



The Price of Degenerate Art

Kim Oosterlinck

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JEL Classifications: G1, N44, Z11

CEB Working Paper N° 09/031
May 2011

This version May 31, 2011

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ABSTRACT

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Introduction

Despite the disruption created by the war and the occupation, many sectors from the French economy managed to resume their activities shortly after the Armistice was signed. Even though it was not crucial for the war effort, the main French auction house, Drouot, reopened on September 26th 1940. German occupation forces had both a direct and an indirect impact on this market. Looting of Jewish collections began shortly after the invasion. Since the Nazi propaganda distinguished “real” art from “degenerate art”, some of the looted artworks were not deemed good enough to enter the Nazi’s collections and were thus either destroyed or sold. This had of course a double effect: a long term reduction of supply (since works were destroyed) but a short term increase (since the original collectors would probably not have sold their works at the same time). German actions were not limited to looting. The huge occupation indemnities imposed upon defeated France provided the occupant with almost unlimited means. As a consequence, Germans became major actors on the art markets in occupied Europe. The war also disrupted the international relationships existing between art dealers. Each art market became in a sense segmented. Switzerland proved however to be an exception and served as a platform for German leaders to exchange “degenerate” looted works for more traditional ones or even to sell these.

Historians have been fascinated by the fate of the looted works. Feliciano (1995) describes in detail the looting of some of the main collections located in France (the Rothschild's collection, the Paul Rosenberg gallery, the Bernheim-Jeune collection, the David David-Weill collection and the Schloss one). The functioning of the art market during the war has also been investigated. Most of historians conclude that prices on the art market experienced a sharp rise. There evidence is however usually based on just a few examples¹. Authors also acknowledge that newcomers entered the art market. According to Feliciano (1995, p. 123) Frenchmen did so because of the lack of alternative investment opportunities. Moulin (1967) also suggests that paintings were viewed as a safe investment in view of the huge war-time inflation. She further attributes part of the paintings' success to the fact that paintings are easy to hide and to resell, internationally if needed. The desire to hide profits made during the war, on the black market for example, thus probably explains partially the presence of these new actors.

According to Moulin (1967), the apparition of new collectors, who entered the market mostly for investment and fiscal reasons, had a strong impact on demand since their taste differed markedly from those of the more traditional actors. She stresses their preference for "decorative artworks" of "modest size" which could fit in modern apartments. Still-lives, and more precisely bouquets, from all periods, Italian 18th century and impressionist landscapes were the most sought after. Purchases made by the French state as well as the most successful exhibitions are other proofs of the interest shown for landscapes and nature (Bertrand-Dorléac, 1993, p. 150). Feliciano (1995) suggests that the demand for French art in general boomed. According to him, this surging demand did not only touch the more traditional paintings but also "works by artists who were resolutely modern, like Matisse, or classified as Jews, like Pissarro and Modigliani, and by all those whom the occupying Nazis looked upon as degenerate" (Feliciano, 1995, p. 123). Bertrand-Dorléac

¹ Feliciano (1995, p. 122) mentions the sale of Seurat's *The Little Blue Peasant* in December 1941 for 385 000 FF and the record-breaking sale of Cézanne's *The Valley of the Arc and Mont Sainte-Victoire* for 5 million FF in December 1942. Assouline (2005) mentions that cubist works were sold for an average of 100 000 FF during the war and that two Picasso *L'araignée de mer* and *Les soles* were sold 300 000 FF in April 1941.

(1993, p. 150) suggests on the other hand that artworks by Modigliani, Chagall, Léger or Picasso were sold at cut price whereas paintings by most established modern painters such as Bonnard, Braque or Matisse managed to fetch high prices. She further claims that “Aryan” French painters could, if they were following the current fashion, break their previous record sales.

Even though contemporary actors and historians suggest that the French art market experienced a boom during the occupation, there is, to our knowledge, no quantitative analysis related to this boom. Furthermore, most authors view the sharp price increase as continuous during the war but provide no evidence on this respect. Based on an original database tracking the price of more than 2850 canvasses sold during the war at Drouot, this paper provides an index of the art market in occupied France. It further analyzes the specific price evolution of works by artists considered as “degenerates” by the Nazi regime. Anecdotic evidence has lead authors to suggest that the market paid a premium for smaller artworks, which were easier to hide and take away. It has also been suggested that the dramatic changes in the nature of the buyers had had a strong effect on the most sought after topics: flowers and landscapes becoming favorites. These two hypotheses are tested here.

The paper is organized as follows. Section one presents the Nazi position regarding modern art and more precisely, regarding paintings. It then describes the French art market shortly before and during the Second World War. Section two details the database, provides descriptive statistics about the art market in occupied France and presents the econometric methodologies used to assess price evolution in art markets. Section three presents and discusses the main results: the art market index and its evolution during the war as well as the impact on painting’s price of several elements related to the artist (“degenerate”) or to the artworks (size and topic). Section four concludes.

1. The Nazi position towards arts and the French art market during World War Two

The Nazis and the visual arts

The Nazi ideology regarding the arts took gradually shape during the 1930s. Culture was certainly not the main priority of the regime in its early years (Petropoulos, 1996, p. 19). The establishment of a cultural policy took several years most notably because Hitler himself does not seem to have had, at first, a clear position on the matter. His hatred of modern artworks, and his will to see them destroyed, would only come gradually even though early verbal attacks against several artistic movements (Cubism, Dadaism or Futurism) were staged as soon as 1934 (Nicholas, 1995, p. 15).

Another central feature of the German cultural policy was the strong competition between several major figures of the NS Party to be in charge of its administration. This competition mostly opposed Joseph Goebbels, the Reich minister for propaganda to Alfred Rosenberg, the Nazi party ideologue in charge of the education of the NS Party. Both actors had further to take into account the action of other preeminent actors who, on top of Hitler, would also intervene on arts-related issues: Martin Bormann (Reichsminister, Private secretary of Hitler after 1943); Hermann Göring (Reichsmarschall, Chief of Luftwaffe and Minister President of Prussia), Heinrich Himmler (Reichsführer SS and Minister of Interior after 1943), and Joachim von Ribbentrop (Reichsminister for foreign affairs).

Regarding the visual arts, the year 1936 would be a turning point as Goebbels started to act energetically against modern art. In November 1936, he banned all art criticism, therewith reaffirming the view that the success of modern art had only been possible thanks to the positive reviews of the press made under Jewish influence (Petropoulos, 1996, pp. 51-54). On June 30, 1937, Goebbels went one step further when he asked the painter Adolf Ziegler to mount an exhibition to show “works of German degenerate art since 1910 (...) which are now in collections owned by the German Reich” (Nicholas,

1995, pp. 16-17). The regime purged state collections from the works of artists who did not fit into its vision and in six months the Ziegler commission would confiscate close to 17000 artworks from 101 German museums (Petropoulos, 1996, p. 56). However, the government did not produce any clear guidelines regarding what an acceptable work would look like (Nicholas, 1995, p. 16). This lead naturally to controversies: should artists, such as Emil Nolde, who were supporting the Party but painted in a degenerate way be included? Should former war-heroes, such as Franz Marc who fell in Verdun, be included? Eventually, aesthetic criterions prevailed but not without creating some remarks. A speech held by Hitler in the framework of the Day of German Art in Munich in 1938, allows better understanding his position: artists were forbidden to represent anything but forms seen in nature and were threatened to end up either in an asylum or before the courts if they did not obey (Nicholas, 1995, p. 20). The motivations behind the ban of “degenerate art” may be traced back to Rosenberg’s early works. In accordance to the overall *Weltanschauung* of the Nazi rulers, art was in substance the product of the artist’s origin, and by extension of its race. Art was thus an expression of the race and German art had thus to be “heroic, romantic and realist at the same time” (Cassou, 1947, pp. 22-23).

With more than 2 million visitors, the *Entarte Kunst* (degenerate art) exhibition proved to be a major success. As a consequence, the exhibition was presented in several other German cities. By March 1938, all museums had been cleansed from their “degenerate work”. This would open the way to large scale sales abroad which were to be undertaken by a Commission for the Exploitation of Degenerate Art (Nicholas, 1995, p. 23). Consistent with the low esteem in which they held the works, the Nazis let major artworks go for such ridiculous sums that they were almost given away. To increase revenues, a German dealer suggested that some of the works could be auctioned abroad and on June 30, 1939 the international art market witnessed one of the most extraordinary auctions ever: the sale in Lucerne (Switzerland) of 126 paintings and sculptures made by major “degenerate” modern artists (Braque, Chagall, Gauguin, Van Gogh, Modigliani, Picasso, Nolde, Klee, Dix, Matisse...). In view of the context, the atmosphere in Lucerne was extremely tense and the sale far from successful in view of the amounts collected and

the number of unsold lots (Nicholas, 1995, pp. 3-5). However, the masterpieces sold in Switzerland escaped the sad fate of more than 4000 “degenerate” artworks which, being viewed as unsalable, had been burned for a practice exercise of Berlin’s Fire Department in March the same year.

The events in Berlin and Lucerne would in a sense foreshadow the fate of many artworks from French collections: taken away without any compensation, the despised artworks would be sold abroad in order to obtain hard currency whereas others would be simply destroyed.

