2015

Do Families Inspire

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Introduction:

Everyone seems to have that one friend who will never stop talking about their children. It is a perfectly good topic to discuss, and indeed a good parent probably does often talk about their child, but that new part of the friend's life (their child) changed how they live, and also how they work. They now have to spend hours upon hours on this little person who cannot take care of themselves, and the tradeoffs that friend has made in regard to their job, social life, and leisure time to accommodate their son or daughter has impacts on their productivity. For unskilled labor, having children may only present a problem in the amount of time they can spend on a career, but what about the type of work requiring a person to invest themselves emotionally? Perhaps having a child grants some great insight that allows a teacher to be more effective, or more caring when and can then empathize with a struggling student if their own child faces a similar issue. Or perhaps said teacher becomes cranky due to sleep deprivation and their whole class suffers under the teacher's new stress. The same concept can be applied across fields but perhaps art, a profession very reliant on the attitudes, perspectives, and emotions of the creators could be used as a measure of possible effects, caused by having a family, by evaluating the artistic outputs. With this in mind, one asks: Does having a family affect the value of an artist's work?

The anecdote about a friend changing with regards to becoming a parent may only be a hypothetical story, an allegory to illustrate a possible truth of life, but through analyzing the outputs of an artist, perhaps more substantial evidence can be drawn in support of this

hypothesis. The literature states that a person's time allocation changes after having a child; and perhaps time allocation is not the only change. Perhaps the human capital of an artist changes too; and using the work they produce as a proxy during that change, an effect may be measurable. The value of the pieces produced could increase due to the new experience or new paternal or maternal inspirations since becoming a parent. Of course, there is also the possibility that the artist feels some sort of block, or is too concerned and involved with their child to work on their art at their previous level of focus. Additionally, the sheer amount of work done could decrease due to the new time constraints. Or perhaps the amount of work done could increase with the help of a spouse, who may inspire the artist in a similar way, resulting in the artist having more time to dedicate to their field with more inspiration. This paper will evaluate if there is a measurable difference in an artist's output, in regards to value, when the artist has a child; (a secondary question included in the research asks the same question but in regards to marriage and the price of the works produced).

Using the presence of a child as additional input in the value of art may help isolate a general effect children may have on their parents. The presence of a child or a spouse function as directly measurable variables which can be linked to the time period a piece of art was completed. This time-linking appeal is lacking in other professions where there may not be a tangible item for comparison, but still an effect correlated with having children or being married. This effect, if observable, could present some helpful information for people in general perhaps looking for an extra surge of motivation (not that getting inspiration or motivation is necessarily a good reason to have children). Also, even though this paper focuses on artists as a specific group, and even though the type of work done in the profession is quite different from traditional

work (in regard to both time allotment and type of work) people's productivity or attitudes after having children more may be revealed more generally.

Literature Review:

Art

Using a hedonic method to price works of art, Renneboog and Van Houtte (2002) provide a foundation in valuing art. They observe in particular that in certain mediums, the presence of a signature, size, and particular technique all affect the price. However, due to the use of art as an investment (in addition to its consumptive benefits), relatively few re-sales of works, and large transaction costs, Renneboog and Van Houtte note that art prices act in a peculiar nature, especially when compared to traditional investment assets like stocks and bonds. Additionally, William Baumol (1985) argues that art prices "float more or less aimlessly." Baumol contrasts the art market with traditional markets and points out how the driving force in price is preferences, a difficult to measure variable at best, and indeed human behavior is rather inconsistent in that regard. Using centuries of data, starting in 1652, Baumol argues that, as an investment at least, art is unreliable and difficult to assign values beyond standard variables like size, medium, and other inherently obvious characteristics galleries tend to use, when pricing art.

Conversely, in support of valuing art based on an artist's behavior, Christiane Hellmanzik (2012) published an article indicating short-term travel correlates with an artist creating landscape art that is 7% more valuable, on average. The destinations also varied with their effects, with places like France and Germany offering higher returns, suggesting that not only does the act of travelling affect an artist's output, but the qualities of the travel itself. Because Hellmanzik's results indicate that an event is measurable in regards to the value modern buyers assign to the art, the results create a unique, albeit indirect, method of valuing other important

events within an artist's life. Taking the techniques Hellmanzik published further, one can consider other events that may impact the value of an artist's work, like the presence of children or a marriage.

