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# Artistic clusters and modern artists' mobility - an empirical study

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## Abstract

Based on a global sample of the 214 most prominent modern visual artists born between 1850-1945, this paper analyses the extent of mobility and the determinants of the decision to locate in the artistic clusters of Paris and New York. It is argued that the extent of mobility decreases over time and traveling is a complement to re-locating permanently. Moreover, French and German artists move considerably less and American artists significantly more than their counterparts born elsewhere. A location choice model shows that the affiliation with an artistic style is a good predictor for the likelihood of moving to a cluster. This can be explained by specialised human capital spillovers. For both clusters, short-term visits are a substitute for permanent relocation. Having received formal art training increases the likelihood of moving to New York, whereas the patronage system is an important relocation factor only in the case of Paris.

**Keywords:** Modern artists, geographic concentration, economic geography, mobility, human capital

**JEL Classification:** J61, N90, Z11

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# 1 Introduction

Paris and New York were, and to an extent still are, the most important magnets for modern artists. It seems like those two clusters of the arts are but a mere agglomeration of favourable demand and supply conditions, which are reflected by the general art scene, the number of museums, and art dealers, for example. Hence, it is not surprising that a large share of modern visual artists decided to settle in Paris and New York at some stage in their careers. In fact, Hellmanzik and O'Hagan (2008) have shown that Paris and New York are by far the two most prominent locations with up to 53% and 43% of their sample of prominent artists living in Paris or New York, respectively, at one point in time.<sup>1</sup>

Furthermore, Hellmanzik (2009a) shows that there are significant premiums on paintings produced in Paris and New York, respectively. This is largely due to peer effects that are driven by the average quality of artists located in the respective cluster. In light of the great potential for human capital externalities in artistic clusters, the question arises which factors have an impact on an artist's decision to make Paris or New York his or her predominant work location. Hence, this paper takes a step back by analysing if the potential for human capital spillovers is the most important motivation for moving to an artistic cluster, and examines the importance of socio-economic and cost variables.

In particular, two questions arising in this context will be considered: firstly, what determines the extent of mobility among modern artists in general, and secondly, what are the driving forces behind an artist's decision to locate in one of the artistic clusters. Regarding the first question, this paper uses proxies for the determinants of mobility similar to those used in labour economics.

Regarding the determinants of clustering, the analysis will focus on the two aforementioned cluster locations, Paris and New York. A range of biographical and career variables, in addition to standard gravity model determinants, will be employed to test which factors are important for an artist's relocation decision to either Paris or New York. These might be thought of as 'push factors', which make a modern visual artist decide to mainly work in either of the clusters of modern art; this is opposed to 'pull factors', such as the characteristics of the cluster locations themselves that might have attracted modern visual artists.

In particular, indicators that capture human capital in a broad sense, such as training and the predominant artistic style, are expected to shed light on the importance of localised spillovers in the location decision of modern artists. Furthermore, variables that capture the relative ease with which an artist can relocate reveal if modern visual artists

follow the same decision patterns as the average worker. As such, this will extend the existing literature on clusters and human capital externalities in agglomerations.

The dataset combines three subsets of data: firstly, the sample of the 214 most prominent visual artists born between 1850 and 1945 and their main work location was obtained from Hellmanzik (2009a). Secondly, data on the predominant artistic styles of these painters were obtained from Hellmanzik (2009b). And thirdly, a new set of biographic, career, and mobility indicators was collected, which is explained in detail in Section 5. With these novel data, the determinants of the degree of mobility and the decision to locate in one of the art clusters will be analysed.

An increasing body of literature analyses the impact of clusters and peer-effects in other professions. For example, Azoulay et al. (2008) find positive spillover effects for life scientists, which they attribute to “proximity in ideas space, but not in physical or social space”. Using a choice model to analyse the decision to locate in a cluster of the modern arts allows for the control for socio-economic characteristics while establishing if distance - in any of Azoulay et al.’s (2008) aforementioned definitions - matters for an artist’s relocation decision. Kim et al. (2006) use a two-stage selection model for movements and location choice to estimate the determinants of moving for economists and finance researchers.

From an Industrial Organisation angle, Glaeser et al. (1992) show that local proximity allows one to benefit from otherwise unattainable tacit knowledge, and externalities of the industry situated in a particular city can be internalised by learning. Krugman (1991) shows that firms will be situated where demand is large, and demand will be large where firms are located. This positive feedback between demand and supply depends crucially on the initial conditions of the city, the ‘infrastructural benchmark’ beyond which a city classifies as a cluster.

There is also a literature on the supply side characteristics of cluster locations in the arts. Several characteristics have been identified that can be applied to the case of modern visual artists; political fragmentation (Naroll et al., 1971), ideological diversity (Simonton, 1976), artistic freedom (Vaubel, 2005), and demand for artistic products (Scherer, 2001) will serve as an ideal ground for creativity and thereby attract important artists.

In summary, this paper examines the determinants of an artist’s decision to move and, more specifically, to locate in an artistic cluster. The starting point is a novel dataset that encompasses detailed data on artists’ biographies, careers, work locations, and mobility. These data will allow for the study of the reasons for clustering in modern arts.

The next section will look at the construction of the dataset, followed by Section 3,

which presents evidence for clustering in Paris and New York. Section 4 will explain the empirical strategy and Section 5 will give details on the construction of the key variables and their summary statistics. In Section 6.1, the degree of mobility among modern artists will be analysed, while Section 6.2 provides a location choice model for prominent modern artists. Finally, Section 7 will conclude.

## 2 Construction of the dataset

As mentioned before, the dataset was pooled from three subsets. The selection of artists and the determination of artists' main work locations is discussed in detail in Hellmanzik (2009a).

The underlying dataset covers a global sample of the 214 most prominent visual artists born between 1850 and 1945. This birth period is suitable for analysing mobility as detailed information on the lives of these artists is available and traveling conditions during their life times were such that traveling costs and time were no longer major obstacles to relocation. The sample is selected based on the space, in terms of columns and inches, dedicated to each artist in the *Oxford Dictionary of Art: New Edition* (1997), with a correction for potential bias toward anglophone artists by cross comparisons with *Reclam's Künstlerlexikon* (2002).<sup>2</sup> Only artists that have more than 2.2 inches are included in the sample.<sup>3</sup> Artists included in this study are listed in Tables 1 to 3 alongside their corresponding country and year of birth, year of death, column-inches, number of permanent movements, and cluster location.

The main work location of each artist was obtained from the *Grove Dictionary of Art: Online* (2008). In order to identify the 'main work location' over an artist's entire career, the number of years spent in a particular location are assessed. For example, if an artist spends the greatest share of his or her career in Paris, then Paris is deemed to be his or her predominant work place.<sup>4</sup> As a robustness test, a variable was generated that indicates if an artist ever spent more than three years in either cluster location.

Similarly, Hellmanzik (2009b) extracts the predominant style of each artist from the same source. The contribution of this paper in terms of data is the collection of socio-economic indicators that can extend previous analyses. Hence, *Grove Dictionary of Art: Online* (2008) was used to obtain detailed information on each artist's biography, career, and mobility. In addition, the biographical data were pooled with data on geographical distances and indicators for a contiguous country and a common language. These geographic characteristics were obtained from the CEPII (2008). Based on these data, a

distance measure from an artist's birth location to Paris and New York, respectively, was constructed. In addition, the differential of logarithms in GDP per capita between the birth location and France and the USA, respectively, were calculated based on Maddison's *The World Economy: Historical Statistics* (2003). A detailed description of all variables will be given in Section 5.

### **3 Quantification of the two cluster locations: Paris and New York**

The basis for the analysis of the motivation to move to a cluster, is obviously the quantification of the importance of Paris and New York as magnets for modern artists. Table 4 presents absolute and relative concentration measures in terms of artists for the two cluster destinations.<sup>5</sup> As shown in previous studies, the key cluster locations are by far Paris and New York, which together host 61% of the sample of artists.