The administration of looted art in occupied France

When the war broke out Paris was still the heart of the international art market. The Parisian art market had experienced a huge boom after the First World War, a boom which ended dramatically when the effects of the Great Depression reached France. During the 1930’s, the French galleries and auction houses suffered from the lack of activity and the interwar financial instability. The art price declined by close to 70 percent and a third of art galleries were forced to stop their activities (Feliciano, 1995, p. 123). During the Phony War, the galleries remained open even though trades were not numerous (Nicholas, 1995, pp. 86-87). The debacle of the French Army was as unexpected for the art world as it was for the rest of the world. Many painters and art dealers had however taken preventive measures to hide part of their collections.

As was the case in Germany, German leaders quickly competed to be in charge of the administration of the arts in occupied France². Officially, the Army had taken the necessary steps to safeguard artworks in occupied countries by creating a Kunstschutz (art protection) unit, placed under the direction of Count Wolff Metternich. His position would be in stark contrast with that of the other German leaders who would want to

² For a much more detailed description of looting and the politics related to the art world in occupied France, see Feliciano (1995), Nicholas (1995) and Petropoulos (1997). Euwe (2008) provides an interesting comparison point in his book dedicated to the art market in occupied Netherlands.

control France's art world since Count Wolff Metternich actually wanted to safeguard artworks in conformity with the 1907 Hague convention on war. Soon however the Count would realize that more powerful actors had diverging views. Petropoulos (1996, p. 126) lists no less than four ministers, Alfred Rosenberg, Martin Bormann, Hermann Goring and Joachim von Ribbentrop, who were vying with Joseph Goebbels to administer arts in France. As for the French, the Vichy government would try to benefit from the German looting policies but to no avail: the looting would remain during the whole war a German preserve³. The looting activities did however not imply a direct imposition of the German artistic model in occupied France. This model would indeed be imposed but mostly thanks to the action of French collaborationists; Hitler viewing favorably the French "artistic decadence" (Bertrand-Dorléac, 1993, p. 43). As soon as 1941, French art historians started to ask for the arianization of arts by excluding Jewish and Free Masons from the art world.

The early days of the occupation saw a series of uncoordinated actions related to visual arts. In collaboration with Bormann, Goebbels launched in August 1940 a vast operation aiming at the repatriation of German artworks stolen during the previous (mostly Napoleonic) wars. The art historian Otto Kummel was put in charge of compiling an exhaustive list of artworks "stolen" from Germany (Feliciano, 1995, pp. 24-25). The project led to the redaction of three volumes, which would however never be really used. Meanwhile, Otto Abetz, The German ambassador in Paris, and Joachim von Ribbentrop had started to chase Jewish-owned artworks in France and by September 1940 a number of paintings had already been transferred to the German Embassy in Paris or to von Ribbentrop's home. However, since they were lacking a written authorization from Hitler, their operation would eventually be effectively opposed by the *Kunstschutz*.

Alfred Rosenberg had in the meantime been extremely active and would eventually end up controlling the art-looting operations in occupied France. He did so in a rather indirect way. Rosenberg was indeed in charge of the education of the members of the NS Party.

³ See Cassou (1947) and Feliciano (1995).

In the framework of this position he had been allowed by Hitler to create a network of “Hohe Schule” (Institute of Higher education), which would serve to validate Nazi ideology (Petropoulos, 1997, pp. 127-128). These institutes would all be dedicated to a specific research theme (Jewish Research, Biology and Racial Studies etc...). In order to enrich the Institutes’ collections, Hitler allowed Rosenberg and his staff, the Einsatzstab Reichsleiter Rosenberg (ERR), to collect archives and libraries from the enemies of the Reich. Artworks would only come under Rosenberg’s sphere of influence in September 1940, when the ERR became in charge of collecting all “ownerless” cultural property (Petropoulos, 1997, p. 130).

Once officially in charge of plundering Jewish-owned artworks, the ERR acted with celerity. The main Jewish-owned collections were raided and the looted artworks stored at the Musée du Jeu de Paume in Paris. By early 1941, most major collections had been pillaged. The Paris head of the ERR, Baron Kurt von Behr, would soon befriend Herman Göring. In view of their respective positions, Rosenberg and Göring also realized that cooperation would probably bring mutual benefits. In exchange of guaranteeing transportation and his overall support, Göring managed to get a privileged access to the looted collections (Feliciano, 1995, p.36; Petropoulos, 1997, p. 133). Of all the Nazi leaders, Göring was probably the most obsessed with collecting. Between November 1940 and November 1942, Göring came twenty times at the Jeu de Paume. The ERR staff would before his arrival arrange an exhibition of the most recently acquired artworks in order to let him pick his preferred paintings. In theory, Göring was to pay for the artworks taken from the *Jeu de Paume* but unsurprisingly no money transfer ever took place. His acquisitions were however not limited to the Jeu de Paume and the Reichsmarshal frequently bought paintings from Dutch or French galleries (Nicholas, 1995, p. 157).

The Jeu de Paume would during the occupation serve as a central collecting point for all artworks looted in France. The looted pieces were identified, catalogued and evaluated. Their fate would then depend on their quality and on their adequacy with the NS views on arts. Some would be destined to Germany whereas others were to be used for

exchanges or to be sold (Feliciano, 1995, p. 108). The final destinations of the artworks sent to Germany varied a lot. Some were meant to enter the Linz museum, which one could view as Hitler's museum, others Carinhall, the country residence named in favor of Göring's late wife, while the less interesting works would complete collections from the Hohe Schules or German museums. The least valuable paintings were to be sold to French dealers, the proceeds of the sale going to "widows and children of deceased French soldiers" (Petropoulos, 1997, p. 135).

The period of close collaboration between Göring and Rosenberg lasted until the end of 1942. The ERR had by that time become a target of Bormann who viewed the Göring-Rosenberg collaboration as harmful. Rosenberg would eventually be forced to cut the link he had with Göring to remain in charge of the ERR. After November 24, 1942 Göring would no more visit the Jeu de Paume (Petropoulos, 1997, pp. 159-160) and by April 1943, the last people loyal to Göring had been removed from the place (Nicholas, 1995, p. 169). For a time, the fate of the modern artworks stored in the Jeu de Paume remained uncertain. A distinction was made among these in July 1943: some works had to be kept for trading, other for potential future sales, whereas a third group was obviously considered useless. As in Berlin a few years before, the "useless" artworks, which included among others, masterpieces from Picasso, Picabia, Klee, Ernst, Miro, Arp, Dali and Leger, were brutally destroyed. Paintings from more traditional painters depicting members of famous Jewish family unfortunately suffered the same fate.

The French art market during World War II

The occupation would dramatically change the Parisian art market. The competition between art galleries and Drouot would be altered by the arianization process of some of the most preeminent galleries. Shortly after the Armistice was signed, some of the main art galleries became subject to intense scrutiny because their owners were Jews. Arianization procedures would start soon after. Some dealers such as Daniel-Henry Kahnweiler managed to cede their business to "Aryan" family members. Other galleries would by contrast fall under a new "supervision" or would be "resold" during the war

(Assouline, 2005, pp.509-513). For some dealers, the occupation would however provide huge profit opportunities. Feliciano (1995, p. 123) goes as far as saying that the war was ‘a godsend for Paris’s art market’. The art market itself did indeed fare really well during the war. Drouot reopened on September 26, 1940, just a few months after the Armistice. By contrast, the Paris stock exchange would only very partially reopen on October 14, 1940 and trades in stocks would not be allowed before March 1941. In both cases, reopening was subject to a form of German supervision. In the case of Drouot, the auction house was to send the catalogues to Dr Bunjes, to report all works valued at more than 100 000FF⁴ and to provide a record with the name and addresses of the purchasers (Nicholas, 1995, p. 153). Business quickly resumed and sales broke records during the war. During the 1941-1942 season alone, a million objects went under the hammer at Drouot (Nicholas, 1995, p. 153). In December 1942 the sale of part of the collection of the late dentist Georges Viau would bring more than 46.75 million FF. During this session 9 of the 10 paintings, which would fetch the highest price at an auction during the war, were sold⁵. According to Assouline (2005, p. 513), besides the price fetched by some sales, the number of modern fakes present on the market clearly show the renewed interest for paintings as an investment.

The collections hosted at the Jeu de Paume would not be used only by Göring. French brokers and German dealers were also looking forward to benefiting from the plundering. Feliciano (1995, p. 116) mentions that 28 “exchanges” actually took place during the occupation. Gustav Rochlitz, a German art dealer active in Paris before the war, would be involved in 18 out of these 28 “exchanges”. In February 1941, he exchanged eleven French paintings (which included notably three Matisse, two Picassos, a Degas, a Braque, a Cezanne and a Corot) for a painting attributed by Titian and a still-life from Jan Weenix. The exchanged paintings would afterwards be sold to other art dealers and collectors in France or abroad (Feliciano, 1995, p. 117). The low esteem in which the

⁴ Over the course of the war more than 450 paintings were sold for more than 100 000FF.

⁵ See Appendix 1, Table 6 for the list of the paintings which were sold for more than 1 million FF during the war. According to Nichols (1995, p. 154) the most expensive painting sold, Cezanne’s *La Vallée de l’Arc et la montagne Sainte-Victoire* would eventually turn out to be a fake!

Nazis held the “degenerate art” explains why they agreed to exchange “degenerate” artworks at a hugely disadvantageous rate, which could commonly be as high as 25 to 1 (Petropoulos, 1997, p. 135). Switzerland proved to be at the core of the international exchanges and would be used as a platform during most of the war. French dealers also bought artworks from the ERR and made handsome profits thanks to their lack of scruples. Thus, as a consequence of the Nazi lootings a huge number of stolen artworks appeared for sale on the Parisian market.