Family and Productivity

With respect to measuring whether or not children affect work life, an apt profession to compare artists to may be published researchers. Both professions require significant time inputs at the discretion of the worker, and both final outputs tend to rely on the quality of the work more so than quantity, efficiency, or any other aspect. Steven Stack (2004) reports several observable trends in the relationship between a published researcher's family life in regards to their output (number of articles); most importantly that the presence of young children positively affects the output of a researcher (which he notes supports several similar studies). Stack also notes that there are significant differences in the effects of children in regards to gender, with women facing lower productivity in some cases.

Published researchers may make a good comparison to artists in regards to work type, but they tend to earn wages in a traditional manner. Therefore, it may be appropriate to treat the artistic community as self employed to account for the wage volatility, adjustable work hours, and discretionary effort within the industry. Accordingly, the traits and variables affecting those who are self employed versus traditional wage earners differ, and must be considered differently. Greg Hundley (2000) discusses how self employed individuals' income varies with family size, marriage, and the amount of housework done, but he notes there is a dichotomy within the results. Self employed women's earnings decreased with each of the previous variables; but self employed males' earnings seem to be positively linked to family size, marriage, and hours of housework. The apparent disparity of earnings between females and males in a self employed

position, ceterus paribus, lends some credence to the idea that the output of an artist would be affected by family characteristics as well as possible gender interactions with the variables. Both Hundley (2000) and Stack (2004) report that having children measurably affects a worker, and in the case of men positively, while women face a negative trend.

In regards to how parents specifically allocate time, Daniel Hallberg and Anders Klevmarken (2003) investigate the relationship between market time and children (although with traditional wage earners). Hallberg and Klevmarken note how one parent tends to lower their market time to spend time with children if the other parent is working longer hours; although they do note that a change in the father's working time tends to have a larger effect on time spent with children than the mother's. This trend, along with the trend that parents prefer joint time with children, suggests that within the artistic community, parents' family lives will be somewhat dependent on a spouse's activity, especially in regards to children and female artists, who have traditionally borne the responsibility of child care.

Most of these studies provide instances where an occupation similar to that of an artist changes with familial status, but all reference back to results in Becker's (1985) study on the sexual division of labor. With regard to household and market activities, married people face a choice in the division of labor. A spouse may choose to specialize in either a market activity or some sort of housework at the detriment of the other activity. Becker argues that the chosen activity results in specialized human capital increases and directly influences the allocation of labor in couples. By specializing in doing housework, or child rearing, one spouse effectively allows the other to specialize even further into their chosen field. In the case of the artist, it seems that if they are the parent who elects to provide the primary childcare and housework, they will be unable to specialize further into their artistic endeavors, and therefore see a negative

result with the addition of children, whereas if the other parent fulfills that role, the artist may remain relatively unaffected or succeed with the aid of their spouse (Becker 1985). Indeed if the artist behaves similarly to the traditional family, where the mother focuses on non-market activities, the effect of children would be detrimental to the value of a female artist's work.

Economic Framework:

Art

Using a hedonic approach to valuing art is the primary foundation for this research. The assumption states that the components and inputs in a piece of art determine the final value of the art. This study will focus first on the inherent characteristics of the work of art, and then the characteristics of the artist at the date of completion.

One of the most basic characteristics in hedonic pricing of art may certainly be the size. All else held equal (the quality, artist, subject), one would estimate that the larger the piece of art the greater the price. Certainly, there may be diminishing returns and indeed negative returns if a piece of art becomes unreasonably large, but for art in general, the larger the more expensive.

Another characteristic that may influence a piece of art would be the presence, or lack thereof of, a signature. People line up to have books signed by authors, and assign value at least as high as the opportunity cost of getting a signature, to receiving a signature and perhaps exchanging a few words with the author. The same signature value may be translated to art. However, in the world of art, especially for older pieces, a signature may be the identifying characteristic of a certain agent in artistic monopolistic competition. Therefore, a premium may be observable in art that has a signature or initial, versus an unsigned piece which may be difficult to prove authentic, or simply lack the personal touch some people value.