Paris clearly is the most important clustering location, with 35% of all artists working there on a permanent basis. This prominence lasts from 1870 to 1938 with Paris hosting between a third and 44% of artists. The share of artists active in Paris drops noticeably after this period. The political circumstances might explain this drop partially, however, a trigger effect might be at work; as several artists left Paris in light of the increasing threat of cultural suppression and war, Paris became less attractive as an artistic hub and consequently more artists - especially those who had immigrated to the city - started leaving.<sup>6</sup>

New York starts to attract many more artists at the same time that Paris loses its magnetism. New York's prime is reached in postwar years up to today, with about a quarter of the sample working there. However, New York never reaches Paris' level of attractiveness as an artistic hub - despite the improved traveling conditions. Yet, many important artistic advances originated in New York after the Second World War, such as Abstract Expressionism and Pop Art. As is to be expected, many artists moved from Europe to the safe haven of New York during the Second World War, such as Ernst, Dalí, de Kooning, Mondrian, and Léger. Theoretically, this shift from Paris to New York should be reflected in the choice model of locating in either cluster location.

## 4 Methodology

This paper will examine two questions: firstly, the determinants of the degree of mobility among modern visual artists, and secondly, the determinants of the decision to move to either of the two cluster locations.

The degree of mobility among modern painters is measured by the number of changes in an artist's main work location in his or her career. This estimation will give insight into artists' propensity to move and the socio-economic drivers behind their mobility.

The following estimation will be presented, and analysed in detail in Section 6.1

$$Q(\text{movements}_i) = \beta[\text{Biography}_i] + \gamma[\text{Career}_i] + \delta[\text{Mobility}_i] + \sum_{B=1}^6 \theta_B(\text{Birthlocation}_i = B) + e_i \quad (1)$$

The full set of biographical information on the artist contains the cohort he or she is born in, his or her life span, gender, and family status. A reduced set of career indicators is used, consisting of the column-inches to control for an artist's skill level and whether or not the artist received any formal art training at some stage in his or her career. The mobility vector incorporates information on the quantity of travel undertaken - as a measure of the propensity to move - and the impact of the two major European wars on the degree of mobility - if the artist's biography indicates that the political turmoil of the First or Second World Wars was a reason for the artist changing his or her work location. Lastly,  $\text{birthlocation}_i$  is an indicator function that is 1 for the birth location of  $\text{artist}_i$ . The base group is artists born in the 'Rest of the World'. The results of this estimation are presented in Section 6.1.

In order to estimate the likelihood of an artist making the main artistic clusters of Paris or New York his or her main work location, the following choice model in the form of a probit is used:<sup>7</sup>

$$\text{prob}(\text{Cluster}_i = 1) = \beta[\text{Biography}_i] + \gamma[\text{Career}_i] + \delta[\text{Mobility}_i] + \sum_{S=1}^3 \theta_S(\text{Style}_i = S) + e_i \quad (2)$$

The explanatory variables are similar to the ones in the previous model, however, we extend the mobility category to include different geographical measures. In addition, style indicators are used to shed light on potential human capital spillovers as a motivation for



relocation.

This model is applied to the two cities separately in order to allow for country-specific effects between the source and the host country. The findings for the two cities are presented in Section 6.2. All variables that are employed in the specifications will be explained in detail in the next section, with descriptive statistics for the overall sample and the Parisian and New Yorker sub-samples given in Table 5.

## 5 Key variables and summary statistics

### 5.1 Biographical information

The year of birth of each artist is used to construct the *cohort* indicator for the analysis. The sample period covers artists born 1850-1945 with the oldest artist born in 1851 and the youngest in 1937. Subsequently, the sample is divided into five cohorts: artists born between 1850-1869, 1870-1889, 1890-1909, 1910-1930, and 1930-1945. The average artist is born in 1892, which corresponds to the third cohort. In line with the presented concentration measures, Parisian artists are born earlier and New Yorkers later than average. We expect the cohort variable to have a positive coefficient on the number of moves, as the obstacles to moving are lower, the later an artist is born.

*Lifespan* is the difference between the year of death and the year of birth; we expect this variable to enter (1) positively, as a longer life increases the opportunity for moving. It is not clear a priori what the effect will be on the choice of moving to an artistic cluster.<sup>8</sup>

*Gender* indicates the sex of the artist. Of the 214 artists in the sample, only 12 (or 5.6%) are women, however, it is not clear a priori in which direction the effect will work. Lastly, an indicator for any *family obligations* the artist might have was derived from the data source. This variable reflects if an artist was either married or had children. We pool this information in one indicator, as it remains unclear in some cases whether or not an artist was married to his or her partner. Interestingly, this variable is slightly higher than average for artists who mainly worked in Paris and lower than average for New York-based artists. This indicator for ‘family ties’ will allow for the measure of any impediment to mobility, and hence is expected to have a negative effect in both estimations.

### 5.2 Career indicators

The *column-inch* measure is the sample-entry criterion described in Section 2 and ranges from 0.22 to 3.0. As it serves as an indicator for an artist’s prominence - which is assumed

to be strongly correlated with his or her ability - we might expect this value to be somewhat larger in clusters than in any other location. However, this is not confirmed by the data. In terms of mobility, it is not quite clear in which direction the effect will work. Clusters might either attract stars, or stars might not need to go to a cluster as they were stars to begin with.<sup>9</sup>

The *training* variable indicates if an artist received any formal art training, be it in a school or by a private mentor. A zero value, hence, means that the artist is largely self-taught. In some cases it was not clear from the data source if the artist received art training or not, in which case, the artist is deemed to have had no training, as it can be assumed that any training that he or she had probably did not make a substantial impact on his or her career, and was therefore not mentioned in his or her biography. The data show that a surprisingly large share of artists received some form of training (82%). For Paris, the value is lower than average by 7 percentage points, while New York is above average with 93% of artists having received training. This might be due to a wealth effect, as training might have been much more affordable in New York's golden era in the 60s and 70s than in Paris' heydays around 1910.

38% of the artists in the sample undertook some type of *comission* during their careers. All work that was taken out on demand by a third party is considered a comission. The number is higher than the overall average for artists mainly active in Paris, and lower than average for artists working predominantly in New York. This might be capturing a time and a wealth effect. The variable is expected to have a positive effect on mobility as well as locating in a cluster.

*Patron* will be equal to one if a patron or other benefactor is mentioned in an artist's biography. The data suggest that the 'patronage system' was much more developed for artists active in Paris (23%) than in New York (only 12%). This measure might be prone to some error as this information might not be known about an artist, nevertheless, it serves as a proxy for an artist's financial situation and his or her attachment to the location. Hence, the effect is not entirely clear a priori; artists who have a sponsor might be less likely to relocate in order not to lose the support, or the support is what allows them to be able to move to a cluster in the first place.

### 5.3 Mobility indicators

The *quantity of permanent relocations* records the times an artist relocated over the course of his or her career. The average artist in the sample relocates twice in his or her career and the range is from 0 to 12 movements. Interestingly, artists who mainly worked in

New York only move 1.56 times in their careers, whereas Parisian artists move about the average number of times. This might suggest higher loyalty to New York as a location, but could also reflect the fact that New York was always a safe haven. This variable will serve as the dependent variable in model (1).