The German influence on the art market did not limit itself to the “exchanges” made at the Musée du Jeu de Paume. The competition between the leaders had also a direct impact on the art market. In a note dated August 11, 1941 an embassy employee Carl Theodor Zeitschel reports to Abetz, the German ambassador in Paris, his meeting with von Behr from the ERR (Cassou, 1947, pp. 58 and 145). Von Behr had shown him the paintings kept at the Musée du Jeu de Paume and had mentioned that they would exchange or sell the “degenerate” works. In view of this, Zeitschel suggested selling the thirty paintings of “wild expressionists” located at the embassy (mostly from Braque) before the market got flooded by the ERR.

The war also witnessed the arrival of newcomers on the Parisian market. Some “nouveaux riches”, who had gained from the black market, were attracted by the supposedly safety of art investments during troubled times but also by the ease with which paintings could be used to hide illegal profit (Feliciano, 1995, p. 123; Moulin, 1967, p. 41). According to both Moulin (1967) and Feliciano (1995), these latecomers increased the demand for small decorative artworks such as landscapes and still lifes. However, the most dramatic change on the art market was probably due to the massive increase in German buyers coming from diversified horizons. These buyers benefited from the advantageous exchange rate imposed upon defeated France (Feliciano, 1995, pp. 125-126). Many of the transactions done for the benefit of German buyers were not recorded but evidence of the magnitude of their purchases abound. Most notably the files from a German transportation Company, Schenker, provide detailed descriptions of the artworks bought, legally or not, in Paris and transported to Germany. On basis of these

files Feliciano (1995, p. 129) has shown that German museums were in fact major purchasers on the Paris art market.

To our knowledge no quantitative analysis has been conducted to assess the price evolution of paintings during the war. Most authors just mention the price fetched by a given painting at a given auction, while others suggest that a given movement did or did not do well during the war. Regarding demand, the market was influenced by the art conceptions of the Nazi leaders, which lead them to distinguish artworks on basis of their ideology. Their interest focused mostly on German, Dutch and Flemish artists active between the 15th and the 17th century and Feliciano (1995, p. 127) suggests that prices of works by Cranach, Durer, Hals, Holbein, Rembrandt, Ruysdael, Van Dyck and Vermeer experienced a sharp increase but also that French art fetched higher prices than before the war. According to Moulin (1967, p. 42), price of impressionists paintings rose during the war, whereas the price of 20th century painters barely compensated inflation while the market for surrealists paintings remained heavy. Nicholas (1995, p. 154) considers that in fact the market for “degenerate” works boomed thanks mostly to the purchases made by those who had condemned them.

2. Data and methodology

Data series: descriptive statistics

The data series used in this paper have been collected from four catalogues (Drouot, 1942, 1943, 1944 and 1945) tracking all paintings, sketches, engravings and drawings sold in Drouot, the main French auction house, between October 1940 and June 1944. Each catalogue provides both descriptions of the auctions and of the artworks sold. For each auction, a general description (such as for example: paintings or old furniture and artworks from the 18th century), the date of the auction and the name of the auctioneer(s) are given, sometimes the name of one or more expert is added.

Over the total period, close to 24 500 paintings, engravings and drawings were sold in Drouot. In some cases the date of the sale, the name of the artist, or the price are not mentioned. Once excluded, the sample contains 21 882 works. Out of these 47.65% were signed, and 3.67% had a stamp from the artists' atelier. The description of the artworks themselves may be classified into four categories: Wooden artworks (panels, triptychs or paintings on wood), work on paper (mostly engravings and drawings), watercolors (gouaches included) and canvasses. Some descriptions are however either too general ("paintings") or are too specific to be included (in which case they are usually represented by one or just a few works, for example: "Calvaire en métal repoussé"). Eventually, 21 333 artworks are attributed to one of the four categories. Appendix 1 provides the proportion for each of these categories. The proportion in terms of number of artworks sold remains almost the same during the war. Canvasses represented 46% of artworks going under the hammer, watercolors 20%, works on paper 18% and paintings on wood 16%. A rough indication of the activity at Drouot may also be given by the number of paintings sold each year as well as by the total amount of sales. Table 1 provides these figures which tend to indicate that the art market experienced a sharp increase in activity up till the summer of 1943 at which point it declined markedly⁶.

Table 1: Number of paintings, engravings and drawings sold and total amounts of sales from 1940 to 1944

	1940-1941	1941-1942	1942-1943	1943-1944
Sales (in FF)	21.299.496	80.528.378	142.721.705	68.263.752
Number of works sold	3.659	7.829	10.144	4.243

If price is considered a quality indicator, then one has to infer that the average quality differed a lot since prices ranged during the war from very low figures to as high as 5 million FF. The average price of artworks sold, and its evolution, also differed depending

⁶ The last year only runs to begin June. Even if one considers the figures to represent only 8 out of 10 months of activity, the overall decline is observed.

upon the medium. Whereas the average price of canvasses increased by 114% in just one year, the average price of artworks on wood dropped by 23%. Figure 1 details the average price evolution for each medium. For all forms the average price increased from 1941-1942 to 1942-1943 and declined thereafter. Average prices do however suffer from one major drawback; they do not take into account the heterogeneity of the different works and provide thus biased results. In order to tackle this issue, two main approaches have been devised: the repeated sales approach and the hedonic regressions. Both will be discussed thereafter.

Figure 1: Evolution of the average price (in FF) by medium



Methodology

For a long time people have wondered whether, besides the aesthetical pleasure obtained by owning artworks, one could reasonably hope to make a descent financial return from ones' collection. Early examples of this approach abound and the most famous one is probably the investment art fund named *La peau de l'ours* created by Andre Level in Paris in 1904. Each member of the fund was to pay a yearly 250FF amount to the fund,

which was dedicated to buying paintings from young artists. A lottery determined which painting each of the funds' participants was to keep. The fund members had at its creation decided that all artworks would be sold after ten years (Moulin, 1967, pp. 34-35). Even though all the selected artists did not become famous, a sufficient share of them did⁷ and allowed the fund members to reap a huge profit. Despite this success, and a large number of publications dedicated to the art market, economists did not really analyze art as an investment before the 1970s.

In order to overcome the problem of heterogeneity of the artworks, economists have relied on two methods: the hedonic and the repeated sales regression⁸. Both have their own qualities and drawbacks, which will be detailed hereafter.

For non-economists, the repeated sales method is probably the most intuitive of both. In this method, researchers track the prices of artworks which were sold at different moments in time. The underlying idea is that, unless time has altered the work, there should be no heterogeneity and it is therefore legitimate to use the artworks' price evolution to compute an index. For most collectibles, this assumption seems reasonable since collectors take care of their collection. This approach has widely been used for analysis related to real estates but also for paintings. Baumol (1986) applied it to 640 repeated sales collected in Reitlinger's (1961) book and found that over three centuries the rate of return was dramatically low. Subsequent research (Goetzmann, 1993; Pesando, 1993, Mei and Moses, 2002 among others) relied on this approach. Depending on the sample used, the authors found both evidence that the art market was (Pesando, 1993) or that it could be dominated as an investment vehicle (Goetzmann, 1993). On basis of a larger database, Mei and Moses (2002) conclude that art performed better than fixed income securities and provided diversification benefits.

⁷ The fund contained, among others, paintings by: Bonnard, Derain, Gauguin, Van Gogh, Laurencin, Matisse, Picasso, Pissaro, Signac, Utrillo, Vlaminck.

⁸ For a clear and up to date review of both methods, see Ginsburgh, Mei and Moses (2006)

Despite its intuitive appeal, the repeated sales method suffers from a series of drawbacks. Ginsburgh, Mei and Moses (2006) stress the following ones:

- The use of repeated sales strongly limits the size of the database. Based on the Mei and Moses art Index, Ginsburgh, Mei and Moses (2006) show that for a ten year time-span, the proportion of repeat sales is a meager 7% of all sales, a figure which increases to 13 and 15% if one extends the period respectively to 20 and 30 years.
- This data limitation often prevents analyzing the price evolution of a segment of the market (be it of a movement, impressionists for example, or of an individual artist)
- Furthermore, the repeated sales approach is likely to suffer from sample biases. It is quite likely that some works are resold because their price has increased, whereas others never come back to the market because they have fallen from fashion.

In hedonic regressions, the price of the artwork is regressed on several of its attributes. All sales may thus be included in the sample. The residuals are then used to construct the price index corrected for the characteristics of the objects. Obviously, the validity of the index will depend on the fit of the model and by extension of the choice of the characteristics to be included. Since the residuals form the basis for the construction of the index, the omission of some variable may dramatically alter the results. In opposition to the repeated-sales method, the hedonic regression is probably harder to accept for non-economists. It is true that in its most extreme interpretation it would consider that only a few characteristics are valued by the market. For a collector, it is certainly hard to consider that two paintings by the same painter, having the same size, produced the same year and depicting the same topic should have the same value at a given time.

Hedonic regressions allow controlling for the differences in the transacted goods since it provides implicit values to the characteristics. Even though there is no theoretical reason

to prefer one functional form, in practice the double-log function⁹ is the most common. The regression may then take the following form:

$$\ln p_{kt} = \sum_{m=1}^M \alpha_m X_{mkt} + \sum_{t=0}^T \beta_t \delta_{kt} + \sum_{t=0}^T \sum_{j=1}^n \theta_{jt} \omega_{kjt} + \varepsilon_{kt}$$

where p_{kt} is the price of good k at time t , X_{mkt} is the value of the time-invariant characteristic m of artwork k at time t , ω_{kjt} is the value of the time-variant characteristic j of artwork k at time t and δ_t is a time dummy variable which takes one if the artwork is sold on t and zero otherwise. The antilogs of the β_t coefficients are then used to construct the hedonic price index.