The medium used to create a piece of art may also play an important role. A grand oil painting most likely commands a greater price than an equally grand charcoal drawing. Indeed both were probably created for different purposes, but buyers still choose to buy the Renaissance Masters' sketches, and if a difference exists in assigned value between the two extremes of oil painting and sketches, it stands to reason that other mediums may be treated differently too. Oil paintings generally take weeks to dry to the touch, and sometimes months to dry completely, whereas acrylic paints and watercolors dry in a much shorter span. The time used to create the piece is somewhat evident in the medium used and the pricing of the piece should adjust to incremental time inputs. Finally, people's preferences probably play a large role in how they assign value. Oil paintings are generally viewed as somewhat classical due to their longer history, whereas pieces done in acrylic paint (a product of the 20th century) may be seen as avant-garde in certain respects and perhaps a potentially profitable investment. The very nature of different mediums suggests that the medium of choice partially determines the value of a piece.

Furthermore, the subject of a piece of art may lend some information on its value. While the literature does not reveal one specific artistic subject to be more valuable, to account for preferences of particular buyers, pieces of art can be classified into several broad categories. Especially with regard to cubism and abstract movements occurring in the 1900s the subjects of art may play an important role. In some cases artists were commissioned to create commercial pieces which, in some minds, may cheapen or discredit the integrity of the piece of art (possibly a characteristic which may be reflected in the price). Although the subject may not obviously influence the price of art, the fact that the 20th century saw such a large amount of changes within

the art industry in both style and subject, a broad categorization of subjects may reveal that they do help determine the price.

Artist

Like size, the prominence of the artist undoubtedly plays a role in the price of art and an indicator is necessary for certain specifications that do not correct for artist's fixed effects. An indirect measure may proxy the relationship and the exact method for measuring prominence is discussed more thoroughly in the Data section.

Several trends may be observed in how the age of an artist at completion may affect a piece of work. A reasonable assumption may state that as an artist ages, they would improve artistically, hone their talent, and as a result their works would become better quality. In that vein of thought, more recent, better quality art will become more valuable to buyers (supporting the idea that an artist creates better work over time). Alternatively, the earliest art may command a premium for several reasons. If an artist created works significantly different from their later pieces early on, thereby creating a scarce market, perhaps art completed at the beginning of their career would command higher prices. Taken even further, perhaps due simply to the greater historical value of an older piece, the age an artist at completion may negatively affect the value of a work of art. Finally, since most of the artists being researched are already dead, the age of the piece may not matter significantly and their work will congregate towards a consistent price and adjust according to their other inherent qualities.

Additionally, relationship or familial characteristics during the production of a piece may contribute to or detract from the price, either through new responsibilities affecting productivity, or perhaps indirectly through a gain in human capital. With regard to marriage, many artists of all types have found inspiration from a paramour, whether one looks at Dante Alighieri and

Beatrice whom he featured in his poems, or Amadeo Modigliani and Jeanne Hébuterne, who influenced and modeled for him throughout their relationship (Grove Art). But in those two examples a problem is revealed: neither of those two men married the person who gave them inspiration. The same problem of identification using marriage also appears in homosexual relationships. Several of the artists included were openly gay and unfortunately this particular situation is difficult to correct for in a regression without in depth biographical research into their relationships. In regard to all unmarried lovers, information on a clear commitment or start of a significant relationship tends to be lacking, and difficult to know with any degree of certainty; indeed much of the available data may be rather subjective and potentially biased. While situations where a person plays a romantic role to the artist and are not unmarried, after collecting the data I am of the opinion that a minority of artists experienced situations mentioned above, and most were married without significant hurdles. While this caveat should not be ignored, marriage may also offer more than love-fueled inspiration in pieces of art. As mentioned in the literature review, living with a spouse may allow an artist to focus more on their craft while the spouse fulfills other responsibilities and duties.