Information on whether an artist moved due to either of the two major European wars were collected. For this, the biographies were consulted and if there was any mention of a ‘war-induced’ relocation, this was recorded. 7% of artist had to relocate due to the First World War and this number is more than double (16%) for artists who mainly worked in Paris.<sup>10</sup> The impact of the Second World War on modern visual artist’s mobility is somewhat larger, with an overall 11% effect, and an 18% effect for Parisian-based artists.<sup>11</sup> As this measure only reflects artists’ main work locations, the true impact of the major European wars on their work locations is probably larger; however, in order to uniquely identify an artist with a location, it is necessary to determine a predominant work location for each artist. Nevertheless, the wars are expected to increase mobility and to be a drain on Paris’ artistic crowd and a gain for New York’s artistic community - most noticeably for the Second World War. It will be interesting to confirm the hypothesis of a ‘brain gain’ in New York and a matching ‘brain drain’ effect in Paris due to the Second World War in the choice models.<sup>12</sup>

Also, information on artists’ traveling behaviour was gathered. *Traveling* summarises any short-term trip that entails at least some artistic work, be it painting, learning, or teaching, or any combination thereof. As such, it will give information on an artist’s short-term mobility, as opposed to long-term relocation. The average artist traveled four times throughout his or her career, Parisian-based artists slightly more often than that, while New York-based artists traveled only twice on average. 47% of artists have visited Paris at some stage in their lives and only 17% spent some time in New York. In the cluster analysis, short-term visits to either cluster can serve as an imperfect substitute for relocation, thus, we expect the sign on the coefficient to be negative in specification (2). However, the quantity of travels undertaken might serve as a proxy for the propensity to undertake any change in one’s work location.

In addition, several variables were constructed as explanatory variables in the choice model for the two cluster locations. The CEPII data (2008) are used to construct a *distance* measure for each artist’s birth location to either of the two cluster locations of the modern arts. This is approximated by the distance between the capital of their birth countries to either Paris or New York.<sup>13</sup> This measure is not perfect, as the distance from say Milan to Paris is obviously shorter than from Rome to Paris, nevertheless it will give

an indication of relative remoteness. After all, Moscow is certainly farther from Paris than Rome, hence the distance measure for a Russian artist is greater than that for an Italian artist. The average distance to Paris is 2,870 kilometers, whereas the average distance to New York is greater, equaling 3,750 kilometers. As distance is a proxy for the difficulty of reaching either cluster, we expect it to enter the equation with a negative sign.

An additional variable to test for a ‘neighbour’ effect in terms of the inflow of artists is an indicator variable for *contiguous* countries to France and the USA, respectively. 25% of artists are born contiguous to France and 6% are born in a neighbouring country to the USA. Similarly, language may have been an obstacle for moves outside one’s birth country and to a cluster where a foreign language is spoken.<sup>14</sup> 10% of non-French artists in the sample are from a French-speaking country and 15% of the Non-Americans from an English-speaking country. The variable is expected to enter with a positive sign in both estimations.

Another indicator for the difference of the birth country and the work location of artists is the *GDP gap* between the two locations over the artist’s life span.<sup>15</sup> This is measured as the difference in GDP per capita on the country level, i.e. the difference in GDP per capita between an artist’s birth location and the USA and France, respectively.<sup>16</sup> It is coded to be the sending country’s GDP minus the receiving country’s GDP. In the case of France, this is positive, indicating an inflow of artists from relatively more developed countries, while for the US, the measure is negative, indicating an inflow from countries that are relatively less developed on average.<sup>17</sup>

## 5.4 Country of origin

The six major *source countries* of artists born 1850-1945 are listed by share of sample in Table 5. Not surprisingly, the share of European artists in the Parisian artistic scene is rather large, with French artists composing the majority (45%), followed by Russian artists (10%). A similar picture emerges for New York, with Americans constituting 58% of the New York art scene, followed by Russians (12%), and Germans (5%). These indicators will be employed to test the existence of a ‘home bias’ in the first regression. It is expected that artists with a strong domestic art base are less likely to change their work locations often. Hence, we expect a negative sign for artists born in the USA and France, respectively.

## 5.5 Artistic Styles

The *artistic style* indicators were obtained from Hellmanzik (2009b). The main artistic style is determined from whatever the predominant working style or major influence is deemed to be in the artists' biographies. Accordingly, an artist is coded to be affiliated with the one style on which he or she made the biggest impact. We find that of the artistic movements mainly originating in Europe, three have a somewhat higher concentration in Paris: Surrealism, Art Informel, and Cubism. Cubism is almost exclusively associated with artists who were active in Paris and 22% of all Cubists worked mainly in Paris. The same picture emerges for American art streams with Abstract Expressionism, Pop Art, and Early American art. All have a higher than average density in New York. The style variables will be used to proxy for specialised human capital externalities in the art clusters; if the concentration of a particular stream is high in a cluster, and the artist is already working or seeks to work in the same style but is not currently located in the respective cluster, the likelihood of relocating is expected to be higher.

## 6 Empirical Results

### 6.1 The extent of mobility

The results of specification (1) as given in Section 4 are reported in Table 6. Columns 1 and 2 are shorter versions without the birth locations, with column 1 being applied to the full sample and column 2 to the sub-set of artists who had at least one change in permanent work location. This will account for any downward bias in the estimates of the full sample due to the zeros in the dependent variable. Columns 3 and 4 report the estimation with the full set of explanatory variables employed.

Of the biographical vector, only the *cohort* variable turns out to be significant across specifications, with a somewhat surprising sign. The later the artist is born, the less movements he or she will undertake. In fact, being born 20 years later (a cohort later) decreases the number of movements by about 0.2. As relocating should have become relatively easier with time, this seems somewhat counter-intuitive, although this finding is in line with the calculations presented in O'Hagan and Hellmanzik (2008). A potential explanation could be the slow-down in innovations in the modern arts, which makes it less necessary to spend time in the artistic centres to catch the latest developments. Similarly, the relative ease of communication with the rise of modern technologies might be a potential explanation. The *gender* indicator is only significant for the full sample

when the artist’s country of origin is controlled for. Nevertheless, the coefficient suggests that male artists move 0.46 times more on average than their female counterparts.

The career vector only bears a significant sign on the *column-inches* if the birth location is not controlled for. This implies that more prominent or able artists move more often; for one extra inch of prominence (0.1 column-inches), an artist moves 0.09 (0.12) times more over the course of his or her career. This finding does not change if the three other career indicators (patron, network, and commissions) are included in the estimation.<sup>18</sup>

The set of mobility indicators, however, seems particularly informative. Especially, the *Second World War* has a positive impact on the number of movements and is large in its magnitude; having been affected by the War in any way, increases the times moved by a striking 1.59 (1.76), depending on the specification. This effect is robust throughout the different sets of regressions. The *First World War*, however, never has a significant impact on the degree of mobility among modern visual artists.

Additionally, the number of times an artist traveled on a short-term basis during his or her career increases the times an artist relocated permanently by about 0.1 depending on the specification. This suggests that artists who have a propensity to travel will also permanently relocate more often. Hence, *traveling* and changing one’s work location seem to be imperfect complements rather than substitutes; this may be reflecting a geographic curiosity among modern artists in search of inspiration.

Adding the *birth location* of the artist to the model allows some conclusions on the mobility of artists by nationality or something similar to the ‘gravity of modern artists’. Only three source countries bear a significant sign: France, the USA, and Germany, which also are the major producers of modern visual artists. French and German artists move less on average, one movement less for French and 0.7 for German artists compared to the base group. This might be explained by the strong affiliation of German and French artists with certain stylistic groups. German artists, for example, who were associated with Expressionism might have decided that leaving the Expressionistic hubs in Germany was not desirable. Similarly, there were many artists’ associations in France that might have allowed the artists to benefit from a thriving artistic community without the need to change one’s work location. American artists, on the other hand, move 0.8 times more often than the base group during their careers.