According to Renneboog and Spaenjers (2009), the number of characteristics used in the hedonic regressions are usually limited and most often they include several dummies (artist, auction house, medium, signature, artist still alive when the artwork is sold) and just one continuous variable (the size of the artwork). Sagot-Duvaouroux (2003) mentions on top of these characteristics the provenance and the support. Additional variables are only found in just a few instances. Lazzaro (2006), analyzing the market for Rembrandt's prints, adds, among others, the state of the prints (original, posthumous etc), the number of posthumous states and the existence of proofs. Czujak (1997) focuses on Picasso. On top of the most commonly used variables, she includes the presence of the artwork in the artist's *catalogue raisonné* (as proof of authenticity), the number of times an artwork was exhibited, pre-sales estimates and the artist's working period. Renneboog and Spaenjers (2009) also use a large number of original variables related to the artist (its reputation¹⁰, death at the time of the sale, nationality, its presence at the Documenta exhibition in Cassel), to the work (attribution¹¹, authenticity (signature, date, inscription), medium (oil,

⁹ For which prices and continuous characteristics are transformed into natural logarithms.

¹⁰ Captured by the word count of each artist's article in the Grove Art Online database and by a dummy variable if the artist is mentioned in Gardner textbook

¹¹ The authors distinguish work attributed, from the school, the studio, the circle, made after, and in the style of.

print or paper), additional print dummies (when the print is numbered), a watercolor dummy, the size, and topic dummies¹²) or to the sale (semester and month dummies and auction house dummies)

In this paper, we focus on the hedonic approach. Since the catalogues of each sale were unavailable to the author at the time of writing, the pair of repeated sales objects would have to be inferred from the *Répertoire et prix d'adjudication* (Drouot, 1942, 1943, 1944 and 1945). In two instances¹³ only, the *Répertoire* explicitly refers to a previous sale. It seems however, that other repeated sales occurred during the war. In fact, there are 95 pairs for which the artist, the title, the size (height and width), the signature (if present), the date (if present) are exactly the same. On top of this, there are also six artworks which seem to have been resold three times. This would leave us with a repeated sales ratio of 0.92%, which seems coherent with the figures on repeated sales presented above, but is probably too low to infer the overall evolution of the market. Furthermore, even though for some pictures there is little doubt that we are in presence of a repeated sale because the title is quite explicit¹⁴, in other cases the risk of error is much higher¹⁵.

The hedonic regression used here focuses on canvasses only, which represented the largest segment of the art market. In order to concentrate on the main artists active on the Parisian market, the sample only includes artist for which five canvasses at least were sold during the occupation. Homonyms were excluded from the sample. In order to avoid attribution related issues, artworks “attributed to”, “from the school”, or “genre of” were also excluded¹⁶. Eventually, 2860 canvasses made by a total of 199 artists, listed in

¹² The authors consider eleven categories based on search strings : Abstract, Animals, Landscape, Nude, People, Portrait, Religion, Self-portrait, Still-life, untitled and urban.

¹³ *La toilette de Psyché* attributed to Joseph Paelinck, which was sold for 10 000FF on November 16th, 1942 and resold for 700 FF on June 25th, 1943 and Caude Monet's 1907 *Nymphéas* sold for 295 000FF on June 5th, 1942 and resold for 360 000FF on February 3rd, 1944.

¹⁴ For example, two watercolors attributed to Jan Borel entitled *L'Amour fouetté. La Faune brimé* and dated 1780.

¹⁵ For example Dora Bianka's *Bouquet de Fleurs* or Auguste Renoir's *Paysage*.

¹⁶ This decision explains why artists active prior to the 19th century are almost absent from the sample.

appendix 2, are included our sample. Most artists are French and were active during the 19th and 20th century. Appendix 3 details the lists of the most frequently sold artists and of the ones who brought the highest overall sales.

The following variables were used for the regression:

Monthly Dummies: Take one if the artwork is sold during the month in question, zero otherwise. In order to get coherent results, the analysis considers only months for which the number of artworks sold is high enough (a minimum of 15 artworks sold at least during the month) and for which the total amounts sold are at least equal to 100 000 FF¹⁷.

Size: Height and Width (measured in cm) as well as the works' surface (in cm²) capture the impact of the object's size.

Size-Year Dummies (Height40-41 and Width40-41): These variables allow the influence of height to vary with time. The variable is equal to the height of the picture if it was sold during the 1940-1941 sales and zero otherwise.

Date Dummy: Takes one if a date is present on the work.

Deceased Dummy: Takes one if the artist was dead at the time of the sale

Degenerate: Takes one if the artist would have been considered as degenerate by the Nazis. In practice, the artists are abstract painters or if their work belongs to one of the following movements: Cubism, Expressionism, Fauvism, Nabis, Impressionism, Post-

¹⁷ The month of August and September when no or one sale took place are thus always discarded. October 1940 is also left out since the total of sales reached less than 46 000 FF as well as February 1941 for which only 6 canvasses were sold.

Cubism Post-Impressionism¹⁸. The Dummy also takes a value of one if the artist was Jew.

Signed Dummy: Takes a value of one if the work is signed.

Stamp Dummy: Takes a value of one if the work bears the stamp from the artist's atelier.

Topic Dummies: We follow the methodology developed by Renneboog and Spaenjers (2009) and categorize the art works on basis of word from the titles. Since our sample is more limited we check whether the word makes sense for a given painting. For example, the word "mer" is used as a search string for landscapes; however we do not include Theodule Ribot's *Le vieux loup de mer*, which is a French expression for a seasoned sailor. We distinguish categories: animals, landscape, nude, people, portrait, still-life and urban. The associated search strings are listed in Appendix 4.

3. Results

Several specifications have been used and the results of each are listed in Appendix 5. In all models the dependant variable is the natural logarithm of the price. The first model includes all the dummy variables and the size related variables. The results are consistent with most priors: as in most hedonic regressions, price is a concave function of dimensions; the dated, deceased, signed and stamped dummies carry a positive sign which is standard in such analysis. The Topic dummies perform poorly and the only significant one, still-life is negative, which seems to contradict the "newcomer" effect described by Feliciano (1995) and Moulin (1967). The positive sign for the "degenerate" dummy tend on the other hand to confirm Nicholas' (1995) view. The second specification includes monthly dummy variables and does not alter the signs found

¹⁸ The artists belonging to these groups were determined on basis of their biographical notice in Benezit (1999).

previously. The third specification includes only dummy variables for each artist. These dummies perform extremely well and explain close to 57% of the price variation.

The fourth specification, on which most of the analysis will rely, contains all the variables but the “degenerate” and “deceased” dummy which had to be removed because of colinearity issues. The adjusted R-Square of the model is slightly above 81% and is quite high in comparison with other studies on the art market (see for instance Renneboog and Spaenjers, 2009). In this specification only one of the size variables is statistically significant (the height and its square), the sign of all size coefficients are however consistent with the literature. Out of the three attribution variables¹⁹, the date is the only one significant, there again with a sign consistent with priors. The Topic variables do not perform much better than in the original model and only two of them are statistically significant. Paintings depicting urban settings seem to fetch a higher price whereas canvases representing people tend to trade at a discount. The landscape and still-life dummies are not statistically significant. The results are almost not affected by gradually removing the least significant Topic and attribution variables (Model 5), the only difference lying in the fact that width becomes statistically significant.

The Newcomers' impact

The analysis tends to infirm the view that “decorative” artworks traded at a premium during the war. The poor results of the “topic” dummies may be attributed either to a poor definition of the dummies or to the fact that topics did not play such a major role in the price formation. The first explanation is hard to reconcile with the findings of Renneboog and Spaenjers (2009). Indeed, the definition chosen here is an expanded version of the ones used by these authors and in their work these dummies are usually statistically significant. The lack of results could hardly be attributed to colinearity issues with the artists' dummies since they perform poorly even when these are absent. It thus seems that the “French newcomer” effect did not play a significant role. Maybe the

¹⁹ Signed, Stamp and dated.

apparition of more sophisticated buyers (the German museums for example) was enough to compensate this effect.

