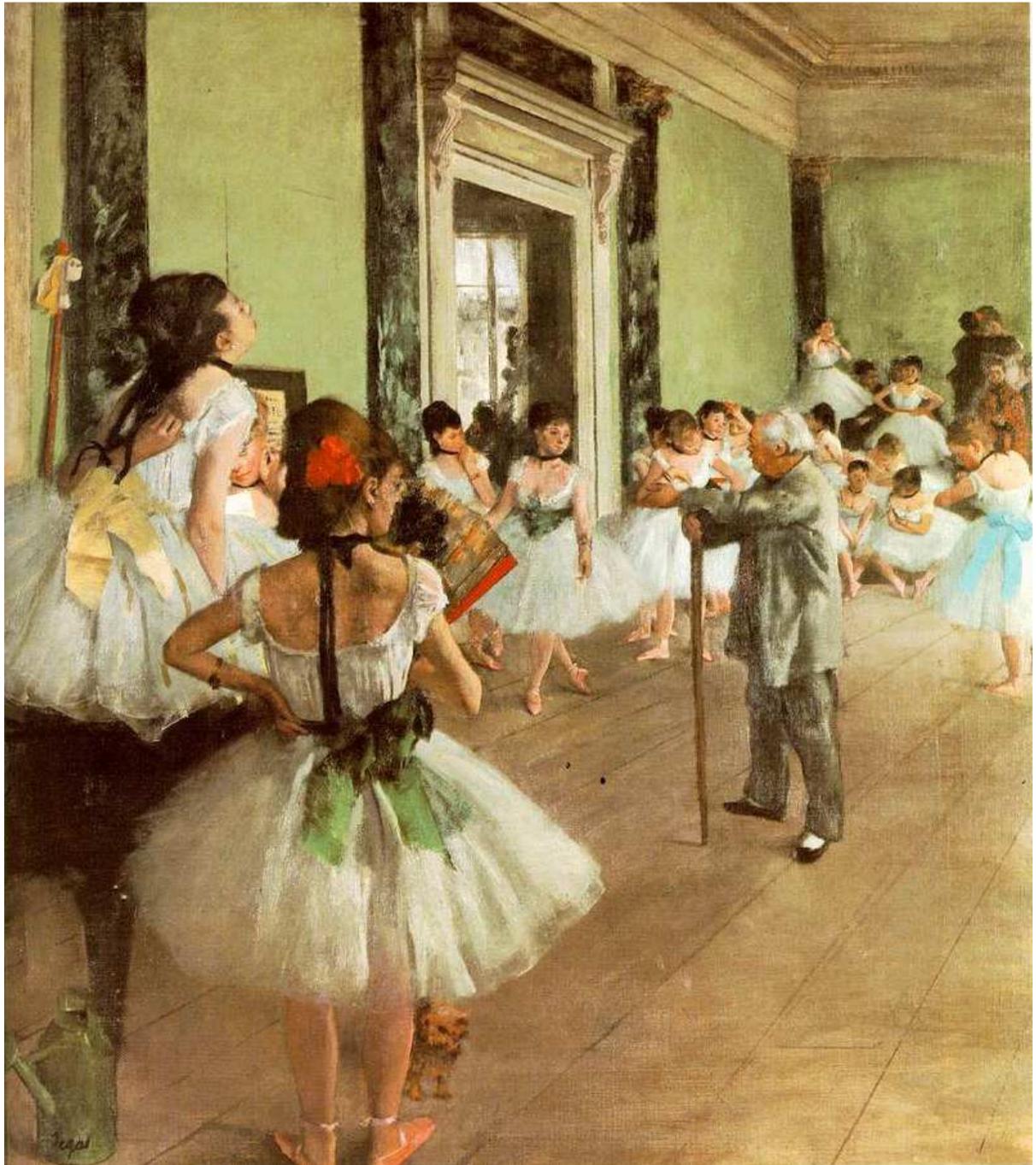


Plate 3. Edgar Degas, "The Ballet Class" (1871-74, Musée d'Orsay, Paris). Artwork in the public domain.

In an efficient art market a decision of a jury on the exhibition of a given painting may at most exert a direct impact on the market value of this particular painting, but should not systematically affect the market value of other paintings by the same author traded in the market. Indeed, under perfect information in a frictionless market, the market value of an artwork should just reflect demand and supply conditions for the paintings of a given artist, independently from exhibition of artworks by the same author in a given Salon. Instead, when some painters are systematically discriminated and information on their work is not widely accessible to the

buyers, the value of their paintings is reduced by a limited willingness to buy on the demand side. In such a case, acceptance provides a new unexpected positive signal on the discriminated painter and visibility for his or her works, whose demand increases with a positive impact on prices. Therefore, a price reaction at the time of acceptance at the Salon should emerge for painters as the Impressionists, while we do not expect any significant price reaction for the Insiders as well as for the average painters ordinarily traded in the market and exhibited at the Salon.<sup>33</sup>

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 all artists could differentiate their products and attract buyers by displaying their works in competing salons and exhibitions. This had to increase the relative prices of the previously discriminated artists. 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 Impressionists increased relative to those of the Insiders after the liberalization of 1880.**

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

#### THE DATASET

In this Section we provide a description of our data and we show some descriptive statistics. The empirical analysis is based on a unique dataset about primary and secondary sales 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;

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<sup>33</sup> The spirit of our analysis is the inverse of a regression discontinuity design (Thistlethwaite and Campbell, 1960). Such design assumes that when an independent variable crosses a cut-off it generates a discrete change whose impact on the dependent variable is measured looking at observations above and below the cut-off. Here we assume that the discrete change does not exert any impact on the dependent variable except than in case of discriminated agents and we measure the impact of discrimination looking at observations above and below the cut-off.

(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>34</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 Ventres d'Art* of Mireur (1911).

The information of a typical painting reports the artist's name, the title, the genre, length and height of the painting, the payment date, the price paid, the name of seller and buyer, the location of the buyer, the current location and (only 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 informations by checking further art historical sources. Furthermore, data from the original Salon catalogues, or *livrets* (see Horst Woldemar, 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.