## 6.2 Decision to locate in a cluster

Tables 7 reports the marginal change in the probability of success at the average values of the independent variable ( $dF/dx$ ). The independent variable in the first four columns is

whether or not the the main work location was Paris, and in the last four, whether or not it was New York. Firstly, a shorter version of the model above is reported for each city (columns 1 and 5), then the full model for the entire sample (columns 2 and 6) and for the sub-sample of ‘only movers’, respectively (columns 3 and 7). In the last column for each location, the dependent variable is an indicator equal to one if the artist ever spent at least three years in either cluster location.

### 6.2.1 Impact of biographical factors

Somewhat surprisingly, the biographical variables hardly have a significant impact on the decision to locate in either New York or Paris. In fact, the set of biographical variables does not explain the likelihood of making Paris the main work location for artists at all. However, there is a very strong *cohort* effect for New York, indicating that later-born artists are more likely to settle in New York by 5.4-12.2%. This reflects the fact that New York only became an important international cluster in the 1950s and 60s, whereas there only is a very slight indication of a negative *cohort* effect for artists who have ever spent time in Paris, which might reflect the counterfactual, i.e. that Paris was more of a hub for artists who were born earlier.

### 6.2.2 Impact of career factors

The career variables, however, shed some light on the motivation for mainly working in a cluster. Looking at the case of Paris, when controlling for the full set of mobility and artistic style variables, *column-inches* enters significantly with a negative sign. This implies that for one extra inch (0.1 column-inches) in terms of the prominence indicator, the artist is 2.1% (or 2.6%) less likely to make Paris his or her main work location, all other things being equal. This result could imply two things: firstly, that Paris mainly attracted less promising artists; secondly, that for very talented artists the need to move to Paris is less apparent. However, prominence is no determinant of the decision to locate in New York.

Formal *training* decreases the chance of locating in Paris by 19.3-27.3%, all else being equal. This could indicate that those artists who mainly worked in other locations see training as a substitute for the spillovers to be expected in the cluster of Paris. For the case of New York, however, we find the opposite, i.e. that formal arts *training* increases the likelihood of New York being the main work location by 6.4-16.8%. One potential reason for this could be the relative affordability of formal training with time.

Having a *patron* significantly increases the likelihood of locating in Paris by 20.1% to 29.7%, when controlling for mobility as well as style indicators. Additionally, it also increases the likelihood of ever having spent time in Paris by 21.2%. This is most likely due to a wealth effect, as patronage often allowed artists to benefit from their work financially at relatively early stages in their careers. In addition, 23% of artists who were mainly active in Paris had a patron (7 percentage points more than average), which might be another explanation for the positive effect. The fact that *patronage* is only significant for the decision to locate in Paris, but not New York, might be a sign that the patronage system for modern artists has waned in importance over time with the auction market and art dealers taking a bigger role.

Interestingly, *comissions* undertaken by an artist are not a significant relocation factor for either cluster.

### 6.2.3 Impact of mobility factors

Turning to the mobility indicators, it seems to be the case that *distance* is indeed a significant deterrent to settling in Paris. Meanwhile, it also does not seem to be the case that artists who were born very close to France - in any neighbouring country, as captured by the *contiguous* country indicator - are more likely to settle in Paris. On the contrary, being born in a country contiguous to France reduces the odds of making Paris one's main work location by about 19% across specifications, and the effect is even larger if artists spent a minimum of three years in Paris (column 4 - 30.41%). This might reflect the fact that Europe had many local art centres which made moving to Paris permanently less attractive. The *GDP gap* indicates that artists from countries that were on average more economically developed than France, were less likely to choose Paris as their main work location.

The *distance* to New York is only significant when artistic styles are not controlled for and the *GDP gap* is only significant for artists who ever worked in New York for more than three years. However, being from a neighbouring country to the USA (*contiguous*) significantly increases the likelihood of relocating to New York in the choice model. This is probably due to the fact that many New York-based artists are born in Canada and Mexico, respectively. Nevertheless, given that France has many more geographic neighbours, this result might reflect a stylistic dominance of New York in the 1950s and 60s, especially so for Canadian, Mexican, and American artists.

Interestingly, having been affected by the *First World War* increases the likelihood of moving to Paris, although the share of artists working there decreased by 11 percentage



points during World War I. Keeping in mind that this variable is not just a time effect, it seems fair to say, that the attraction of Paris as an artistic hub seems to have outweighed the instability of war times. There is no clear evidence for a *Second World War* effect (the significant positive effect disappears as soon as styles are controlled for), hence, the ‘brain drain’ to Paris due to the Second World War is not confirmed in the data.

Surprisingly, the *First World War* is significant and has a negative sign when styles are controlled for, whereas the *Second World War* has a negative impact on the odds of making New York one’s main work location. Again, this might be capturing somewhat of a time effect despite the way the variable was constructed (as explained in Section 5.3), nevertheless, given the controls for other factors in the model, there is no significant inflow of artists due to the Second World War; if anything, the war decreases the odds of moving to New York.

Although artists who permanently move more often (*quantity of permanent moves*) are not more likely to settle in Paris, artists who travel (*quantity of temporary moves*) are indeed more likely to work in Paris on a permanent basis. However, visits to either cluster deter from settling in Paris; this could be an indication that traveling to Paris potentially is a substitute for relocating there. This is in line with the negative coefficient on *contiguous*. For the case of New York, neither the amount of travel (*quantity of temporary movements*) undertaken overall, nor the number of visits to Paris are significant determinants of the decision to locate in New York. However, when controlling for the styles, visiting New York on a short-term basis seems to be an imperfect substitute for relocation.

#### 6.2.4 Impact of artistic style

Lastly, style indicators are included in order to shed more light on the importance of the artistic clusters as hotbeds for artistic innovations. And indeed, artists who were associated with *Cubism*, which is a movement that almost exclusively originated in Paris, are more likely to have mainly worked in Paris by a striking 66.4-68.3%, all else being equal. Also, the somewhat more geographically diffuse styles of *Surrealism* and *Art Informel* have a strong positive impact on the odds of working in Paris. A potential conclusion could be that being a member of a major artistic movement increases the likelihood of moving to Paris in order to increase the chance of benefiting from specialised human capital spillovers. This effect is also apparent for artists who only spent some time in Paris during their careers.<sup>19</sup>

When the artistic styles which were predominant in New York are added to the model, we find that *Early Americans*, *Abstract Expressionists*, as well as *Pop Artists* are more

likely to work in New York. The effect is less significant across specifications for Pop artists, however, which might be explained by the active branch of Pop Artists in Great Britain. This seems to confirm the conclusion drawn earlier, that strongly localised streams offer a higher chance of human capital spillovers and hence increase the odds of relocation on a permanent basis.

One other interesting result is the fact that for the specification indicating if artists ever spent a share of their careers in New York, the number of relocations is significant and so are the distance and GDP gap. This indicates that artists who had a higher propensity to move in general were also somewhat more likely to move to New York at some stage in their careers - given the affordability and reachability constraint is met. Again, this might reflect the relatively higher wealth of later generations of artists.

## 7 Conclusion

In light of the extent of clustering among modern visual artists in Paris and New York, respectively, two interesting questions arise: firstly, what is the extent of mobility of modern artists and what are the determinants for their mobility; and secondly and most importantly, what motivates an artist to locate in one of the artistic clusters. In this context, the potential for human capital externalities in these cluster locations as a determinant of the mobility decision is analysed. The analysis is based on the 214 most prominent modern visual artists born 1850-1945 and uses a set of biographical, career, mobility, and artistic style indicators to analyse mobility and the decision to locate in either of these two art clusters.

With regard to the extent of mobility among modern artists, the analysis shows that artists who are born later move slightly less often than their predecessors. The Second World War increases mobility, whereas the First World War shows no significant impact. Interestingly, traveling seems to be a complement to relocating, although the magnitude of the effect is not large. Lastly, we find that artists who are born in Germany or France move considerably less than other artists, and American artists change their work locations significantly more often.