The size premium

Model (6) analyzes the existence of a so-called small size premium. Did the size of the artwork have a different impact on the price at different stages of the war? One could reasonably expect its effect to vary either because people buy artworks for fiscal reasons or because they want to flee the country with valuable assets. In both case small artworks should be preferred because of their discretion. The results estimated by the regression clearly suggest that the impact of size on prices varied with time. The interpretation of the coefficient themselves is not straightforward. To do so, we compare the price impact for each year by considering the following equation:

$$\text{Price impact } p_i = \alpha_i h + \beta_i w + \lambda_i h^2 + \varphi_i w^2$$

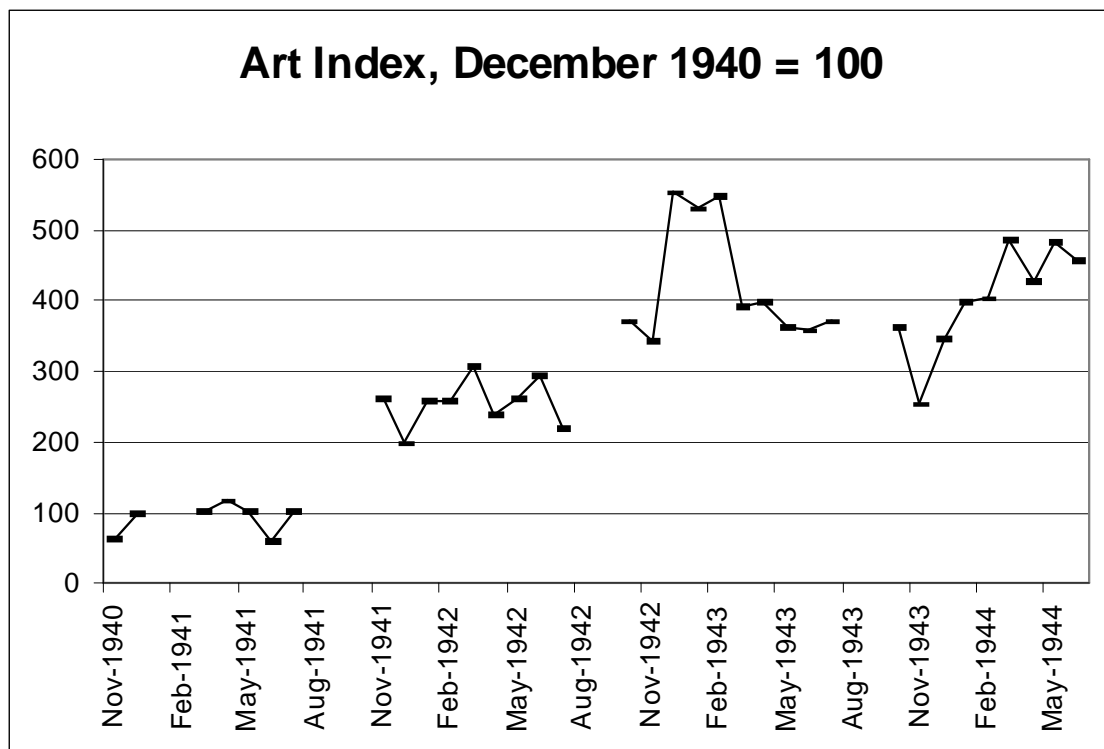
Where h is the height, w the width, the coefficients α , β , λ and φ come from the regression. The plot of the four functions, supposing square paintings, is given in Appendix 6. The results tend to indicate that the negative size premium was maximal for 1943-1944. Several interpretations may be given to that result. This premium for small works may reflect the anticipations of investors realizing that Germany would lose the war and might be questioned on their war profits after the Liberation. In this case, very small artworks may be favored because of their hiding properties. In all cases, the coefficients obtained for the war period very quickly penalize larger artworks.

An art index

The coefficients of the time dummies allow us to construct an art index for the occupation. The model used here is our baseline model, model (4). The art index is represented on Figure 2. The price evolution may be decomposed in 4 periods. During the first part of the occupation (from December 1940 to June 1941) the index remains

remarkably stable (if one excludes the sharp rise from November 1940 to December 1940, which may just represent the market going back to normality). Price increase sharply when auctions resume in the fall of 1941, the index remaining between 200 and 300. The massive increase in price does not happen before November 1942. It peaks at 552 in December 1942 and remains almost at the same value up till February 1943. This period is followed by a sharp decline, the index reaching a low of 253 in November 1943. At that date, the index resumes its rising trend to end in June 1944 at 455.

Figure 2: Evolution of the canvass index. Index value is 100 for December 1940.



The evolution of the index is in sharp contrast with common held view that the market experienced a continuous and monotonous boom during the war. It shows that price only started to move upwards in November 1941. This late move may reflect the uncertainties actors had regarding the Nazis positions regarding artworks. It may also be symptomatic of the time it took for the art market to resume business as usual. The increases in 1942 and begin 1943 could reflect the double impact of purchases by French “nouveaux

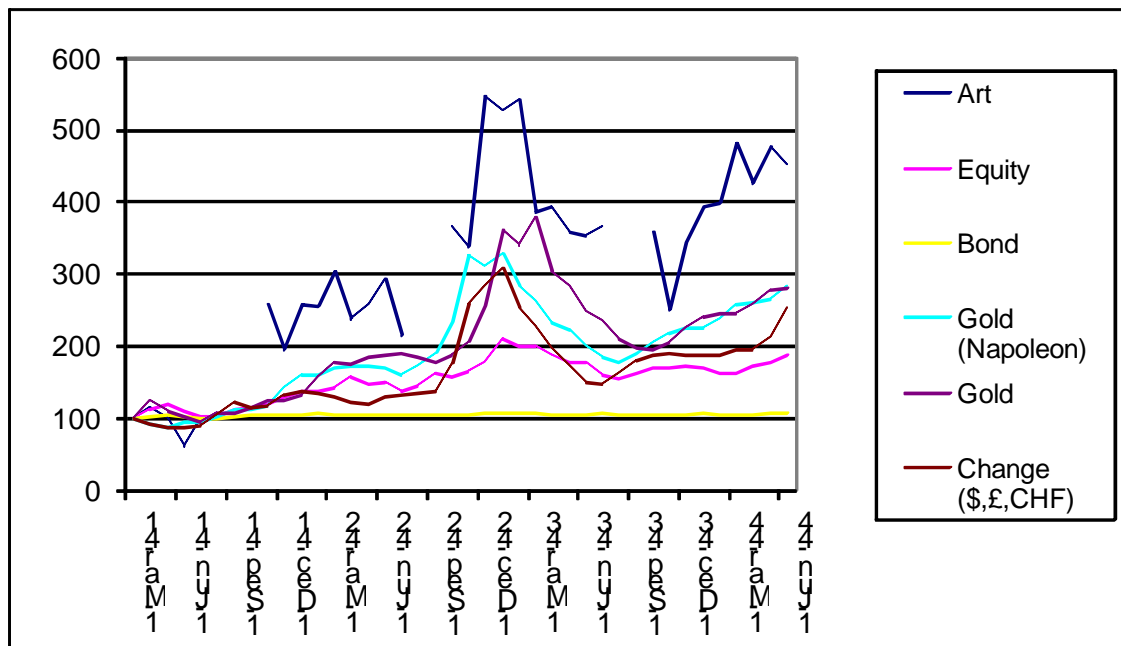
riches” and by German collectors. The subsequent decline may reflect more limited purchases from the German as the war started turning sour for them.

Art as a wartime investment

Figure 2 presents the art market index during the war. One may however wonder how it compares to alternative investment opportunities. In order to get some insights into this question, Figure 3 presents the evolution of 6 indices representing 6 investment opportunities among which three were traded on legal markets: art, equity, state bonds, and three on the black market: Gold (Napoleon coin), Gold (index made of the price evolution of the Napoleon coin, the Sovereign coin and the Gold-dollar) and Foreign currencies (an index made on basis of the price evolution of the GBP, USD and CHF notes). The comparison starts in March 1941 since before that date the Paris stock exchange was not allowed to trade equity²⁰.

²⁰ An alternative would have been to use data from the Lyon stock exchange which remained opened (and benefited) from France’s separation into a free and an occupied zone. (Oosterlinck, Riva, 2010). We preferred to keep the comparison on one given city, Paris.

Figure 3: Price evolution of 6 indices from March 1941 to June 1944.



Sources: Le Bris (2008) and Le Bris and Hautcoeur (2008) for the equity, Vigreux (1948) for the black market data, and Oosterlinck (2003 and 2010) for the bond prices.

The comparison of the price evolution of the different indices puts the art market in a very positive position. In terms of returns it outperforms all alternative investment opportunities. Obviously, returns should be compared by taking into account the risk. The standard deviation of the returns for the art market is indeed considerably higher than for the other investment. The Sharpe ratio suggests that investing in gold was the most profitable, art coming as second. Obviously, this investment strategy would have been possible only if investors were ready to face the risks associated with the black market.

Table 2: Return, standard deviation and Sharpe ratio²¹ for the wartime investments

	Monthly Return	Standard Deviation	Sharpe Ratio
3% French Rente	0.22%	1.23%	0.000
Equity	1.81%	6.42%	0.249
Foreign currencies (\$, £ and CHF)	3.04%	11.94%	0.236
Gold Napoleon	3.14%	10.06%	0.291
Gold	3.26%	11.27%	0.270
Art Market	6.22%	22.73%	0.269

The results from Table 2 may be surprising at first. Nowadays the art market is known to be a poor investment vehicle on the long run. In wartime however, and especially in an occupied country, additional elements play probably a role in investors' perception of risk and characteristics usually overlooked may in that case prove valuable. Investors in occupied France needed to take into account that their investment opportunities were in fact strongly restricted. Foreign markets were closed and even within France gold, foreign securities and foreign currencies had to be declared and were therefore unavailable on a legal market. Other investments (real estate for example) are certainly more risky in wartime since they face a destruction risk. They are furthermore not very discreet and could lead to questions at the Liberation. In other cases, direct intervention from the occupying forces or the Vichy government could be feared. Indeed, for both state bonds and equity, archival sources show that interventions existed and in some cases were substantial (Oosterlinck, 2010).

Wars are also known to generate inflation and France was no exception. The occupation costs imposed on defeated France were considerable even when compared with the reparations asked from Germany after World War I (Occhino, Oosterlinck, White, 2007 and 2008). To cover these occupation costs the French government relied on money creation and bond issues. Inflation was thus an element investors had to take into account.

²¹ For the Sharpe ratio we consider the French rente as being the riskfree asset.