Finally, the presence of children in an artist's life may prove an important input to the prices of art. In the most practical terms, having a child creates another mouth to feed and the expenses a parent faces to raise a child may affect how hard they work. In the case of the artist, this pressure could cause them to work more diligently to create valuable work to address new financial responsibilities. However, usually people love their children and have a strong biological urge to protect them. This new emotion in an artist's life may inspire them to create different or better pieces of art that could very well be reflected in their work. Additionally, portraits of the important people in an artist's life (like a son or a daughter) may become more

valuable as the artist becomes more famous. Either through a pragmatic concern, inspirational drive, or perhaps historical relevance to buyers, having a child may be an important input that affects the value of an artist's work.

Data:

The data used in this analysis are based on the data from Hellmanzik's (2012) study but include biographical data to determine the artists who were married and/or had a child during the completion of a piece of art. The list includes 95 well known artists born between 1853 and 1937 (**Figure 1**). The, dates of the children's births and deaths, the artist's marriages, their sex, and their own dates of birth and death are all recorded. All of the biographical information is gathered from Grove Art Online (http://www.groveart.com) and cross checked with the Getty Foundation (http://www.getty.edu). With this biographical information, each artist and their work are linked on a yearly basis to determine if formative events possibly affected the work produced. From the selection of artists, the value of their works will be based on 1,707 winning auction bids in 2013. Choosing a span of one year is due mostly to practical concerns with collecting such a large dataset, but also to measure more recent preferences in the art world.

Figure 1

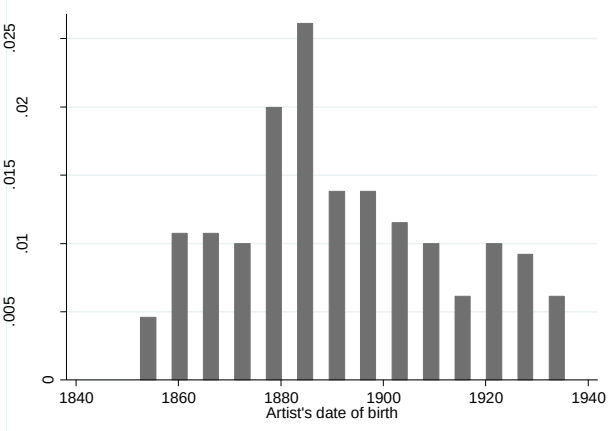
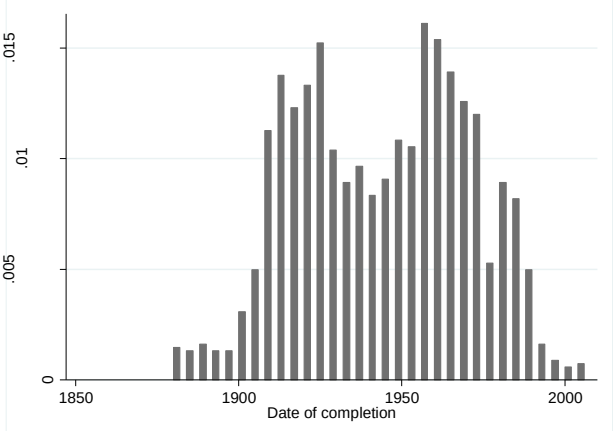


Figure 2



Data collected regarding the pieces of art include: the year the work was completed (**Figure 2**), the size of the piece in square inches, the subject of the piece of art through a broad set of categorical dummy variables (described in **Table 1**), and the presence or lack thereof a signature or initial, also through a set of dummy variables. All of the information concerning each piece of art is gathered from Artvalue.com.

Table 1

Categorical Subject Variables

Subject	Description
Abstract	An abstraction of reality (not abstract style)
City	Architecture, cityscapes, urban environments
Figure	Human form, nudes, studies of the body
Historical	Depiction of an historical, religious, or mythological scene
Still	Still lifes
Landscape	Landscape, natural scenes
Portrait	A person or group of people who are the subject
Realist	Depiction of everyday life (eg working, dancing, cooking)
Illustration	Intrinsically commercial purpose (playbill, poster)

From the separately collected datasets, several variables were generated to account for other possible factors that could influence the value of a work. Using the date a work was completed and the artist's date of birth, age variables can be included in analysis. With regard to the familial variables, each piece of art includes a dummy variable, which if equal to 1 indicates that a piece was completed with at least one child present. A similar dummy variable behaves the same way and marks the piece if it was completed when an artist was married. The marriage variable accounts for multiple marriages in some cases, with the greatest number of different marriages included as five. Additionally, both the child and marriage dummy equal zero if the child or spouse died before the artist.