The decision to mainly work in either cluster can probably best be explained by affiliation to the major art styles based in the respective city. This is probably due to otherwise unattainable human capital spillovers, which can be assumed to be largest in clusters (see Hellmanzik 2009a). Another crucial factor is traveling: artists who travel more often are also more likely to locate in Paris and in the case of Paris, visits to either

artistic cluster are a substitute for relocation. In the case of New York, the number of travels undertaken has no impact, however, visits to New York are a substitute to relocating to New York. Moreover, we find no evidence of a 'brain drain' from Paris and a 'brain gain' in New York due to the Second World War.

Also, there is evidence in the data that the patronage system is important for Parisian-based artists, but not so for New York-based ones. This could reflect a paradigm shift in the way modern artists finance themselves. This seems to be in line with Ginsburgh and Weyers's (2006) finding that the art market in New York had changed entirely after the Second World War, with different market conditions as well as atmosphere. However, there is slight indication of a cohort effect for New York - later artists are more likely to work there - but not for Paris. Moreover, formally trained artists are more likely to move to New York, but for Paris, the effect works in the opposite direction.

In light of these findings, it will be interesting to examine the phenomenon of clustering from the supply side, using comprehensive city level data and ideally, combining the two dimensions.

# Notes

<sup>1</sup>In addition, Galenson and Weinberg (2000, 2001), for example, base their analysis of cohort-effects in modern arts on artists active in either Paris or New York.

<sup>2</sup>For full detail on the ranking of artists based on the column-inch method, see O'Hagan and Kelly (2005)

<sup>3</sup>This is denoted as 0.22 in Tables 1-3, indicating 0 columns and 2.2 inches of space devoted to the respective artist in the art dictionary. The highest number for any artist is for Pablo Picasso, who has 3.0 column-inches, or 3 full columns dedicated to him. See Tables 1-3 for all artists' column-inches.

<sup>4</sup>In the case of Paris, locations that were in the greater geographical surroundings of Paris - the 'Île de France' - were considered as Paris.

<sup>5</sup>The relative concentration measures are obtained from Hellmanzik (2009a).

<sup>6</sup>Such as de Chirico, Dalí, Ernst, Gris, and Magritte, for example.

<sup>7</sup>Employing a logit model or a logit conditional on having moved at all, does not change the general results. Similarly, using a multinomial logit model also leaves the conclusions unchanged.

<sup>8</sup>For those artists who are still alive, the lifespan is truncated in 2008.

<sup>9</sup>However, there might be an endogeneity issue when using this variable: artists who never moved to a cluster might have become much more prominent if they had.

<sup>10</sup>The 2% for New York consists of Arshile Gorky, who relocated with his family to the US in order to avoid being drafted in the Armenian army.

<sup>11</sup>The 2% for New York consists of George Grosz, who left Germany in 1932 for New York, in fear of the increasing political influence of the Nazis.

<sup>12</sup>The impact of the inflow of European artists on the New York art scene has been analysed by Wheeler (1991), for example.

<sup>13</sup>If an artist is born in either Paris or New York, the distance is set to zero.

<sup>14</sup>The language variable is obtained from the CEPII (2008) dataset and reflects if there is a common official language between two countries.

<sup>15</sup>There is no GDP measure available for two birth locations: Venezuela and Belarus. Hence the two artists born there drop out of the cluster estimation.

<sup>16</sup>In the estimation, the difference in log of GDP per capita is used.

<sup>17</sup>Both the distance measure and the GDP gap are based on an artist's birth location rather than his or her actual place of living. This is an approximation that seems reasonable, as the analysis is based on main work locations over the entire course of the artist's career.

<sup>18</sup>In fact, these three career variables (patron and commissions) do not have a significant impact on the degree of mobility in any of the specifications and do not influence the coefficients of the other variables. Hence, they are not included as explanatory variables.

<sup>19</sup>However, as all Cubists spent at least a part of their careers in Paris, this variable and the respective artists have to be dropped from the specification. This decreases the number of observations in the specification given in column 4.

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Table 1: Artists included in this study

Artist Name	Country of Birth	Year of Birth	Year of Death	Column-Inches	Nr. of perm. moves	Cluster Location
Albers, Josef	Germany	1888	1976	0.5	4	-
Alechinsky, Pierre	Belgium	1927	still alive	0.22	1	-
Annigoni, Pietro	Italy	1910	1988	0.4	1	-
Appel, Karel	Netherlands	1921	2006	0.32	2	Paris
Arp, Jean (Hans)	France	1886	1966	0.55	1	Paris
Atlan, Jean-Michel	France	1913	1960	0.22	1	Paris
Bacon, Francis	Ireland	1909	1992	1	1	-
Balla, Giacomo	Italy	1871	1958	0.4	1	-
Balthus	France	1908	2001	0.22	3	Paris
Baumeister, Willi	Germany	1889	1955	0.42	2	-
Bayer, Herbert	Austria	1900	1985	0.22	4	New York
Baziotes, William	America	1912	1963	0.22	2	New York
Beckmann, Max	Germany	1884	1950	0.6	6	New York
Bellows, George Wesley	America	1882	1925	0.42	1	New York
Bernard, Emile	France	1868	1941	0.3	3	Paris
Bill, Max	Switzerland	1908	1994	0.47	1	-
Bissiere, Roger	France	1888	1964	0.4	2	Paris
Blake, Peter	Britain	1932	2006	0.55	1	-
Blanche, Jacques - Emile	France	1861	1942	0.22	0	Paris
Boccioni, Umberto	Italy	1882	1916	0.5	2	-
Bombois, Camille	France	1883	1970	0.22	1	Paris
Bonnard, Pierre	France	1867	1947	0.55	1	Paris
Boyd, Arthur	Australia	1920	1999	0.3	2	-
Brangwyn, Sir Frank	Belgium	1867	1956	0.27	2	-
Braque, Georges	France	1882	1963	1.2	2	Paris
Burri, Alberto	Italy	1915	1995	0.25	1	-
Bush, Jack Hamilton	Canada	1909	1977	0.3	0	-
Calder, Alexander	America	1898	1976	1.05	4	Paris
Carr, Emily	Canada	1871	1945	0.3	2	-
Carra, Carlo	Italy	1881	1966	0.3	1	-
Cavalcanti, Emiliano di	Brazil	1897	1976	0.27	2	-
Chagall, Marc	Belorussia	1887	1985	0.65	6	Paris
Chirico, Giorgio de	Greece	1888	1978	0.8	7	Paris
Christo, Javacheff	Bulgaria	1935	still alive	0.5	0	New York
Corinth, Lovis	Germany	1858	1925	0.3	3	-
Cruz-Diez, Carlos	Venezuela	1923	2008	0.22	0	-
Dali, Salvador	Spain	1904	1989	1.15	4	-
Davis, Alan	Britain	1920	still alive	0.25	3	-
Davis, Stuart	America	1894	1964	0.6	1	New York
de Kooning, Willem	Netherlands	1904	1997	0.6	1	Paris
Delaunay - Terk, Sonia	Russia	1885	1979	0.25	2	Paris
Delaunay, Robert	France	1885	1941	0.45	0	Paris
Delvaux, Paul	Belgium	1897	1994	0.3	1	-
Denis, Maurice	France	1870	1943	0.25	1	Paris
Derain, Andre	France	1880	1954	0.3	0	Paris
Diebenkorn, Richard	America	1922	1993	0.25	3	-
Dine, Jim	America	1935	still alive	0.25	1	New York
Dix, Otto	Germany	1891	1969	0.45	6	-
Dobell, Sir William	Australia	1899	1970	0.4	2	-
Dongen, Kees van	Netherlands	1877	1968	0.22	1	Paris
Dubuffet, Jean	France	1901	1985	0.22	1	Paris
Dufy, Raoul	France	1877	1953	0.35	1	Paris
Dunoyer de Segonzac, Andre	France	1884	1974	0.22	0	Paris
Ensor, James	Belgium	1860	1949	0.45	1	-
Ernst, Max	Germany	1891	1976	0.7	8	Paris
Fautrier, Jean	France	1898	1964	0.25	2	Paris
Feininger, Lyonel	America	1871	1956	0.45	4	New York
Fontana, Lucio	Argentina	1899	1968	0.3	3	-
Forain, Jean-Louis	France	1852	1931	0.25	1	Paris
Foujita, Tsuguharu	Japan	1886	1965	0.25	3	Paris
Francis, Sam	America	1923	1994	0.35	2	Paris
Frankenthaler, Helen	America	1928	2008	0.3	0	New York
Freud, Lucian	Germany	1922	2008	0.35	1	-
Gallen-Kallela, Akseli	Finland	1865	1931	0.4	3	Paris
Giacometti, Alberto	Switzerland	1901	1966	0.65	1	Paris
Gilman, Harold	Britain	1876	1919	0.22	2	-
Glackens, William James	America	1870	1938	0.35	1	New York
Gleizes, Albert	France	1881	1953	0.25	4	-
Gogh, Vincent van	Netherlands	1853	1890	2.2	12	Paris
Goncharova, Natalia	Russia	1881	1962	0.35	2	Paris
Gorky, Arshile	Turkey	1904	1948	0.6	2	New York
Gottlieb, Adolph	America	1903	1974	0.35	0	New York
Gris, Juan	Spain	1887	1927	0.6	2	Paris
Grosz, George	Germany	1893	1959	0.7	5	New York
Gruber, Francis	France	1912	1948	0.22	1	Paris
Guston, Philip	America	1913	1980	0.45	2	New York
Guttoso, Renato	Italy	1912	1987	0.3	1	-