Eventually, investors might have considered the resale value of their assets abroad if they had to flee. Table 3 provides some insights into the risks and benefits of each investment for five dimensions: discretion, legality, liquidity abroad, inflation and market intervention,

Table 3: Benefits of each investment for five dimensions: discretion, legality, liquidity, inflation and market intervention.

	Discretion	Inflation proof	Legality	Liquidity abroad	Market intervention
3% French Rente	No	No	Yes	No	Yes
Equity	+/-	+/-	Yes	No	Yes
Foreign currencies (\$, £ and CHF)	Yes	+/-	No	Yes	No?
Gold Napoleon	Yes	Yes	No	Yes	No?
Gold	Yes	Yes	No	Yes	No
Art Market	Yes	Yes	Yes	+/-	No
Real Estate	No	Yes	Yes	No	No?

As shown in Table 2, gold and artworks were the two most interesting investments in occupied France. Table 3 suggests that the discretion, the inflation proof character, the absence of market intervention and the possibility to resell these assets abroad certainly played a crucial role. Investors were ready to go to the black market to possess assets which could easily be resold abroad. For those who preferred to remain on the legal side, the art market provided an interesting alternative. Even though artworks were less liquid than gold, it would certainly be possible to sell them if needed.

The degenerate art index

In order to assess to which extent the Nazi imposed view of “degeneracy” had an impact on the art market, we construct an index including only the “degenerate” artists. The index is provided in Figure 4. Due to data limitation, the index starts in November 1941

with a value of 100. the comparison with the general index tend to indicate that investors did not require a significant premium to hold “degenerate” paintings. In fact both indexes follow a very similar pattern during most of the war. The difference between the general index and the degenerate one is plotted in Figure 5. During three instances only (March 1942, March 1943 and February 1944) did the price markedly diverge in favor of the general index. The highest difference is however observed in favor of the degenerate index in June 1944. This may be viewed as a premium paid by investors to hold the “right” paintings at the Liberation, paintings which could be exhibited as tokens of “Resistance”.

Figure 4: Comparison of the general and the “degenerate” indices. Index value is 100 for November 1941.

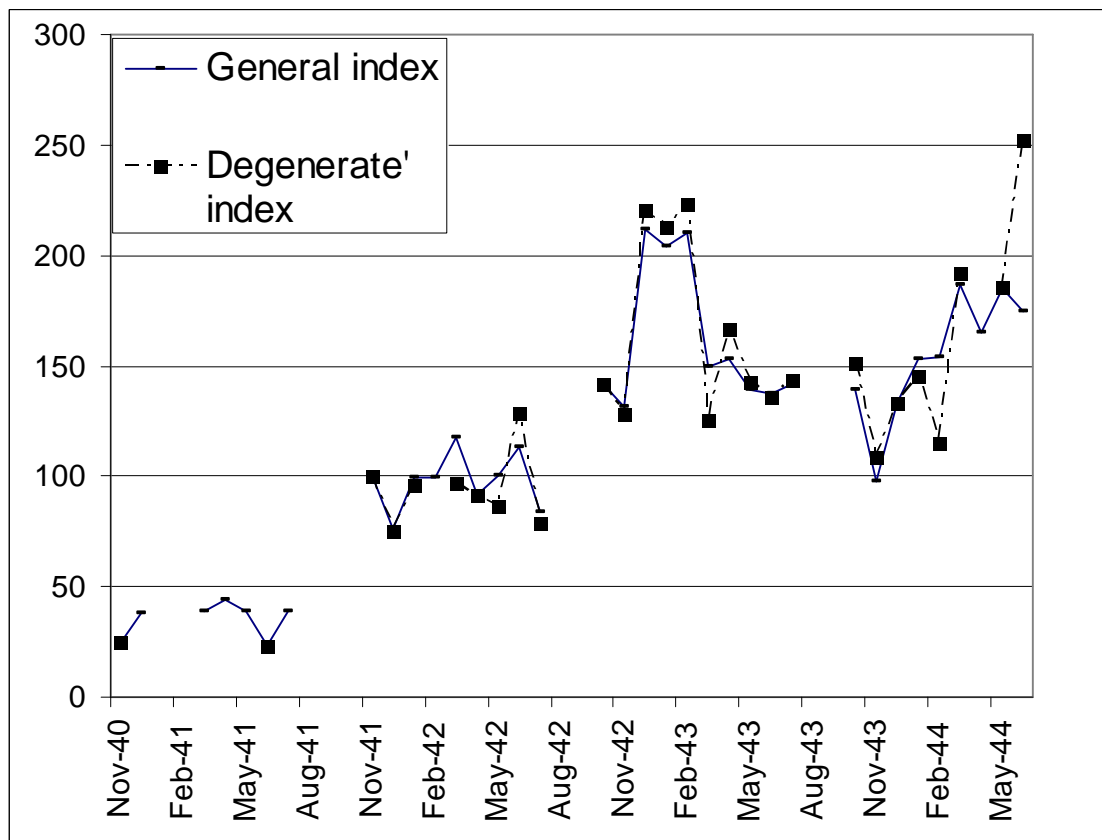
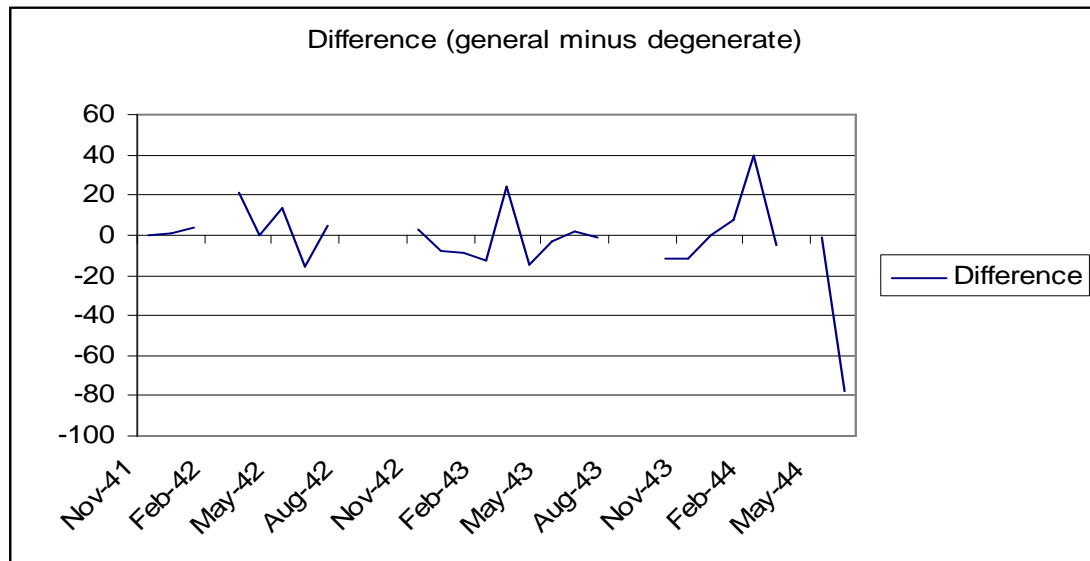


Figure 5 : Difference between the General and the Degenerate Indices



4. Conclusion

The French art market during the occupation has been the subject of numerous researches which were mostly focused on the fate of looted artworks. According to most authors, the art market itself was considered as having experienced a huge boom during the occupation. It was generally admitted that this boom was fuelled by French investors, who had managed to make large profits on the black market and by German nationals or institutions who could easily buy massively on the Parisian market because of their overvalued currency. The arrival of the French nouveaux riches did, according to Moulin (1967) and Feliciano (1995) dramatically alter the market since these less sophisticated buyers were mostly interested in decorative artworks such as landscapes or still-lives.

On basis of an original database, this paper recreates a painting price index for occupied France. The index shows that the real boom in the art market did not occur before November 1941. The index peaks between December 1942 and February 1943 at which time it experiences a sharp drop. This suggests that the Parisian art market probably had to suffer from a decline in demand, most probably from the German clients who were confronted with bleak prospects for their country. The paper further shows that no

significant premium was paid for landscapes or still-lives which tends to indicate that the arrival of the “nouveaux riches” did not dramatically affect the tastes on the market. The paper finds that investors required quite a large premium to buy larger artworks, which by definition are harder to hide or to carry away.

The paper further shows, that in occupied France, the art market provided one of the best investment opportunities. In fact, in a risk-return framework gold only was a serious alternative to art. The specificities of the economy in an occupied country explain this result. The discretion, the inflation proof character, the absence of market intervention and the possibility to resell these assets abroad certainly played a crucial role. Investors were ready to go to the black market to possess assets which could easily be resold abroad. For those who preferred to remain on the legal side, the art market provided an interesting alternative.

Eventually the analysis suggests that the imposition of the Nazi views regarding acceptable and “degenerate” art did not play a major role on the valuation of the “degenerate” artworks. The price evolution of both the degenerate and the more general index follow similar patterns. The most striking difference between the two indexes happens in June 1944, when investors are ready to pay a premium for degenerate paintings.