Finally, an indirect way of measuring artists' prominence was collected through the Oxford Dictionary of Art (1997). Based on O'Hagan and Kelly's (2005) study, a measure of the

columns and inches dedicated to each artist in the dictionary provides an indicator of their prominence. The assumption being that lesser known artists have less space assigned to them in the dictionary, and thus a lower columns-inches value relative to more renowned artists. Indeed Pablo Picasso is assigned the highest value in the dataset, nearly 6 times as large as the average artist, and for econometric models an indicator like this proves significant, like in Hellmanzik's (2012) study. Summary statistics of the art and artists are shown in **Table 2** and **Table 3** respectively.

Table 2

Summary Statistics (Art)					
	Observations	Mean	Std. Dev.	Min.	Max.
Price ($)	1707	802248.100	4976742.000	166	145000000
Size (sq. inches)	1707	654.670	1229.862	1	15301
Date	1707	1943.709	26.226	1879	2007
Type of Signature					
No signature	1707	0.099	0.299	0	1
Initial	1707	0.084	0.277	0	1
Signature	1707	0.817	0.387	0	1
Medium					
Drawing	1707	0.225	0.418	0	1
Watercolor	1707	0.255	0.436	0	1
Acrylic	1707	0.127	0.333	0	1
Oil	1707	0.393	0.488	0	1
Subject					
Abstract	1707	0.428	0.495	0	1
City	1707	0.073	0.260	0	1
Figure	1707	0.068	0.252	0	1
Historical	1707	0.019	0.136	0	1
Illustration	1707	0.005	0.072	0	1
Landscape	1707	0.122	0.328	0	1
Portrait	1707	0.131	0.338	0	1
Realist	1707	0.076	0.265	0	1
Still life	1707	0.077	0.267	0	1

Table 3

Summary Statistics (Artist)

	Observations	Mean	Std. Dev.	Min.	Max.
Age	1707	48.873	16.590	10	91
Column-inches	1707	0.540	0.566	0.22	3
Child	1707	0.318	0.466	0	1
Marriage	1707	0.460	0.499	0	1
Female	1707	0.073	0.261	0	1
Female(child)	1707	0.019	0.136	0	1
Female(marriage)	1707	0.033	0.180	0	1

Empirical Method:

As mentioned earlier, a hedonic regression framework forms the basis of analysis. Using a hedonic method to analyze art auction results tends to rely on observable traits like size or medium as mentioned above, but the inclusion of unobservable traits may inform the price. The hedonic model uses fixed effects of the artist to address potential unobservable qualities, like style or fame, and corrects for most artist-specific variables; however when measuring a specific biographical variable (the presence of a child or marital relationship at the date of execution) a fixed effects model can control for time-invariant characteristics which may influence the value of art as well as whether a marriage, or child's birth, occurs. The current literature supports using a fixed effects model to account for these types of situations, as seen in Galenson and Weinberg (2001) who proxy innovation among artists through their peers' birth year to address price differences of pieces. However, there may be unobservable characteristics which may influence both the familial status of the artist as well as the price of the art. With this caveat in mind, the formal Fixed Effects (by artist) baseline specification by observable artistic qualities is estimated as

$$\ln(price)_{ap} = \alpha_a + \ln(\beta_1 size) + \beta_2 date + [\beta_3 oil_{ap} + \beta_4 acrylic_{ap} + \beta_5 watercolor_{ap}] +$$
$$[\beta_6 signature_{ap} + \beta_7 initial_{ap}] +$$
$$[\beta_8 abstract_{ap} + \beta_9 city_{ap} + \beta_{10} figure_{ap} + \beta_{11} historical_{ap} + \beta_{12} illustration_{ap} +$$
$$\beta_{13} landscape_{ap} + \beta_{14} portrait_{ap} + \beta_{15} realist_{ap} + \beta_{16} still_{ap}] + e_{ap}$$