Notes: Cluster locations are obtained from author's own calculations based on *Grove Dictionary of Art: Online (2008)*.

Table 2: Artists included in this study

Artist Name	Country of Birth	Year of Birth	Year of Death	Column Inches	Nr. of perm. moves	Cluster Location
Harris, Lawren Stewart	Canada	1885	1970	0.25	3	-
Hartung, Hans	Germany	1904	1989	0.25	1	Paris
Hayter, S.W.	Britain	1901	1988	0.3	3	Paris
Heckel, Erich	Germany	1883	1970	0.4	2	-
Held, Al	America	1928	2005	0.25	0	New York
Henri, Robert	America	1865	1929	0.7	3	New York
Hockney, David	Britain	1937	still alive	0.75	2	-
Hodler, Ferdinand	Switzerland	1853	1918	0.35	1	-
Hofer, Carl	Germany	1878	1955	0.3	3	-
Hofmann, Hans	Germany	1880	1966	0.45	4	New York
Hundertwasser, Fritz	Austria	1928	2000	0.45	2	-
Jackson, Alexander Young	Canada	1882	1974	0.25	1	-
Jawlensky, Alexei von	Russia	1864	1941	0.6	4	-
John, Jaspers	America	1930	still alive	0.3	1	New York
Jones, Allen	Britain	1937	still alive	0.3	1	-
Josefson, Ernst	Sweden	1851	1906	0.22	3	Paris
Kandinsky, Wassily	Russia	1866	1944	1.15	7	Paris
Kirchner, Ernst Ludwig	Germany	1880	1938	1.1	3	-
Kitaj, Ron B.	America	1932	2007	0.4	1	-
Klee, Paul	Switzerland	1879	1940	1.3	4	-
Klein, Yves	France	1928	1962	0.22	2	-
Klimt, Gustav	Austria	1862	1918	0.7	0	-
Kline, Franz	America	1910	1962	0.3	1	New York
Kokoschka, Oskar	Austria	1886	1980	0.5	6	-
Kupka, Frantisek	Czech Republic	1871	1957	0.55	3	Paris
La Fresnaye, Roger de	France	1885	1925	0.22	0	Paris
Lam, Wifredo	Cuba	1902	1982	0.4	5	Paris
Lamb, Henry	Australia	1883	1960	0.35	2	-
Larionov, Mikhail	Russia	1881	1964	0.45	2	Paris
Lavery, Sir John	Britain	1856	1941	0.22	4	-
Le Corbusier	Switzerland	1887	1965	0.4	1	Paris
Le Fauconnier, Henri	France	1881	1946	0.25	3	Paris
Le Parc, Julio	Argentina	1928	still alive	0.25	2	Paris
Leck, Bart van der	Netherlands	1876	1958	0.32	2	-
Leger, Fernand	France	1881	1955	1.1	3	Paris
Lempicka, Tamara de	Poland	1898	1980	0.45	3	Paris
Lhote, Andre	France	1885	1962	0.3	1	Paris
Lichtenstein, Roy	America	1923	1997	0.4	2	New York
Louis, Morris	America	1912	1962	0.7	1	-
Lurcat, Jean	France	1892	1966	0.35	2	Paris
Macdonald-Wright, Stanton	America	1890	1973	0.35	2	Paris
Macke, August	Germany	1887	1914	0.35	4	-
Magritte, Rene	Belgium	1898	1967	0.7	3	Paris
Marin, John	America	1870	1953	0.3	1	New York
Marini, Marino	Italy	1901	1980	0.3	3	-
Marquet, Albert	France	1875	1947	0.25	1	Paris
Marsh, Reginald	France	1898	1954	0.25	2	New York
Masson, Andre	France	1896	1987	0.4	2	Paris
Matisse, Henri	France	1869	1954	1.5	2	Paris
Matta Echaurren, Roberto	Chile	1911	2002	0.3	3	New York
Merida, Carlos	Guatemala	1891	1984	0.22	1	-
Milne, David Brown	Canada	1882	1953	0.22	3	New York
Miro, Joan	Spain	1893	1983	1.1	4	Paris
Modersohn-Becker, Paula	Germany	1876	1907	0.5	3	Paris
Modigliana, Amedeo	Italy	1884	1920	0.65	1	Paris
Moholy-Nagy, Laszlo	Hungary	1895	1946	0.7	7	-
Mondrian, Piet	Netherlands	1872	1944	1.05	4	Paris
Morandi, Giorgio	Italy	1890	1964	0.25	0	-
Moses, Anna Mary Robertson	America	1860	1961	0.35	2	-
Motherwell, Robert	America	1915	1991	0.45	2	New York
Mucha, Alphonse	Czech Republic	1860	1939	0.35	2	Paris
Munch, Edvard	Norway	1863	1944	1.4	4	Paris
Nash, Paul	Britain	1889	1946	0.6	1	-
Nevelson, Louise	Russia	1899	1988	0.4	2	New York
Nicholson, Ben	Britain	1894	1982	0.5	6	-
Nolan, Sir Sydney	Australia	1917	1992	0.55	2	-
Noland, Kenneth	America	1924	still alive	0.25	1	-
Nolde, Emil	Germany	1867	1956	0.55	5	-

Notes: Cluster locations are obtained from author's own calculations based on *Grove Dictionary of Art: Online (2008)*.