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

The surface area has been converted in square meters and is available for almost seven thousand observations. 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

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<sup>34</sup> Records from both sales books are administered by the Getty Research Institute.

Williams & Everett in the U.S.) and collectors from Paris (e.g. 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)**

<b>Variable</b>	<b>N. obs.</b>	<b>%</b>	<b>Mean</b>	<b>SD. Price</b>	<b>Min.</b>	<b>Max.</b>
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 location	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 focused on artists active in the art market of Paris, and we classified them in four groups. The first group of “Impressionists” includes strict Impressionists such as Monet, Degas, Renoir, Pissarro, Sisley and Morisot, plus Manet, who was often considered as their artistic mentor, and Cézanne, Gauguin, van Gogh and Toulouse-Lautrec who were later defined as post-Impressionists (but notice that Cézanne and Gauguin also participated to the group exhibitions of the Impressionists). The group of “Insiders” is defined as including all the winners of Medals of Honor or First Class and Second Class Medals and equivalent awards during the period 1859-1880, as in the cases of Pascal Dagnan-Bouveret, Eugène Fromentin, Jules Joseph Lefebvre, Pierre Auguste Cot, Emile Auguste Carolus-Duran, Edouard Detaille and others, including older established academic painters such as Cabanel, Gérôme, Meissonier, Bouguereau, Bonnat and Ingres (these have been excluded in robustness checks). The third group is made of the so called “Barbizon school” artists, which were outsiders of the official Salons of the 1830s and were then gradually recognized by the Salon and in the art market (including Corot, Daubigny, Rousseau, Millet and the today less famous Narcisse Diaz De La Peña, Jules Dupré, Henri Harpignies, Charles Jacque, Constant Troyon, Alexandre Defaux and Félix Ziem). Finally, we have a residual group of “Others” which includes both traditional painters and older independent painters who went through discrimination at earlier Salons: for instance they include Boudin,

Courbert, Delacroix and De Chavannes or now less famous painters such as Jules Bastien-Lepage, Jehan Vibert, Léon Lhermitte and many others. The full list of artists of the four groups is reported in Table A2 in the Appendix.



Plate 4. Édouard Manet, " A Bar at the Folies-Bergère " (1882, Courtauld Gallery, London). Artwork in the public domain.

Descriptive statistics on the dataset used in the regressions are in Table 1 below. Table A1, in the Appendix, contains the details of the definitions and sources of the variables included in the regressions. The most expensive paintings are the figurative ones, but the most common ones are genre and landscape paintings. For less than half of the observations we know the precise surface area of the paintings, which is rather small on average (a bit more than a quarter of a square meter) reflecting a typical domestic destination. For the majority of observations we know the location of the buyer, which is Paris in most of the cases. Paintings sold elsewhere in Europe have higher prices on average, and those sold in the U.S. have even higher prices, reflecting the fact that only the works of best quality were exported. The dataset includes almost two thousand transactions of paintings by the Impressionists, whose average price is less than half of the average price of the other artists, and almost a third of the price of the Insiders, reflecting the marginal role of this group of artist in the art market. The most frequent group of painters in the dataset is however the Barbizon group, whose earlier appreciation (compared to the Impressionists) justifies higher average prices overall.

## 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 the Impressionists rapidly pushed their prices beyond those of all their contemporaries. The nature of our data allows us to introduce painter and buyers fixed-effects to evaluate the extent to which price heterogeneity is related to unobservable characteristics among painters. The full sample includes up to 68 artists and 460 buyers, but notice that the panel is strongly unbalanced as it includes artists with a minimum of 18 observations (Puvis de Chavannes) to a maximum of 2318 observations (Corot).

### *The impact of acceptance at the government-controlled Salon (1859-1880)*

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 prices of his or her paintings in the art market. If the market was pricing efficiently paintings, in the sense that all artists had similar access to the market and the buyers could bid for their works, we would expect neutrality of exhibition at the Salon: prices would already reflect characteristics of the paintings and talent of the artist as perceived by the market in equilibrium.<sup>35</sup> This should be ordinarily the case for established artists exhibiting at the Salon, as the Insiders, but not for the Impressionists if they were discriminated by the jury of the Salon and their works were therefore not accessible to the large audience of potential buyers. For them, we expect a positive impact of acceptance on the price of immediately subsequent transactions.

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

$$p_{nijt} = \alpha + \beta A_{it} + \gamma X_{ni} + \theta_i + \psi_j + \tau_t + \varepsilon_{nijt} \quad (1)$$

where  $p_{nijt}$  is the logarithm of the price of painting  $n$  by artist  $i$  sold to buyer  $j$  at time  $t$ ,  $\alpha$  is a constant,  $A_{it}$  denotes acceptance of artist  $i$  at a Salon in  $t$  as specified below,  $X_{ni}$  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.

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<sup>35</sup> On the equilibrium distribution of prices per artist see Etro and Stepanova (2018).