where a represents the artist and p represents the piece of art. A baseline ordinary least squares regression (OLS) is specified with the same variables, but with gender and column-inches variables included to at least approximate fixed effects not captured in the OLS. Additionally, a Fixed Effects and OLS model explaining the price of art using only artist specific variables is generated as

$$\ln(price)_{ap} = \alpha_a + [\beta_1 age_{ap} + \beta_2 age^2_{ap} + \beta_3 age^3_{ap} + \beta_4 age^4_{ap}] +$$
$$\beta_5 child_{ap} + \beta_6 marriage_{ap} + \beta_7 female(child)_{ap} +$$
$$\beta_8 female(marriage)_{ap} + e_{ap}$$

also with gender and column-inches variable included in the OLS, before both sets of variables are combined to estimate the overall effects.

Both price and size are calculated in logarithmic form which reflects not only the aforementioned theory of how size may impact price, but the previous literature, and finally the pattern in the data itself, as shown in **Figures 3-6** (O'Hagan and Kelly, 2005). Additionally the date of the completed piece is included to account for possible historical premiums or discounts. Next, a set of three dummy variables describing the medium used are included to reflect real or perceived values of certain mediums. Following those are signature and initial type variables to

estimate a possible signing premium. Finally, the specification of the art characteristics model includes subject category dummy variables. In the art case, the piece of art is an unsigned, illustration type drawing (by a male artist in the case of the OLS).

Figure 3

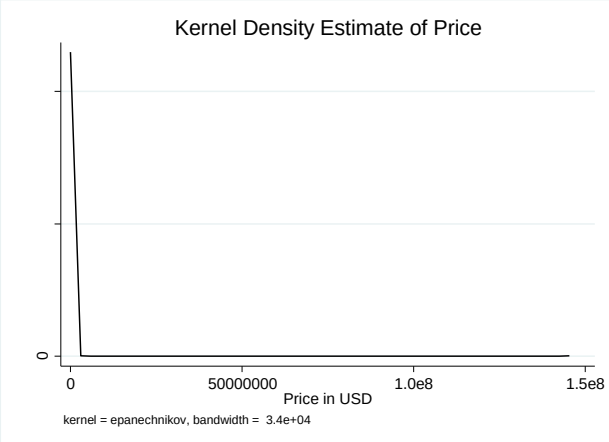


Figure 4

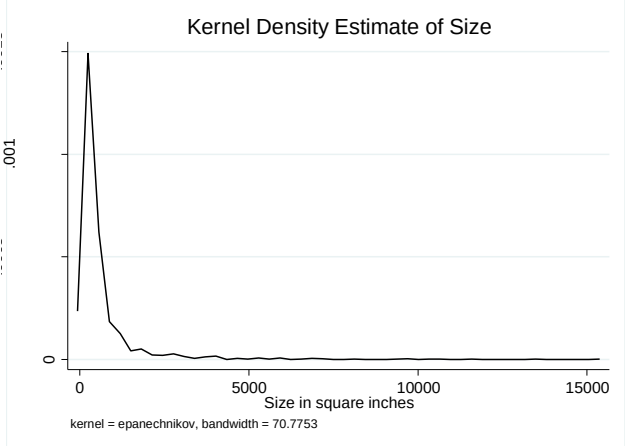


Figure 5

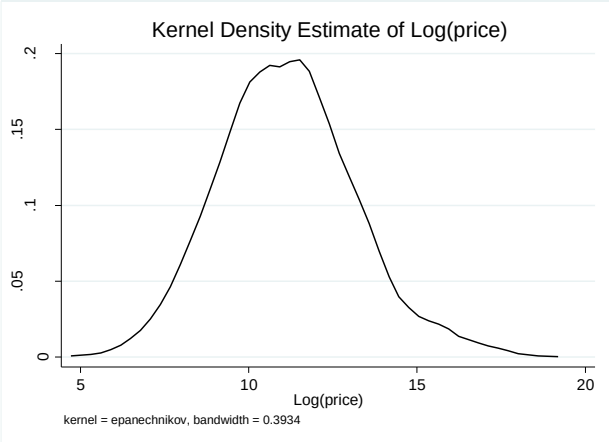
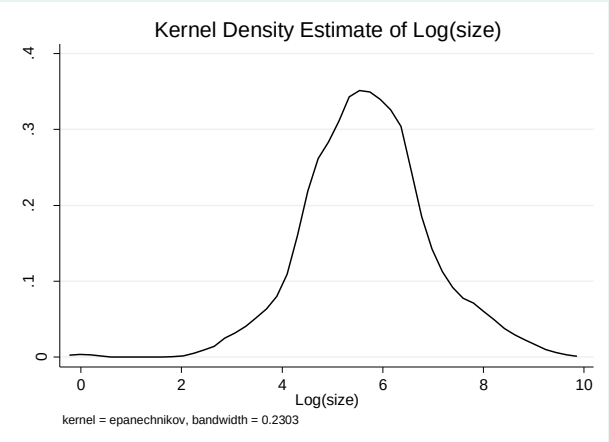