Table 3: Artists included in this study

Artist Name	Country of Birth	Year of Birth	Year of Death	Column Inches	Nr. of perm. moves	Cluster Location
O’Keeffe, Georgia	America	1887	1986	0.25	2	New York
Olitski, Jules	Russia	1922	2007	0.3	1	New York
Orozco, Jose Clemente	Mexico	1883	1949	0.65	4	New York
Orpen, Sir William	Ireland	1878	1931	0.45	1	-
Pascin, Jules	Bulgaria	1885	1930	0.3	3	Paris
Pasmore, Victor	Britain	1908	1998	0.55	1	-
Pearlstein, Philip	America	1924	still alive	0.25	1	New York
Pechstein, Max	Germany	1881	1955	0.4	2	-
Permeke, Constant	Belgium	1886	1952	0.22	4	-
Picabia, Francis	France	1879	1953	0.65	4	Paris
Picasso, Pablo	Spain	1881	1973	3	6	Paris
Piper, John	Britain	1903	1992	0.5	1	-
Pissarro, Lucien	France	1863	1944	0.25	2	Paris
Poliakoff, Serge	Russia	1906	1969	0.22	1	Paris
Pollock, Jackson	America	1912	1956	1.35	2	New York
Prendergast, Maurice	Canada	1859	1924	0.3	2	New York
Preston, Margaret	Australia	1893	1963	0.22	3	-
Rabin, Oskar	Russia	1928	2008	0.22	1	Paris
Rauschenberg, Robert	America	1925	2008	0.5	1	New York
Reinhardt, Ad	America	1913	1967	0.4	1	New York
Riley, Bridget	Britain	1931	still alive	0.45	0	-
Riopelle, Jean-Paul	Canada	1923	2002	0.22	2	Paris
Rivera, Diego	Mexico	1886	1957	1.05	3	Paris
Roerich, Nikolai	Russia	1874	1947	0.35	1	-
Ronald, William	Canada	1926	1998	0.25	3	New York
Rothko, Mark	Russia	1903	1970	0.7	2	New York
Rouault, Georges	France	1871	1958	0.4	0	Paris
Russell, Morgan	America	1886	1953	0.25	2	Paris
Sargent, John Singer	Italy	1856	1925	1.1	2	Paris
Schiele, Egon	Austria	1890	1918	0.3	0	-
Schlemmer, Oskar	Germany	1888	1943	0.4	5	-
Schmidt-Rottluff, Karl	Germany	1884	1976	0.5	2	-
Schwitters, Kurt	Germany	1887	1948	0.55	4	-
Serusier, Paul	France	1863	1927	0.22	2	Paris
Severini, Gino	Italy	1883	1966	0.3	4	Paris
Sickert, Walter Richard	Germany	1860	1942	1.35	7	-
Signac, Paul	France	1863	1935	0.25	1	Paris
Siqueiros, David Alfaro	Mexico	1896	1975	1.1	1	-
Slevogt, Max	Germany	1868	1932	0.35	4	-
Sloan, John	America	1871	1951	0.35	2	New York
Soutine, Chaim	Belorussia	1893	1943	0.5	1	Paris
Spencer, Sir Stanley	Britain	1891	1959	1.3	1	-
Stael, Nicolas de	Russia	1914	1955	0.45	4	Paris
Steer, Philip Wilson	Britain	1860	1942	0.35	1	-
Stella, Frank	America	1936	still alive	0.4	1	New York
Stella, Joseph	Italy	1877	1946	0.35	1	New York
Sutherland, Graham	Britain	1903	1980	0.6	1	-
Tamayo, Rufino	Mexico	1899	1991	0.3	2	New York
Tanguy, Yves	France	1900	1955	0.22	2	-
Tapiés, Antoni	Spain	1923	still alive	0.25	0	-
Tchelitchew, Pavel	Russia	1898	1957	0.22	3	New York
Thomson, Tom	Canada	1877	1917	0.22	1	-
Tinguely, Jean	Switzerland	1925	1991	0.22	2	Paris
Tobey, Mark	America	1890	1976	0.35	6	New York
Toorop, Jan	Indonesia	1858	1928	0.3	1	-
Torres-Garcia, Joaquin	Uruguay	1874	1949	0.25	4	Paris
Tworckov, Jack	Poland	1900	1982	0.22	1	New York
Utrillo, Maurice	France	1883	1955	0.22	2	Paris
Valadon, Suzanne	France	1865	1938	0.45	0	-
Vallotton, Felix	Switzerland	1865	1925	0.3	1	Paris
Vasarely, Victor	Hungary	1908	1997	0.22	1	Paris
Villon, Jacques	France	1875	1963	0.45	1	Paris
Vlaminck, Maurice de	France	1876	1958	0.3	1	Paris
Vuillard, Edouard	France	1868	1940	0.35	1	Paris
Warhol, Andy	America	1928	1987	0.22	1	New York
Weber, Max	Russia	1881	1961	1.45	1	New York
Wesselmann, Tom	America	1931	2004	0.35	1	New York
Williams, Frederick	Australia	1904	1982	0.3	0	-
Zorn, Anders	Sweden	1860	1920	0.6	4	Paris

Notes: Cluster locations are obtained from author’s own calculations based on *Grove Dictionary of Art: Online (2008)*.

Table 4: Cluster analysis

	All	1870-1913	1914-1918	1919-1938	1939-1945	1946-1975	1976-2007
<b>Paris</b>							
Number of artists	85	48	32	62	38	40	8
Percentage of sample	35%	44%	33%	39%	28%	25%	12%
<b>New York</b>							
Number of artists	56	10	10	25	31	39	17
Percentage of sample	26%	10%	10%	16%	23%	25%	26%
<b>All other locations</b>							
Number of artists	73	156	172	127	145	135	189
Percentage of sample	39%	46%	57%	45%	49%	50%	62%

*Notes:* Cluster locations are obtained from author's own calculations based on *Grove Dictionary of Art: Online (2008)*.

Table 5: Descriptive Statistics

Variables	Overall sample mean	Paris mean	New York mean
<b>Biographical:</b>			
Cohort	2.60 (1.10)	2.40 (.84)	3.27 (1.10)
Lifespan	73.19 (15.02)	73.69 (16.40)	71.63 (13.74)
Gender (M=1, F=0)	0.94 (0.23)	0.95 (.22)	0.93 (.26)
Family (Married and/or children=1, 0 otherwise)	0.43 (0.50)	0.48 (.50)	0.34 (.48)
<b>Career:</b>			
Column-Inches	0.47 (0.35)	0.45 (.40)	0.43 (.26)
Training (yes=1, no=0)	0.82 (0.38)	0.75 (.43)	0.93 (.26)
Comissions (yes=1, no=0)	0.38 (0.49)	0.43 (.50)	0.29 (.46)
Patron (yes=1, no=0)	0.16 (0.37)	0.23 (.42)	0.12 (.33)
<b>Mobility:</b>			
Q (permanent relocation)	2.18 (1.74)	2.11 (1.69)	1.56 (1.03)
Distance to Paris		2,869.27 (3,746.77)	
GDP gap to France		0.03 (2.65)	
Contiguous to France		0.25 (0.43)	
Common Language with France		0.10 (.30)	
Distance to New York			3,746.77 (2,988.68)
GDP gap to USA			-3.43 (2.84)
Contiguous to USA			0.06 (.24)
Common Language with USA			0.15 (.36)
WWI mobility (yes=1, no=0)	0.07 (0.26)	0.16 (.37)	0.02 (.16)
WWII mobility (yes=1, no=0)	0.11 (0.32)	0.18 (.38)	0.02 (.16)
Q (temporary movement)	4.23 (3.95)	4.77 (4.90)	2.39 (1.90)
Visits to Paris	0.46 (0.74)	0.32 (.65)	0.37 (.54)
Visits to New York	0.17 (0.45)	0.10 (.30)	0.07 (.35)
<b>Country of origin:</b>			
France	0.19 (0.39)	0.45 (.50)	0.02 (.16)
USA	0.16 (0.37)	0.03 (.18)	0.58 (.50)
Germany	0.11 (0.31)	0.03 (.18)	0.05 (.22)
Russia	0.07 (0.26)	0.10 (.30)	0.12 (.33)
UK	0.07 (0.26)	0.02 (.13)	0.00 (.00)
Italy	0.06 (0.23)	0.03 (.18)	0.02 (.16)
<b>Artistic Styles:</b>			
Cubism	0.07 (0.26)	0.22 (0.42)	
Art Informel	0.09 (0.28)	0.13 (0.34)	
Surrealism	0.07 (0.26)	0.10 (0.30)	
Early American	0.05 (0.21)		0.22 (0.42)
Abstract Expressionism	0.10 (0.30)		0.34 (0.48)
Pop Art	0.05 (0.21)		0.15 (0.36)

Notes: Standard deviations are in parantheses. Sources: All information on artists are obtained from *Grove Dictionary of Art: Online (2008)*.