**Table 2: Price determination and effect of acceptance, 1859-1880 (other artists as reference group)**

	(1)	(2)	(3)	(4)
	Baseline	Painting Characteristics	Artists FEs	Artists & Buyers FEs
(Relative) # accepted paintings	1.758*** (0.292)	-0.613 (0.496)	-0.229 (0.503)	-0.133 (0.496)
<b>(Relative) # accepted paintings x Impressionist</b>		<b>10.967*** (2.005)</b>	<b>7.411*** (2.167)</b>	<b>6.191*** (2.318)</b>
(Relative) # accepted paintings x Insider		-2.252*** (0.610)	1.051* (0.583)	0.916 (0.575)
(Relative) # accepted paintings x Barbizon		-1.734*** (0.632)	-0.88 (0.833)	-0.94 (0.830)
Impressionist		-3.024*** (0.139)		
Insider		0.520*** (0.058)		
Barbizon		-0.250*** (0.057)		
Paris vs <i>Unknown location</i>		0.229*** (0.040)	0.125*** (0.035)	
US vs <i>Unknown location</i>		0.173*** (0.040)	0.091*** (0.032)	
Europe vs <i>Unknown location</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)
Size between 0.25 and 0.50 sq m		0.317** (0.135)	0.212* (0.123)	0.144 (0.117)
Size between 0.50 and 1 sq m		1.114*** (0.135)	0.646*** (0.116)	0.541*** (0.114)
Size between 1 and 2 sq m		1.452*** (0.149)	1.300*** (0.133)	1.157*** (0.131)
Size between 2 and 6 sq m		1.541*** (0.162)	1.367*** (0.172)	1.242*** (0.178)
Genre vs <i>Portrait</i>		-0.152 (0.119)	0.021 (0.091)	0.06 (0.090)
Figurative vs <i>Portrait</i>		0.498*** (0.129)	0.342*** (0.099)	0.377*** (0.099)
Landscape vs <i>Portrait</i>		-0.146 (0.124)	0.015 (0.094)	0.055 (0.098)
Still life vs <i>Portrait</i>		-0.720*** (0.145)	-0.018 (0.121)	0.035 (0.117)
Primary		0.03 (0.116)	0.212** (0.089)	0.1 (0.087)
Year FE	YES	YES	YES	YES
Artist FE	NO	NO	YES	YES
Buyer FE	NO	NO	NO	YES
Constant	7.219*** (0.081)	7.543*** (0.147)	7.119*** (0.171)	7.333*** (0.169)
Observations	6,977	6,977	6,977	6,977
R-squared	0.053	0.268	0.51	0.529

Robust standard errors in parentheses, \*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

**Table 2 (cont'd): Price determination and effect of acceptance, 1859-1880**

<b>Artists' fixed effects</b>					
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)			

The key variable  $A_{it}$  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>36</sup> and  $\beta$  is our coefficient of interest. Since the jury decided on submissions at the beginning of the year but paintings could be sold over the entire year, the coefficient provides a lower bound on the impact of acceptance on prices. The total number of accepted paintings changed between Salons depending on how restrictive the jury was, from a minimum of 1,491 in 1873 to a maximum of 3,957 in 1880, with an average over the period of interest of 2,287 accepted paintings. Accordingly, we normalize the number of accepted paintings per artist by expressing it as a percentage of the total number of paintings exhibited in that Salon.<sup>37</sup> We also interact this acceptance measure with the categories of painters: Impressionists, Insiders and members of the Barbizon school compared to the others.

Our main results are summarized in Table 2. All specifications control for five years dummies to take into account changes in price trends. In the first column, the natural logarithm of the real price is regressed only on the number of accepted paintings per artist, which shows a positive and largely significant impact of an additional exhibited painting on the prices of paintings of 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 (namely  $1.758 \cdot 100 / 2,287 = 0.08$ ). This result, however, may simply reflect the higher quality of paintings by some of the accepted artists, and therefore it does not directly support our hypothesis. Accordingly, in the following column, we regress the price on the full set of paintings' characteristics and we also interact the acceptance measure with the category of a painter.

Before commenting on the impact of acceptance at the Salon, we emphasize the basic determinants of art prices emerging from the analysis in the second column of Table 2. We can verify the traditional positive correlation of prices with the surface area of the painting (the coefficients of the size dummies are compared to the omitted category of paintings whose size is unknown in the dataset, and they increase monotonically with the size group).

There are some clear differences in prices across genres, with figurative paintings paid more than portraits, with landscapes and genre paintings paid less than the portraits but not in a significant way, and still life paintings paid much less than all the other genres: this may reflect the persistent bias of the market in favor of traditional paintings belonging to the figurative type. Primary sales are not paid in a significantly different way compared to secondary sales, while in these two decades the sales taking place in Paris are paid marginally better than those taking place elsewhere, but the differentials with sales to U.S. and elsewhere in

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<sup>36</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. We should add that we do not have systematic information on submissions and rejections at the Salon (artists did not necessarily submit a painting at every Salon), therefore we estimate the impact of having a painting exhibited at the Salon and not of having a submission accepted. This is contributing to underestimation of the price impact of acceptance.

<sup>37</sup> We also used, with analogous results, a simpler measure of acceptance 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).

Europe are not significant (suggesting that a painting of a given quality was sold at similar prices abroad). Most relevant for our purposes, the paintings of the Insiders are better paid than any other paintings, while those of the Barbizon school are paid below the average and the paintings of the Impressionists are paid by far less than any other paintings in this period. With this background in mind, we can now notice that the acceptance 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 that is absent for the other groups. While this specification clarifies that there is something peculiar to the Impressionists, the impact of acceptance on their prices may be still due to differences in quality (as perceived by the market) between Impressionists who were more often accepted at the Salon (such as Manet or Degas) and those who were rarely or never accepted (Monet or Cézanne).

The impact of acceptance remains positive and strongly significant only for the Impressionists, in the third column of Table 2, in which we control for artist fixed effects and can compute a price increase of 32% for every accepted painting of the Impressionists at an average Salon . Finally, in the fourth column we add dummies for the buyers (with at least 10 observations in the estimation sample), which provides our full specification controlling for both differences in quality between painters and in willingness to pay between buyers. 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 full specification makes clear that the impact of acceptance emerges forcefully only for the category of painters that was discriminated, namely the Impressionists, strongly supporting our hypothesis. The prices of impressionist paintings increase by 26% for every additional work of the author accepted in an average Salon (therefore by 52% in cases of two accepted paintings), while the prices of the other painters do not exhibit 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 discriminated in the 1830s and were recognized by the 1860s-1870s, as well as for the residual category of artists.