Figure 6



In artist characteristic specifications, age_{ap} is reflected as fourth degree polynomial in line with Hellmanzik's (2009) treatment of international artists, as well as Galenson and Weinberg's (2001) treatment of American and French artists. The child dummy variable indicating if the artist had a living child at the date of execution of a piece of art is included. In a similar manner,

a marriage dummy variable is included, which signals if the artist was married at the date of apieces execution. Also interaction variables concerning female artists who become married or a mother are included to model potentially differing trends in gender.

All regressions are shown in table **Table 4** (p.17) with the Fixed Effects model preceding the OLS model. The first two models concern only art-based characteristics while the next two models focus only on the artist-based characteristics. In the final two regressions, all art and artist-based variables are included in both the OLS and Fixed Effects model, except for the date variable from the art-based model which is replaced by the age variables due to collinearity.

Results:

Of the six different specifications, several notable trends emerge. For most cases, the child and marriage variables registered as insignificant, inconsistent values and with opposite signs in the Fixed Effects model. Even after trying to transform the variables in multiple ways to account for a possible "honeymoon" period or lag times, the results were consistently insignificant. It seems for the sample of artists included (the majority of which were men) the value of their art seems to be unaffected by the presence or lack thereof a child or marriage. However, one part of the regression may indicate a possible relationship.

Including gender in to the OLS regression was mainly to correct for artist fixed effects, and in most cases the female coefficient is reported as insignificant. In terms of theory, the time frame of most of the artists' lives, as well as theory of family care, both suggest that child care may asymmetrical pose a greater burden on the mother of a child, rather than the father. Most artists lived in a time period where women did the majority of child rearing and fulfilled a larger proportion of household duties. And in fact the previous literature supports this. In the final OLS regression, the gender variable became positive and significant at the p-value < 0.05 level

Table 4

Effect of Families						
Log(price)	(1)	(2)	(3)	(4)	(5)	(6)
Log(size)	0.65544***	0.62778***			0.64894***	0.57735***
	(0.03523)	(0.06383)			(0.03392)	(0.06576)
Date	-0.01388***	-0.01820***				
	(0.00411)	(0.00508)				
Oil	1.63895***	1.25146***			1.65210***	1.34952***
	(0.12686)	(0.20894)			(0.12613)	(0.18069)
Acrylic	0.97192***	1.01907***			1.00333***	0.70905***
	(0.18895)	(0.23707)			(0.18505)	(0.26416)
Watercolor	0.82746***	0.62749***			0.84799***	0.70664***
	(0.12566)	(0.21195)			(0.12352)	(0.22202)
Signature	0.17082	-0.23661			0.16351	-0.19670
	(0.12821)	(0.15743)			(0.13220)	(0.14820)
Initial	0.10203	0.12357			0.09094	0.02518
	(0.16004)	(0.26446)			(0.16720)	(0.24820)
Abstract	1.29842***	1.08621**			1.31480***	0.77245*
	(0.39556)	(0.46620)			(0.40069)	(0.46013)
City	0.71013*	0.65109			0.80112*	0.73887*
	(0.40936)	(0.40906)			(0.40658)	(0.39026)
Figure	0.76889*	0.50084			0.77979*	0.55505
	(0.43817)	(0.65352)			(0.43361)	(0.57446)
Historical	1.42626***	0.89404			1.44168***	0.93107
	(0.44445)	(0.64460)			(0.44650)	(0.62106)
Landscape	0.79091*	0.39617			0.85263**	0.48010
	(0.41949)	(0.51071)			(0.41854)	(0.48709)
Portrait	1.06500**	1.19960**			1.08843**	1.27581***
	(0.41829)	(0.52097)			(0.42108)	(0.47833)
Realist	1.18272***	0.83893*			1.23051***	0.96168**
	(0.42323)	(0.49014)			(0.42606)	(0.47346)
Still	0.81776*	0.96547			0.87240**	1.10433*
	(0.42668)	(0.61318)			(0.42419)	(0.59786)
Female		0.40621		0.94602*		0.88720**
		(0.36998)		(0.50411)		(0.38698)