Appendix 1: Breakdown of artworks sold by medium and average price per medium

Table 4: Proportion in terms of number of works

	Canvas	Paper	Watercolor	Wood
1940-41	47%	17%	23%	13%
1941-42	45%	19%	19%	17%
1942-43	47%	18%	18%	16%
1943-44	47%	16%	16%	17%

Table 5: Proportion in terms of amounts

	Canvas	Paper	Watercolor	Wood
1940-41	51%	7%	11%	30%
1941-42	65%	9%	8%	18%
1942-43	60%	10%	13%	18%
1943-44	62%	9%	10%	20%

Table 6: Average price per medium

	Canvas	Paper	Watercolor	Wood
1940-41	7,099	2,799	3,155	15,064
1941-42	15,227	4,802	4,167	11,669
1942-43	21,049	9,378	11,115	18,781
1943-44	20,629	8,271	7,778	18,148

Appendix 1 (continued):

Table 6: Average % of price increase per medium

	Canvas	Paper	Watercolor	Wood
1940-41				
1941-42	114%	72%	32%	-23%
1942-43	38%	95%	167%	61%
1943-44	-2%	-12%	-30%	-3%

Table 7: Most expensive paintings sold at Drouot during the war

Artist	Painting	Date of sale	Price (FF)
Cézanne, Paul	La Vallée de l'Arc et la montagne Sainte-Victoire	11/12/1942	5 000 000
Degas, Edgar	Après le bain. Femme s'essuyant	11/12/1942	2 230 000
Pissaro, Camille	La Route du Cœur-Volant, à Louveciennes	11/12/1942	1 610 000
Renoir, Auguste	Baigneuse lisant	11/12/1942	1 530 000
Degas, Edgar	Femme à sa coiffure	11/12/1942	1 500 000
Delacroix, Eugène	Nu assis, de profil à gauche (Mademoiselle Rose)	11/12/1942	1 500 000
Goya Francisco de	Portrait de l'Artiste	11/03/1942	1 450 000
Degas, Edgar	La Causerie	11/12/1942	1 410 000
Degas, Edgar	Portrait de Monsieur de Valerne	11/12/1942	1 400 000
Daumier, Honoré	Portrait d'un ami de l'artiste	11/12/1942	1 320 000
Degas, Edgar	La Coiffure après le bain	11/12/1942	1 300 000
Pissaro, Camille	La Route d'Ennery, 1877	11/12/1942	1 300 000
Ingres, J.-A.-Dominique	Portrait du graveur Desmarais	15/12/1941	1 240 000
Corot, Camille-Jean-Baptiste	Paysage composé. Effet gris	11/12/1942	1 210 000
Sisley, Alfred	Le Loing, à Moret	11/12/1942	1 205 000
Sisley, Alfred	Chemin de Saint-Mammès (1895)	11/12/1942	1 200 000
Ruysdael, Jacob van	Solitude	15/06/1942	1 200 000
Corot, Camille-Jean-Baptiste	Bellevue, vue prise en regardant le mont Valérien	10/02/1943	1 100 000
Gauguin, Paul	Bretagne. Deux figures sur la falaise	11/12/1942	1 100 000
Corot, Camille-Jean-Baptiste	Trois personnages conversant sous les arbres et barque au bord de l'eau	12/03/1943	1 050 000
Delacroix, Eugène	Fleurs dans un vase bleu (1849)	24/06/1942	1 040 000

Appendix 2: List of the painters (and their date of birth and death) for which at least 5 canvasses were sold in Drouot during the occupation

1. Adler Jules (1865-1952)
2. Adrion Lucien (1889-1953)
3. André Albert (1869-1954)
4. Anglade Gaston (1854-1919)
5. Antral Louis R. (1895-1939)
6. Baader, L. M. (Louis) (1828-c.1919)
7. Bail, Joseph (1862-1921)
8. Bando Toshio (1895-1973)
9. Bernard, Emile (1868-1941)
10. Bertram Abel (1871-1954)
11. Bertrand, James (1823-1887)
12. Besnard, Albert (1849-1934)
13. Bianka, Dora (1895-1979)
14. Bissière Roger (1886-1964)
15. Bompard Maurice (1857-1936)
16. Bonheur Rosa (1822-1899)
17. Bonnard Pierre (1867-1947)
18. Boudin Eugène (1824-1898)
19. Boussingault Jean-Louis (1883-1943)
20. Breton Jules (1827-1906)
21. Brown John-Lewis (1829-1890)
22. Caillebotte Gustave (1848-1894)
23. Cals Adolphe Félix (1810-1880)
24. Camoin Charles (1879-1965)
25. Carrière Eugène (1849-1906)
26. Cazin Jean-Charles (1841-1901)

27. Céria Edmond (1884-1955)
28. Charlot Louis (1878-1951)
29. Chériane (1900-?)
30. Chintreuil Antoine (1814-1873)
31. Chirico Giorgio de (1888-1978)
32. Clary-Baroux Adolphe (1865-1933)
33. Colin Gustave (1828-1910)
34. Cordey Frédéric (1854-1911)
35. Corneau Eugène (1894-1976)
36. Corot Jean-Baptiste Camille (1796-1875)
37. Coubine Othon (1883-1969)
38. Cousin Charles Louis-Auguste (1807-1887)
39. Couture Thomas (1815-1879)
40. Creixams Pierre (Pedro) (1893-1965)
41. Damoye Pierre-Emmanuel (1847-1916)
42. Daubigny Charles-François (1817-1878)
43. Debat-Ponsan Edouard (1847-1913)
44. Defaux Alexandre (1826-1900)
45. Degas Edgar (1834-1917)
46. Delacroix Eugène (1798-1863)
47. Delpy Hyppolite-Camille (1842-1910)
48. Denis Maurice (1870-1943)
49. Derain André (1880-1954)
50. D'Espagnat Georges (1870-1950)
51. Deveria Eugène (1808-1865)
52. Diaz de la Pena Narcisse (1807-1876)
53. Dreux, Alfred de (1810-1860)
54. Dufeu Edouard Jacques (1840-1900)
55. Dufrenoy Georges (1870-1943)
56. Dufy Jean (1888-1964)
57. Dufy Raoul (1877-1953)

58. Dupray Henry Louis (1841-1909)
59. Dupré, Jules (1811-1889)
60. Dupré, Victor (1816-1879)
61. Durey René (1890-1959)
62. Duroze Fernand (1876-1961)
63. Duvieux Henri (c.1855-1920)
64. Eberl François Maurice (1887-1962)
65. Effinger Léon (XX)
66. Fantin-Latour Théodore (1805-1872)
67. Fautrier Jean (1898-1964)
68. Favory André (1888-1937)
69. Flameng Marie-Auguste (1843-1893)
70. Flandrin Jules (1871-1947)
71. Forain Jean-Louis (1852-1931)
72. Français François-Louis (1814-1897)
73. Frank-Will (1900-1951)
74. Fraye André (c.1887-1963)
75. Friesz, Emile-Othon (1879-1949)
76. Gagliardini Julien Gustave (1846-1927)
77. Gauguin Paul (1848-1903)
78. Génin Lucien (1894-1953)
79. Gen-Paul (1895-1975)
80. Goerg Edouard Joseph (1893-1969)
81. Giran Max, Léon-Maxime (1867-1927)
82. Girardet, Eugène (1853-1907)
83. Gromaire Marcel (1892-1971)
84. Guardi Francesco (1712-1793)
85. Gudin, Théodore (1802-1880)
86. Guérin Charles (1875-1939)
87. Guillaumin Armand Jean-Baptiste (1841-1927)
88. Guirand de Scevola Lucien Victor (1871-1950)

89. Halicka Alice (1895-1975)
90. Harpignies Henri Joseph (1819-1916)
91. Henner Jean-Jacques (1829-1905)
92. Herbin Auguste (1882-1960)
93. Hode, Pierre (1889-1942)
94. Isabey, Eugène (1803-1886)
95. Iwill, M.J.-Léon Clavel, dit (1850-1923)
96. Jacque Charles (1813-1894)
97. Japy, Louis (1840-1916)
98. Kohl, Pierre-Ernest (1897-1985)
99. Koyanagui, Séi (1896-1948)
100. Kremègne, Pinchus (1890-1981)
101. Kvapil Charles (1884-1957)
102. Labasque, Jean (1902-?)
103. Lacroix de Marseille Charles-François (c.1700-1782)
104. Lagar, Celso (1891-1966)
105. Laglenne Jean-François (1899-1962)
106. Lajoue Jacques de
107. Lamotte, Bernard (1903-1983)
108. Langlace, Jean-Baptiste-Gabriel (1786-1864)
109. Lapostolet, Charles (1824-1890)
110. Laprade Pierre (1875-1931/32)
111. Laurencin Marie (1883-1956)
112. Laurens, Jean-Paul (1838-1921)
113. Lebasque Henri (1865-1937)
114. Lebourg Albert (1849-1928)
115. Lecomte Paul (1842-1920)
116. Lépine Stanislas (1835-1892)
117. Leprin Marcel-François (1891-1933)
118. Lhote André (1885-1962)
119. Lotiron Robert (1886-1966)

120. Louguinine Wolkonsky, Marie (1875-1960)
121. Luce Maximilien (1858-1941)
122. Lurcat Jean (1892-1966)
123. Madelain, Gustave (1867-1944)
124. Maillaud Fernand (1862-1948)
125. Mainssieux Lucien (1885-1958)
126. Manguin Henri-Charles (1874-c.1950)
127. Mare, André (1885-1932)
128. Marquet Albert (1875-1947)
129. Marval Jacqueline (1866-1932)
130. Matisse Henri (1869-1954)
131. Maufra Maxime (1861-1918)
132. Metzinger Jean (1883-1956)
133. Mignon, Lucien (1865-1944)
134. Monet Claude (1840-1926)
135. Montenard Frédéric (1849-1926)
136. Moret Henry (1856-1913)
137. Muraton, Euphémie (1840-1914)
138. Olive Jean-Baptiste (1848-1936)
139. Osterlind Anders (1887-1960)
140. Ottmann, Henri (1877-1927)
141. Palmeiro Jose (1901/03-1984)
142. Pascin Jules (1885-1930)
143. Pelouse Léon-Germain (1838-1891)
144. Pezant, Alexandre (1846-1916)
145. Picabia Francis (1879-1953)
146. Pierly J.
147. Pillement, Jean (1728-1808)
148. Pils, Isidore-Alexandre-Augustin (1813-1875)
149. Pissaro Camille (1830-1903)
150. Poiret, Paul (1879-1944)