The previous analysis allows us to examine also individual differences between artists in this period. The top prices are associated with Insiders such as Meissonier, Gérôme, Cabanel, Dagnan-Bouveret, Fromentin and others who were significantly better paid than the omitted artist who is Corot. All the Impressionists are 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 are museums purchasing works of art, together with enlightened dealers such as Vollard and Durand-Ruel who were supporting underestimated artists. Instead, more conservative

dealers such as Goupil, Petit and Knoedler in this period, appear to be able to purchase artworks at a discount compared to predicted prices.

*The impact of liberalization of arts: a Difference in Difference approach (1859-1900)*

In this Section we present the results of a difference-in difference 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 discrimination against the Impressionists and the consequent recognition of these painters in the art market. For this reason, our treatment variable *PostSalon* is a dummy that turns one after the treatment occurs, that is since 1881. The control group is represented by the Insiders, as a group of painters who were certainly not discriminated in the market before the liberalization because they were internal to the Salon system receiving awards when the Impressionists were not. Our aim is to verify whether the liberalization had a differential impact on discriminated and non-discriminated artists. In Figure 2 we provide a preliminary insight on this, reporting the average prices of the two categories of painters around 1880: visually this shows that the average price of the Insiders reached a peak in the year of the last government-controlled Salon and declined in the following years, while the average price of the Impressionists had an increase in the same year 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, therefore econometric analysis is needed.

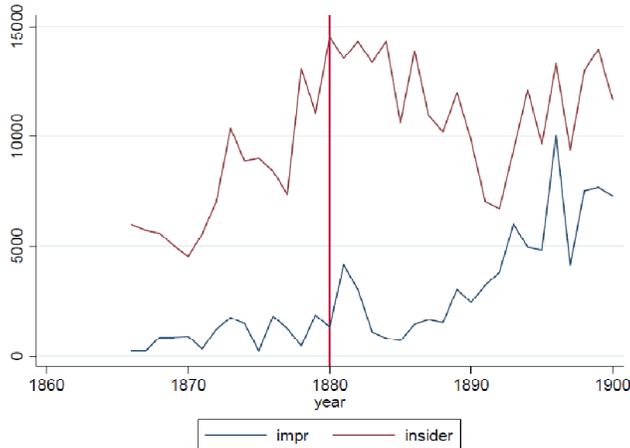


Figure 2: Trends in average prices: Impressionists vs Insiders

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

$$p_{nijt} = \alpha + \beta A_{it} + \gamma X_{nit} + \delta PostSalon + \mu Impr + \rho (Impr * PostSalon) + \theta_i + \psi_j + \tau_t + \varepsilon_{nijt} \quad (2)$$

where *Impr* is a dummy variable that takes on the value of one for Impressionists and zero otherwise, *PostSalon* is a dummy that turns one after the treatment occurs (e.g., post-1880), the coefficient  $\rho$  is the DiD treatment effect estimator that amounts to:

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

We use the same time dummies as in the previous section to control for time trends that are common to all painters.<sup>38</sup> This implies that the coefficient  $\delta$  of the treatment variable *PostSalon* depends on the particular time dummies omitted before and after 1880, but the relevant coefficient  $\rho$  is not affected by this.



Plate 5. Paul Cézanne, "The Cardplayers" (1890-95, Musée d'Orsay, Paris). Artwork in the public domain.

To limit threats to the internal validity of such experiment, we control for characteristics of the paintings (accounting for possible changes between treatments), for acceptance effects (accounting for price differences between groups before the liberalization due to discrimination), for sales to different destinations (accounting for the increasing demand for French and impressionist art in the U.S after the New York

<sup>38</sup> As reported below, our results are robust to a more conservative specification in which we control for annual time dummies.

exhibitions of Durand-Ruel) and for artists and buyers fixed effects (accounting for other omitted variables). Notice that there are no serious 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).

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

	(1)		(2)		(3)		(4)	
	Baseline		Painting Characteristics		Artists FEs		Artists & Buyers FEs	
(Relative) # accepted paintings	-0.003***	(0.0004)	-0.003***	(0.0004)	0.000	(0.000)	0.000	(0.000)
(Relative) # accepted paintings x Impressionist	0.023***	(0.002)	0.013***	(0.002)	0.014***	(0.002)	0.013***	(0.002)
Seniority			0.034***	(0.002)	0.082***	(0.008)	0.079***	(0.008)
Post Salon dummy	0.016	(0.074)	-0.046	(0.066)	0.002	(0.069)	-0.009	(0.061)
<b>Post Salon dummy x Impressionist</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>
Impressionist vs <i>Insiders</i>	-2.997***	(0.094)	-2.418***	(0.109)				
Paris vs <i>Unknown location</i>			-0.168***	(0.040)	-0.075**	(0.034)		
US vs <i>Unknown location</i>			0.390***	(0.036)	0.288***	(0.030)		
Europe vs <i>Unknown location</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

Finally, we need to keep in mind that we have a DiD where both Insiders and Impressionists were affected by the treatment, while normally the control group is not: in our case, after 1880, the Insiders (the control group) lost their advantage due to the centralized Salon while Impressionists (the treated group) were able to

have access to a more open market. Hence, we are actually measuring the effect of removing barriers to entry for a group (the Impressionists) not with respect to an invariant *status quo* but with respect to a group (the Insiders) which lost a positional rent.

Our main results are summarized in Table 3. All its specifications control for the time dummies and for the measure of acceptance at the Salon of the previous section with the relevant interaction with the Impressionists. In the first column we start by estimating a baseline price equation where the natural logarithm of price is regressed only on the treatment variable (the post Salon dummy), the treatment group and the interaction between the two. The coefficients confirm that the Impressionists were priced substantially below the Insiders, but after the liberalization of the Salon the prices of the Impressionists increased by about four times relative to those of the Insiders.