Table 6: Degree of permanent mobility

Q (perm. moves)	Full sample	Only movers	Full sample	Only movers
Cohort	-0.193 [0.092]**	-0.213 [0.093]**	-0.243 [0.092]***	-0.240 [0.094]**
Lifespan	-0.004 [0.007]	-0.004 [0.007]	-0.004 [0.007]	-0.005 [0.007]
Gender	0.273 [0.270]	0.041 [0.212]	0.462 [0.236]*	0.267 [0.235]
Family	0.313 [0.232]	0.343 [0.229]	0.292 [0.235]	0.318 [0.234]
Column-Inches	1.152 [0.695]*	1.226 [0.705]*	0.929 [0.701]	1.010 [0.713]
Training	0.071 [0.278]	0.018 [0.284]	-0.170 [0.267]	-0.182 [0.286]
WWI mobility	0.294 [0.414]	0.344 [0.396]	0.333 [0.381]	0.424 [0.385]
WWII mobility	1.757 [0.341]***	1.605 [0.341]***	1.708 [0.287]***	1.590 [0.295]***
Q (temp. moves)	0.103 [0.039]***	0.085 [0.041]**	0.105 [0.037]***	0.093 [0.039]**
Born (France)			-1.090 [0.257]***	-1.016 [0.269]***
Born (USA)			0.803 [0.359]**	0.710 [0.364]*
Born (Germany)			-0.675 [0.302]**	-0.708 [0.317]**
Born (Russia)			0.158 [0.345]	-0.012 [0.348]
Born (UK)			-0.007 [0.437]	0.088 [0.454]
Born (Italy)			-0.082 [0.262]	-0.096 [0.277]
Observations	214	196	214	196
R-squared	0.38	0.38	0.48	0.46

Notes: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1% level. Robust standard errors are in parantheses.

Table 7: Decision to mainly locate in a cluster

	Paris	Paris	Paris	Paris	New York	New York	New York	New York
	Full sample	Full sample	Only movers	Min > 3 years	Full sample	Full sample	Only movers	Min > 3 years
Cohort	0.004 [0.031]	-0.012 [0.034]	-0.010 [0.036]	-0.075 [0.043]*	0.063 [0.021]***	0.055 [0.021]***	0.054 [0.022]**	0.122 [0.031]***
Lifespan	0.000 [0.002]	0.000 [0.002]	-0.001 [0.002]	-0.004 [0.003]	0.000 [0.001]	0.000 [0.001]	0.000 [0.001]	-0.001 [0.002]
Gender	0.032 [0.117]	-0.040 [0.155]	-0.134 [0.197]	-0.130 [0.189]	-0.136 [0.132]	-0.146 [0.111]	-0.137 [0.117]	0.001 [0.128]
Family	-0.056 [0.074]	-0.089 [0.074]	-0.078 [0.077]	-0.081 [0.088]	0.025 [0.044]	-0.006 [0.027]	-0.011 [0.027]	0.082 [0.074]
Column-Inches	-0.209 [0.120]*	-0.261 [0.149]*	-0.240 [0.156]	-0.001 [0.139]	0.074 [0.067]	0.055 [0.044]	0.064 [0.048]	-0.004 [0.088]
Training	-0.193 [0.101]*	-0.240 [0.111]**	-0.273 [0.118]**	-0.027 [0.119]	0.121 [0.029]***	0.064 [0.027]**	0.067 [0.028]**	0.168 [0.046]***
Comissions	0.052 [0.068]	0.053 [0.071]	0.029 [0.072]	0.064 [0.082]	-0.008 [0.043]	0.024 [0.034]	0.016 [0.032]	-0.039 [0.057]
Patron	0.201 [0.110]*	0.296 [0.114]***	0.297 [0.119]**	0.212 [0.115]*	0.045 [0.081]	0.052 [0.068]	0.057 [0.072]	-0.029 [0.074]
Log (Distance)	-0.039 [0.015]**	-0.027 [0.016]*	-0.011 [0.017]	-0.109 [0.031]***	-0.030 [0.018]*	-0.014 [0.009]	-0.005 [0.009]	-0.071 [0.027]***
Log (GDP-PC gap)	-0.191 [0.092]**	-0.202 [0.089]**	-0.188 [0.088]**	-0.287 [0.107]***	0.033 [0.060]	-0.045 [0.039]	-0.042 [0.038]	-0.174 [0.087]**
Contiguous	-0.187 [0.061]***	-0.190 [0.057]***	-0.186 [0.061]***	-0.304 [0.067]***	0.621 [0.181]***	0.822 [0.133]***	0.874 [0.112]***	0.528 [0.214]**
Common Language	0.171 [0.143]	0.164 [0.138]	0.158 [0.141]	0.147 [0.144]	-0.164 [0.032]***	-0.107 [0.031]***	-0.100 [0.031]***	-0.194 [0.047]***
Q (perm. moves)	-0.031 [0.026]	-0.025 [0.026]	-0.032 [0.028]	0.017 [0.027]	0.001 [0.013]	0.002 [0.010]	-0.002 [0.010]	0.049 [0.020]**
WWI mobility	0.405 [0.142]***	0.363 [0.147]**	0.349 [0.147]**	0.132 [0.171]	-0.056 [0.054]	-0.038 [0.023]*	-0.038 [0.022]*	-0.105 [0.078]
WWII mobility	0.256 [0.127]**	0.069 [0.132]	0.080 [0.134]	0.061 [0.135]	-0.106 [0.032]***	-0.048 [0.025]*	-0.048 [0.025]*	0.100 [0.105]
Q (temp. moves)	0.042 [0.012]***	0.040 [0.014]***	0.043 [0.014]***	0.019 [0.017]	-0.022 [0.011]**	-0.008 [0.006]	-0.009 [0.007]	0.003 [0.010]
Q (visits to Paris)	-0.119 [0.051]**	-0.109 [0.050]**	-0.117 [0.051]**	-0.084 [0.060]	0.012 [0.031]	0.007 [0.021]	0.002 [0.021]	-0.066 [0.048]
Q (visits to New York)	-0.216 [0.077]***	-0.266 [0.082]***	-0.267 [0.079]***	0.045 [0.119]	-0.110 [0.068]	-0.155 [0.056]***	-0.156 [0.058]***	-0.207 [0.069]***
Cubism		0.664 [0.108]***	0.683 [0.099]***					
Art Informel		0.327 [0.131]**	0.348 [0.135]***	0.399 [0.126]***				
Surrealism		0.308 [0.168]*	0.323 [0.165]*	0.427 [0.143]***				
Early American						0.969 [0.024]***	0.971 [0.023]***	0.860 [0.039]***
Abstract Expressionism						0.278 [0.128]**	0.279 [0.143]*	0.382 [0.147]***
Pop Art						0.352 [0.194]*	0.345 [0.192]*	0.325 [0.214]
N	212	212	195	196	212	212	195	212
Log L	-98.82	-87.52	-82.48	-89.05	-66.93	-42.02	-39.05	-70.12
Pseudo R2	0.22	0.31	0.29	0.31	0.36	0.60	0.59	0.43

Notes: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1% level. Robust standard errors are in parantheses. Marginal effects are calculated at the respective mean values.



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