151. Prax Valentine (1899-1981)
152. Puy Jean (1876-1960)
153. Quizet, Alphonse (1885-1955)
154. Raffaëlli, Jean-François (1850-1924)
155. Ravier François Auguste
156. Redon Odilon (1840-1916)
157. Renoir Auguste (1841-1919)
158. Ribot Théodule (1823-1891)
159. Richet Léon (1847-1907)
160. Robert Hubert (1733-1808)
161. Roche Marcel (1890-1959)
162. Romany Marie-Jeanne Mercier, dit Adèle de Romance, puis (1769-1846)
163. Rosset-Granger Edouard (1853-1942)
164. Rouault Georges (1871-1958)
165. Rousseau Philippe (1816-1887)
166. Rousseau Théodore (1812-1867)
167. Roussel Karl-Xavier (1867-1944)
168. Sabbagh Georges Hanna (1887-1951)
169. Scheffer, Ary (1795-1858)
170. Signac Paul (1863-1935)
171. Simon, Lucien (1861-1945)
172. Simons Paul (1865-1932)
173. Sisley, Alfred (1839-1899)
174. Soutine Charles (Chaïm) (1893-1943)
175. Steinlen, Théophile-Alexandre (1859-1923)
176. Tassaert Octave (1800-1874)
177. Ten Cate Siebe Johannes (1858-1908)
178. Terlikowski, Vladimir de (1873-1951)
179. Thomsen René (1897-1976)
180. Trouillebert Paul-Désiré (1829-1900)
181. Troyon Constant (1810-1865)

182. Truchet Abel (1857-1918)
183. Utrillo, Maurice (1883-1955)
184. Utter André (1886-1948)
185. Valadon Suzanne (1865-1938)
186. Valenciennes Pierre-Henri de (1750-1819)
187. Valtat Louis (1869-1952)
188. Van Dongen, Kees (1877-1968)
189. Vauthier, Pierre (1845-1916)
190. Verdilhan, André (1881-1963)
191. Veyrassat, Jules-Jacques (1828-1893)
192. Vignon Victor (1847-1909)
193. Villers Gaston de (1870-1953)
194. Vlaminck Maurice de (1876-1958)
195. Vogler, Paul (1852-1904)
196. Vollon Antoine (1833-1900)
197. Warocquier Henry de (1881-1970)
198. Ziem Félix (1821-1911)
199. Zingg Jules (1882-1942)

APPENDIX 3 Descriptive statistics

Table 6: Artists ranking in terms of number of canvasses sold and in terms of total sales

Artist	Number of canvasses		Artist	Amounts (FF)
Trouillebert	106		Corot	13.168.000
Lebourg	83		Monet	9.103.000
Luce	82		Pissaro	6.935.800
Valtat	79		Renoir	5.881.900
Guillaumin	72		Sisley	5.520.100
Friesz	63		Bonnard	5.273.500
Forain	58		Degas	4.631.000
Derain	52		Delacroix	4.510.100
Favory	47		Lebourg	3.608.700
Cals	41		Boudin	2.474.200
D'Espagnat	41			

APPENDIX 4: Topics and search strings

ANIMALS: Baudet, Biche, Bœuf, Caniche, Cerf, Cheval, Chat, Chien, Dogue, Lion, Loulou, Mouton, Perroquet, Poules, Tigre, Vache. Animals were excluded if they were used as an attribute (fille au chien) or if they obviously referred to a still-life (lapin écorché).

LANDSCAPE: Bord(s) (when associated to a river), lac, mer, montagne, paysage, rivière, Seine (when associated to a landscape)

NUDE: Nu, nue, nus

PEOPLE: Dame (Notre-Dame excluded), enfant, famille, femme, fille (tte), mère, père, personnage

PORTRAIT: portrait

STILL-LIFE: Bouquet (excluded bouquet d'arbre), Fleurs, Fruits, Nature morte, Vase. When the title contained food names or flower names, these were added too.

URBAN: Avenue, Londres, Lyon, Marché, Marseille, New York, place, port, Paris, Rome, rue, Venise, village.

APPENDIX 5. Table 8 Results of the hedonic regression

All models are estimated using OLS. The dependant variable is the natural log of the price. For the definitions of the independent variables see text.

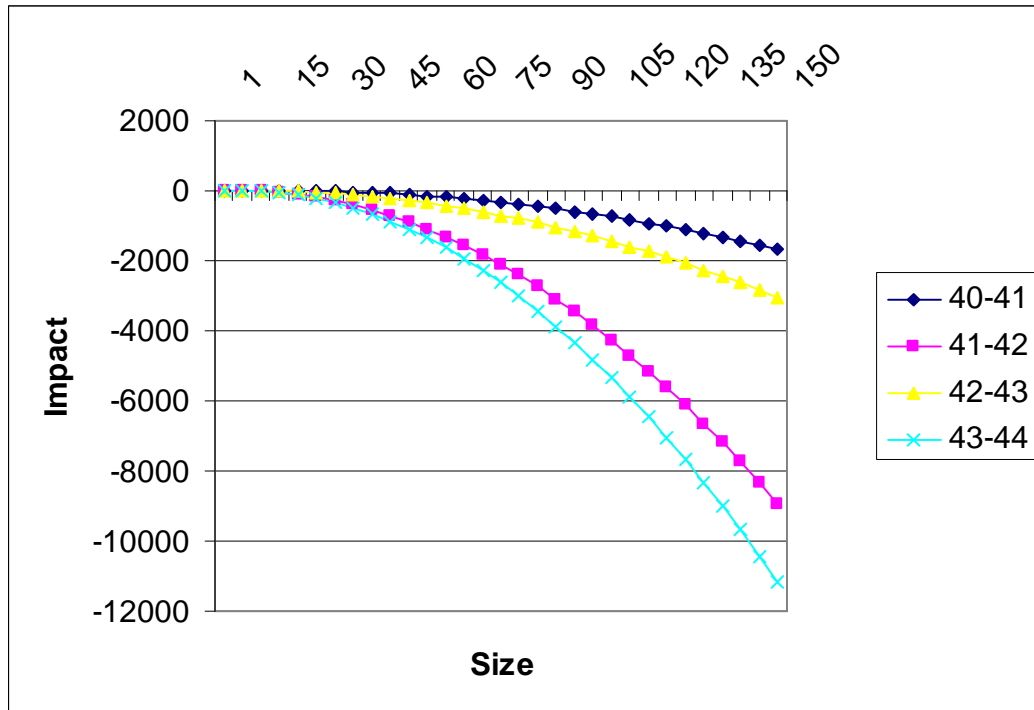
Model	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model	Model (6)
Monthly Dum.	Not incl	Incl ²²	Not incl	Incl ²³	Incl	Model (4)	Incl
Artist Dum.	Not incl	Not incl	Incl ²⁴	Incl	Incl	Height40-41	0.941**
Deceased	1.23***	1.110***	Not incl	Not incl	Not incl	Height41-42	3.753***
Degenerate	0.99***	1.105***	Not incl	Not incl	Not incl	Height42-43	1.283**
Dated	0.400***	0.29***	Not incl	0.158***	0.157***	Height43-44	4.241***
Signed	0.356***	0.148	Not incl	0.152	Not incl	Width40-41	1.363**
Stamp	1.041***	0.557***	Not incl	0.144	Not incl	Width41-42	-0.431
Height	1.883***	1.258**	Not incl	1.848***	1.900***	Width42-43	0.482
Width	1.491**	1.282**	Not incl	0.613	0.626**	Width43-44	0.021
Height²	-0.258***	-0.171**	Not incl	-0.205***	-0.212***	(Height40-41)²	-0.09
Width²	-0.140**	-0.117	Not incl	-0.005	-0.006	(Height41-42)²	-0.419***
Animals	-0.059	-0.176	Not incl	-0.188	Not incl	(Height42-43)²	-0.147**
Landscape	0.098	0.014	Not incl	-0.024	Not incl	(Height43-44)²	-0.525***
Nude	0.069	-0.071	Not incl	-0.067	Not incl	(Width40-41)²	-0.104
People	-0.024	-0.066	Not incl	-0.108*	-0.105*	(Width41-42)²	0.101
Portrait	0.200	0.058	Not incl	-0.125	Not incl	(Width42-43)²	0.015
Still-Life	-0.291**	-0.337***	Not incl	-0.048	Not incl	(Width43-44)²	0.097
Urban	0.094		Not incl	0.149**	0.162***		
# of observ.	2 680	2 680	2 860	2723	2 724	# of observ.	2723
Number of variables	16	51	199	242	235	Number of variables	247
Adjusted R-square	13.93%	27.28%	57.31%	81.13%	81.13%	Adjusted R-square	81.32%

²² All dates are significant t the 1% level but for November 1940, March 1941 and April 1941 (10% level) and June and July 1941 (non significant).

²³ All significant at the 1% level but for June 1941 (5% level)

²⁴ All significant at the 1% level

APPENDIX 6: Impact of size for each year



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