With the second column we start adding the full set of paintings' characteristics to control for other differences between artists. One of this is related to the age cohort of the painter at the time the work is traded, which may uncover career effects: indeed, the variable *Seniority*, equal to the difference between year of sale and year of birth of the artist, has a consistently positive coefficient.<sup>39</sup> Besides confirming other results emerging in the earlier regressions on price differentials depending on surface areas and genres, we find that primary sales are sold at a discount compared to the secondary market and we unveil a price premium for paintings sold to the U.S. compared to those sold to Paris. This last result is in contrast with findings for the earlier period, and appears consistent with the increasing willingness to pay of American collectors for French art at the end of the century. After controlling for the paintings' characteristics, we confirm that the price differential between Impressionists and Insiders decreased since the liberalization of the Salon.

In the third and fourth columns we add respectively artists' fixed effects and buyers' 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). In the full specification the prices of the Impressionists are shown to increase since 1880 by three times relative to those of the Insiders, confirming our second hypothesis for which the liberalization started to reduce the discrimination against the Impressionists in the market. 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 suggests that the Impressionists benefitted from an increase in prices after the end of the Salon. The results are not contradicted by a placebo test (reported in the Appendix) in which we use the same treated and control group but we consider another treatment period, namely the period starting in 1874 when the first group exhibition of the Impressionists took place (the coefficient of the interaction is not significant or is even negative).

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<sup>39</sup> This may also reflect age effects for experimental innovators in the sense of Galenson (2006) to the extent that the market can reflect quickly the innovative content of paintings, *Seniority* is positively correlated with the age of the artists at the time of execution, and only few artists were conceptual innovators (i.e. with a peak in the value of their works early in the career). However, limited data on the age of execution of the traded paintings do not allow us to test for this.

The baseline results are robust to alternative specifications reported in Table 4. We have considered a more “conservative” definition of Impressionists limited to the pure Impressionists and Manet, therefore excluding Cézanne, Gauguin, Van Gogh and Toulouse Lautrec as post-impressionists, and the results (in column 1) are nearly identical: this shows that the impact of liberalization was indeed crucial for the early group of Impressionists. We have also tried separate effects for different impressionist painters, finding a bigger impact of liberalization on the prices of Pissarro and Cézanne (who lagged behind the others in terms of monetary compensations and were also experimental innovators in the sense of Galenson, 2006, reaching their best achievements later in the career).<sup>40</sup> These regressions are available from the authors.

**Table 4: Price determination, DiD regressions, 1859-1900 (Robustness)**

	(1)		(2)		(3)		(4)	
	Only pure Impressionists and Manet		Only painters born after 1825		Annual time dummies		Observations with exact surface area	
(Relative) # accepted paintings	0.000	(0.000)	-0.000	(0.001)	-0.001***	(0.000)	0.007	(0.004)
(Relative) # accepted paintings x Impressionist	0.013***	(0.002)	0.012***	(0.002)	0.013***	(0.002)	0.002	(0.005)
Seniority	0.075***	(0.008)	0.093***	(0.010)	0.047***	(0.004)	0.107***	(0.014)
Post Salon dummy	0.000	(0.060)	0.046	(0.084)	-0.929***	(0.271)	-0.317	(0.199)
<b>Post Salon dummy x Impressionist</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>
Size ( <i>in square meters</i> )							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)		
Size between 0.25 and 0.50 sq m	-0.087**	(0.044)	-0.018	(0.046)	-0.072*	(0.042)		
Size between 0.50 and 1 sq m	0.448***	(0.046)	0.549***	(0.051)	0.429***	(0.045)		
Size between 1 and 2 sq m	1.084***	(0.091)	1.383***	(0.138)	1.037***	(0.090)		
Size between 2 and 6 sq m	1.617***	(0.120)	1.666***	(0.145)	1.544***	(0.115)		
Size greater than 6 sq m	1.760***	(0.114)	1.782***	(0.097)	1.760***	(0.134)		
Genre vs <i>Portrait</i>	0.112	(0.080)	0.078	(0.082)	0.095	(0.078)	-0.129	(0.145)
Figurative vs <i>Portrait</i>	0.215**	(0.091)	0.048	(0.107)	0.195**	(0.089)	-0.186	(0.168)
Landscape vs <i>Portrait</i>	0.102	(0.089)	0.019	(0.095)	0.061	(0.086)	-0.035	(0.152)
Stilllife vs <i>Portrait</i>	0.018	(0.101)	-0.030	(0.108)	0.023	(0.097)	-0.097	(0.170)
Primary	-0.117***	(0.041)	-0.072*	(0.044)	-0.117***	(0.039)	-0.057	(0.048)
Time dummies	YES		YES		YES		YES	
Artist FE	YES		YES		YES		YES	
Buyer FE (at least 10 obs in sample)	YES		YES		YES		YES	
Constant	0.497	(1.007)	1.777***	(0.396)	4.239***	(0.242)	4.857***	(0.451)
Observations	8,044		5,795		8,182		2,847	
R-squared	0.594		0.573		0.615		0.690	

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

Next, 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 only Insiders of the same generation of the Impressionists, and the results (in column 2) remain largely unchanged. Remarkably, in this case the price differentials between genres are all insignificant, suggesting

<sup>40</sup> We are grateful to David Galenson for suggesting this and other robustness checks.

that the figurative paintings that commanded a price premium were those of the oldest generation of academic painters. We have also experimented (in unreported regressions) whether some of the price changes may be related to the death of some painters, providing spurious results, 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.

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 Salon on the relative price of the Impressionists (in column 3) is actually strengthened compared to the baseline model. Therefore, controlling for any variation of prices which is common to Impressionists and Insiders year after year, we confirm that it was the year of the liberalization that generated a significant reduction in the price gap between them.

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

Finally, Table 5 presents the results of a specification in which we compare the effect of the liberalization on the Impressionists, the Insiders and painters of the Barbizon school with the effect on the painters of the residual category with further robustness checks. While this substantially enlarges the sample of observations, it also confirms virtually all the results obtained above for the main control variables. The Insiders remain the best paid artists, while the Barbizon group is paid less than average, though more than the Impressionists. 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.

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

have paid slightly above predicted prices, confirming the same behavior of the period before the liberalization.

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

	(1)	(2)	(3)	(4)	(5)
	Baseline	Painting Characteristics	Artists FEs	Artists & Buyers FEs	Paintings FEs
(Relative) # accepted paintings	-0.003*** (0.001)	0.000 (0.000)	-0.001 (0.001)	0.000 (0.000)	
(Relative) # accepted paintings x Impressionist	0.022*** (0.002)	0.010*** (0.002)	0.016*** (0.002)	0.013*** (0.002)	
(Relative) # accepted paintings x Insider	0.000 (0.000)	-0.003*** (0.001)	0.001 (0.001)	0.001 (0.001)	
(Relative) # accepted paintings x Barbizon	-0.001 (0.001)	-0.004*** (0.001)	-0.002*** (0.001)	-0.003*** (0.001)	
Post Salon dummy	0.000 (0.000)	0.152*** (0.051)	0.075 (0.051)	0.077 (0.05)	-0.334* (0.181)
<b>Post Salon dummy x Impressionist</b>	<b>1.483*** (0.101)</b>	<b>0.959*** (0.100)</b>	<b>0.856*** (0.091)</b>	<b>1.141*** (0.096)</b>	<b>1.335*** (0.205)</b>
Post Salon dummy x Insider	-0.148** (0.063)	-0.326*** (0.060)	-0.203*** (0.059)	-0.237*** (0.057)	0.264 (0.231)
Post Salon dummy x Barbizon	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)			
Seniority		0.023*** (0.001)	0.066*** (0.006)	0.064*** (0.006)	0.052*** (0.013)
Paris vs <i>Unknown location</i>		-0.081*** (0.022)	-0.103*** (0.02)		-0.216*** (0.052)
US vs <i>Unknown location</i>		0.372*** (0.023)	0.273*** (0.02)		0.089* (0.053)
Europe vs <i>Unknown location</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

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

## 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 at large and in the art market should not be interpreted in terms of a market failure. To the opposite, it was the centralized system based on the government control of exhibition in the unique art Salon, which indirectly affected the art market and led to such persistent distortions. When this system ended and effective competition set in, both through the organization of new exhibitions and the advertising of innovative artists in private exhibition organized by competing dealers, the demand for the Impressionists increased and the market forces led to a reduction of the price differentials between them and the academic painters. Since then, market forces could affect (and possibly determine in a Schumpeterian sense) the artistic innovations of the *avant-garde* painters.

This institutional change had long lasting consequences on the art market and the career of artists (Galenson, 2006, 2007). It is clear that the radical artistic revolutions that emerged in the new century (with Picasso and the emergence of abstract art) were a fruit of the new environment where art dealers could invest in risky innovations and artists could look for them (Galenson, 2009). These consequences deserve further scrutiny. So it does the analysis of similar institutional changes in other fields of intellectual creativity where centralized organizations marginalize radical ideas and promote mainstream thinking, while a competitive framework promotes conceptual innovations.

## REFERENCES

- Acemoglu, Daron, Simon Johnson and James A. Robinson. "The Colonial Origins of Comparative Development: An empirical investigation." *The American Economic Review*, 91, no. 5 (2001): 1369-1401.
- Allen Robert C. "Consumer Price Indices, Nominal and Real Wages and Welfare Ratios of Building Craftsmen and Labourers 1260-1913." *Explorations in Economic History*, no. 38 (2001): 1-447
- Angrist, Joshua D. and Jörn-Steffen Pischke. *Mostly Harmless Econometrics: An empiricist's companion*. Princeton: Princeton University Press, 2008.
- Auvray, Louis. *Dictionnaire Général des Artistes de l'Ecole Française*. Paris: Librairie Rénouard, 1882.

- Bertrand, Joseph Louis François. "Theorie des Richesses." *Journal des Savants*, no. 48 (1883), Paris: 499-508
- Blanc, Charles. *Le Trésor de la Curiosité*. Paris: Librairie Rénouard, 1858.
- Bodelsen, Merete. "Early Impressionists Sales 1874-94 in the Light of Some Unpublished 'Procès-verbaux'." *The Burlington Magazine*, 110, no. 783 (1968): 330-49.
- Boime, Albert. *The Academy & French Painting in the Nineteenth Century*. London: Phaidon Press, 1971.
- Bonanno, Giacomo and John Vickers. "Vertical Separation." *Journal of Industrial Economics*, 36 (1987): 257-265
- Borowiecki, Karol J. "Historical Origins of Cultural Supply in Italy." *Oxford Economic Papers*, 67, no. 3 (2015): 781-805.
- Borowiecki, Karol J. "How are You, My Dearest Mozart? Well-being and Creativity of three Famous Composers based on their Letters." *Review of Economics & Statistics*, 99, no. 4 (2017): 591-605
- Brauer, Fae. *Rivals and Conspirators. The Paris Salons and the Modern Art Centre*. Cambridge: Cambridge Scholars Publishing, 2013.
- Card, David and Alan B. Krueger. "Minimum Wages and Employment: A Case Study of the Fast-Food Industry in New Jersey and Pennsylvania." *The American Economic Review*, 84, no.4 (1994): 772-793.
- Caves, Richard E. *Creative Industries: Contracts between art and commerce*. Cambridge: Harvard University Press, 2000.
- Cournot, Antoine-Augustin. *Recherches sur les Principes Mathématiques de la Théorie des Richesses*. Paris: Chez L. Hachette, 1838.
- Durand-Ruel, Paul. *Memoir of an Impressionist Art Dealer, 1831-1922*, Paris: Flammarion, 2014
- Etro, Federico. "The Economics of Renaissance Art." *The Journal of Economic History*, 78, no. 2 (2018): 500-38.
- Etro, Federico and Laura Pagani. "The Market for Paintings in Italy During the Seventeenth Century." *The Journal of Economic History*, 72, no. 2 (2012): 423-47.
- Etro, Federico and Laura Pagani. "The Market for Paintings in the Venetian Republic from Renaissance to Rococo." *Journal of Cultural Economics*, 37, no. 4 (2013): 391-415.
- Etro, Federico, Silvia Marchesi and Laura Pagani. "The Labor Market in the Art Sector of Baroque Rome." *Economic Inquiry*, 53, no. 1 (2015): 365-87.
- Etro, Federico and Elena Stepanova. "The Market for Paintings in Paris between Rococo and Romanticism." *Kyklos*, 68, no. 1 (2015): 28-50.
- Etro, Federico and Elena Stepanova. "Entry of Painters in the Amsterdam Market of the Golden Age." *Journal of Evolutionary Economics*, 26, no. 2 (2016): 317-48.
- Etro, Federico and Elena Stepanova. "Art Collections and Taste in the Spanish Siglo de Oro." *Journal of Cultural Economics*, 41, no.3 (2017a): 309-335.
- Etro, Federico and Elena Stepanova. "Art Auctions and Art Investment in the Golden Age of British Painting." *Scottish Journal of Political Economy*, 64, no. 2 (2017b): 191-225.

Etro, Federico and Elena Stepanova. "Power-Laws in Art." *Physica A: Statistical Mechanics and its Applications*, 506 (2018): 217-220.

Galenson, David. *Old Masters and Young Geniuses: the two Life Cycles of Artistic Creativity*. Princeton: Princeton University Press, 2006.

Galenson, David. "Wisdom and Creativity in Old Age: lessons from the Impressionists." NBER WP 13190, 2007

Galenson, David. "Conceptual Revolutions in Twentieth-century Art." NBER WP 15073, 2009

Galenson, David and Robert Jensen. "Careers and Canvases: the rise of the market for modern art in the nineteenth century." NBER WP 9123, 2002.

Galenson, David and Robert Jensen. "Canvases and Careers: the rise of the market for modern art in nineteenth century Paris." in *Current Issues in Nineteenth-Century Art. Van Gogh Studies*, Chris Stolwijk (Ed.), 1, 137-166, Amsterdam: Waanders Publishers, 2007.

Goupil & Cie (1846–1919) stock books. The Getty Provenance Index Database; Getty Research Institute, Los Angeles. Accessed August 2016. <http://piprod.getty.edu/starweb/pi/servlet.starweb?path=pi/pi.web>

Greenwald, Diana Seave. "Modernization and rural imagery at the Paris Salon: an interdisciplinary approach to the economic history of art Power-Laws in Art." *Economic History Review*, in press, 2018.

Horst Woldemar, Janson, *Catalogues of the Paris Salon 1673 to 1881 Académie royale de peinture et de sculpture (France)*. New York: Garland Publishing, 1977.

Hulst, Titia (Ed). *A History of the Western Art Market*. Berkeley: University of California Press, 2017.

Jensen, Robert. *Marketing Modernism in Fin-de-Siècle Europe*. Princeton: Princeton University Press, 1994.

Kearns, James and Alister Mills (Eds). *The Paris Fine Art Salon, 1791-1881*, Bern: Peter Lang, 2015.

Knoedler & Co. stock books, New York (1872–1970). The Getty Provenance Index Database; Getty Research Institute, Los Angeles. Accessed August 2016. <http://piprod.getty.edu/starweb/pi/servlet.starweb?path=pi/pi.web>

Lindbeck, Assar and Dennis Snower. "Unemployment, and Insider-Outsider Relations." *The American Economic Review. Papers & Proceedings*, 76, no. 2 (1986): 235-39.

Lindbeck, Assar and Dennis Snower. "Insiders versus Outsiders." *Journal of Economic Perspectives*, 15, no. 1 (2001): 165-188.

Lovo, Stefano and Christophe Spaenjers. 2018. "A Model of Trading in the Art Market." *The American Economic Review*, 108, no. 3 (2018): 744-74.

Mainardi, Patricia. *Art and Politics of the Second Empire: The Universal Expositions of 1855 and 1867*. Princeton: Princeton University Press, 1987.

Mainardi, Patricia. *The End of the Salon: Art and the State in the Early Third Republic*. Cambridge: Cambridge University Press, 1994.

Meyer, Bruce D. "Natural and Quasi-experiments in Economics." *Journal of Business & Economic Statistics*, 13, no. 2 (1995): 151-161.

Mireur, H. *Dictionnaire des Ventes d'Art faites en France et à l'Étranger pendant les XVIII et XIX siècles*. Paris: Maison D'éditions D'oeuvres Artistiques, 1911

Musée d'Orsay, the online collection. Accessed August 2014.  
<http://www.musee-orsay.fr/en/collections/index-of-works/home.html>

Myers, Caitlin Knowles. "The Power of Abortion Policy: Reexamining the Effects of Young Women's Access to Reproductive Control." *Journal of Political Economy*, 125, no.6 (2017): 2178-2224.

North, Douglas. *Institutions, Institutional Change and Economic Performance*. Cambridge: Cambridge University Press, 1990.

Patry, Sylvie (Ed.) *Inventing Impressionism*. London: National Gallery Company, Exhibition Catalog, 2015.

Rewald, John. *The History of Impressionism*. New York: Museum of Modern Art, 1973.

Roe, Sue. *The Private Lives of the Impressionists*. London: Vintage, 2006.

Schapiro, Meyer. *Impressionism: Reflections and Perceptions*. New York: George Braziller, 1997.

Slaughter, Matthew J. "Trade liberalization and per Capita Income Convergence: a difference-in-differences analysis." *Journal of International Economics*, 55, no. 1 (2001): 203-228.

The Art Institute of Chicago, the online collection. Accessed October 2014.  
<http://www.artic.edu/aic/collections/>

The Metropolitan Museum of Art, the online collection. Accessed July 2014. <http://www.metmuseum.org/>

Thistlethwaite, Donald L. and Donald T. Campbell. "Regression-Discontinuity Analysis: An alternative to the ex post facto experiment." *Journal of Educational Psychology*, 51, no. 6 (1960): 309-317.

Vickers, John and George K. Yarrow. *Privatization: An economic analysis*. Cambridge: MIT Press, 1988.

Vollard, Ambroise. *Recollections of a Picture Dealer*. Boston: Little Brown, 1936.

White, Harrison C. and Cynthia A. White. *Canvases and Careers: Institutional Change in the French Painting World*. Chicago: University of Chicago Press, 1965.

## APPENDIX

**Table A1: Sources and Definitions**

Variable	Definition	Source
<b>DEPENDENT VARIABLE</b>		
<b>Log Price</b>	Log of Real Painting Price in French Francs	Bodelsen M. (1968) Durand-Ruel (2014) Mireur (1911) Musée Orsay Archive Centre Patry (2015) The Art Institute of Chicago Goupil & Cie: The Getty Provenance Index Database Knoedlet & Co: The Getty Provenance Index Database The Metropolitan Museum of Art
<b>PAINTINGS CHARACTERISTICS</b>		
Size	Size in square meters	Built by authors
Size squared	Size in square meters squared	Built by authors
Size smaller than 0.2 sq m	Dummy=1 if size is smaller than 0.2 sq. m	Built by authors
Size between 0.2 and 0.5 sq m	Dummy=1 if size is greater than 0.2 and smaller than 0.5 sq. m	Built by authors
Size between 0.5 and 1 sq m	Dummy=1 if size is greater than 0.5 and smaller than 1 sq. m	Built by authors
Size between 1 and 2 sq m	Dummy=1 if size is greater than 1 and smaller than 2 sq. m	Built by authors
Size between 2 and 6 sq m	Dummy=1 if size is greater than 2 and smaller than 6 sq. m	Built by authors
Size greater than 6 sq m	Dummy=1 if size is greater than 6 sq. m	Built by authors
Genre	Dummy =1 for subject genre	Built by authors
Portrait	Dummy =1 for subject portrait	Built by authors
Figurative	Dummy =1 for historical, mythological and religious subject	Built by authors
Landscape	Dummy =1 for subject landscape	Built by authors
Still life	Dummy =1 for subject still life	Built by authors
<b>ARTISTS CHARACTERISTICS and FIXED EFFECTS</b>		
Artists	Dummy =1 for artists with at least 2 obs. in the est. sample	Built by authors
Seniority	Difference between Payment date and year of birth	Built by authors
<b>BUYERS FIXED EFFECTS and DESTINATION</b>		
Buyers	Dummy =1 for buyers with at least 10 obs. in the est. sample	Built by authors
Paris	Dummy =1 if the sale was in Paris	Built by authors
Europe	Dummy =1 if the sale was in other European locations	Built by authors
US	Dummy =1 if the sale was in the United States	Built by authors
<b>OTHER</b>		
Number of accepted paintings	Number of accepted paintings per artist at each Salon's edition, relative to total accepted paintings in that year	Built by authors (data from Horst Woldemar, 1977)
Post Salon dummy	Dummy =1 if a payday > 1880	Built by authors
Post 1873 dummy	Dummy =1 if a payday > 1873	Built by authors
Five Year Dummies	Dummy=1 for 1859-1864; 1865-1970;...	Built by authors
Primary	Painting sold directly by the artist	Built by authors

**Table A2: list of artists by group**

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**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

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**Table A3: Price determination, DiD regressions, 1859-1900 (Placebo test)**

	(1)	(2)	(3)	(4)
	Baseline	Painting Characteristics	Artists FEs	Artists & Buyers FEs
(Relative) # accepted paintings	-0.001 (0.000)	-0.001*** (0.000)	0.002*** (0.000)	0.002*** (0.000)
(Relative) # accepted paintings x Impressionist	0.007*** (0.002)	-0.000 (0.002)	0.003* (0.002)	0.002 (0.002)
Seniority		0.035*** (0.002)	0.091*** (0.008)	0.090*** (0.008)
Post 1873 dummy	0.313*** (0.068)	0.325*** (0.064)	-0.316*** (0.089)	-0.360*** (0.088)
Post 1873 dummy x Impressionist	0.042 (0.143)	-0.363*** (0.131)	-0.153 (0.123)	0.037 (0.136)
Impressionist	-1.622*** (0.139)	-0.929*** (0.138)		
Paris vs <i>Unknown location</i>		-0.205*** (0.041)	-0.109*** (0.034)	
US vs <i>Unknown location</i>		0.360*** (0.036)	0.268*** (0.030)	
Europe vs <i>Unknown location</i>		0.086* (0.048)	0.032 (0.038)	
Size smaller than 0.25		-0.639*** (0.042)	-0.634*** (0.037)	-0.572*** (0.039)
Size between 0.25 and 0.50 sq m		-0.170*** (0.049)	-0.232*** (0.042)	-0.202*** (0.044)
Size between 0.50 and 1 sq m		0.488*** (0.053)	0.328*** (0.045)	0.395*** (0.046)
Size between 1 and 2 sq m		0.834*** (0.090)	0.954*** (0.091)	0.994*** (0.092)
Size between 2 and 6 sq m		1.185*** (0.118)	1.440*** (0.119)	1.469*** (0.118)
Size greater than 6 sq m		2.068*** (0.300)	1.733*** (0.107)	1.684*** (0.111)
Genre vs <i>Portrait</i>		0.215** (0.087)	0.118 (0.081)	0.141* (0.079)
Figurative vs <i>Portrait</i>		0.352*** (0.102)	0.220** (0.092)	0.232*** (0.090)
Landscape vs <i>Portrait</i>		0.023 (0.091)	0.094 (0.089)	0.114 (0.088)
Stilllife vs <i>Portrait</i>		-0.489*** (0.101)	0.011 (0.100)	0.018 (0.098)
Primary		-0.258*** (0.043)	-0.375*** (0.037)	-0.274*** (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	8.003*** (0.071)	6.354*** (0.123)	-0.530 (0.747)	-0.343 (0.745)
Observations	8,182	8,182	8,182	8,182
R-squared	0.239	0.384	0.572	0.590

Robust standard errors in parentheses, \*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1