Table 4 (continued)

Column-inches		1.36750***		1.44387***		1.31636***
		(0.18116)		(0.15561)		(0.22264)
Age			0.55567***	0.32609	0.49390***	0.17294
			(0.16358)	(0.24200)	(0.13426)	(0.17761)
Age^2			-0.0151***	-0.0104	-0.0141***	-0.0074
			(0.00454)	(0.00655)	(0.00376)	(0.00467)
Age^3			0.00017***	0.00013*	0.00016***	0.00011**
			(0.00005)	(0.00008)	(0.00004)	(0.00005)
Age^4			-0.0000***	-0.0000*	-0.0000***	-0.0000**
			(0.00000)	(0.00000)	(0.00000)	(0.00000)
Child			0.08364	0.31733	-0.01946	0.46941
			(0.53739)	(0.30161)	(0.32470)	(0.33142)
Marriage			-0.06624	0.00036	-0.05704	0.18495
			(0.16590)	(0.24345)	(0.11974)	(0.26108)
Female(child)			-1.16292	-0.95657	0.09071	-0.69687
			(0.85779)	(0.78171)	(0.49766)	(0.70224)
Female(marriage)			0.39809	-0.24520	-0.10414	-0.58730
			(0.63443)	(0.61337)	(0.30037)	(0.59668)
_cons	32.17774***	40.66772***	4.17427**	6.93026**	-0.36586	4.81781*
	(7.95038)	(9.87778)	(2.06610)	(3.24614)	(1.77536)	(2.49482)
N	1707	1707	1707	1707	1707	1707
Adj. R-sq	0.520	0.442	0.013	0.185	0.531	0.436
Fixed Effects	Yes	No	Yes	No	Yes	No
Clustered OLS	No	Yes	No	Yes	No	Yes

Note: Robust standard errors in parentheses: * p<0.10, ** p<0.05, *** p<0.01. Baseline specification of categorical dummy variables: drawing, unsigned, illustration.

indicating that an unmarried woman without a child received a premium. However, both the female interaction variables which measured if a woman was married or had a child were negative. A joint f-test performed on the gender and interaction variables (female with a child or female with marriage) both reported a p-value < 0.10. However, the test on the female interaction

variables and either the child or marriage variables remained insignificant. When considered in this light, the fact that both the marriage and child coefficients are negative for women may seem reasonable. Indeed this final regression provides the only sort of support for the claim that having a child or being married may affect the price of art done at the same time. Granted that female artists are a small minority within the sample, those that married had children are an even smaller proportion, and the fact that the p-value is not very strong suggests a larger sample is necessary for any compelling evidence to support a relationship.

Additionally, within the first two specifications which follow traditional hedonic pricing in art most closely, nearly every variable included displays the expected sign and values similar to previous models. However in both the Fixed Effects model and the OLS the signature related variables (signature and initial both) report as insignificant. Also, when tested the signature variables were not jointly significant. Since these variables lack persuasive substance, and due to the incongruence between these results and previous studies' results, the sample may be biased with regard to the presence of signature.

Also, age was entered as a fourth degree polynomial and remained significant in all of the Fixed Effects estimations. Conversely, the OLS reported half of the age variables as insignificant. However a joint f-test of all the age variables reveals a p-value < 0.001 in both the Fixed Effects and OLS, suggesting that together the age coefficients do reflect a correlation similar studies have also found. The difference most likely stemming from another artist-specific effect omitted in the OLS.

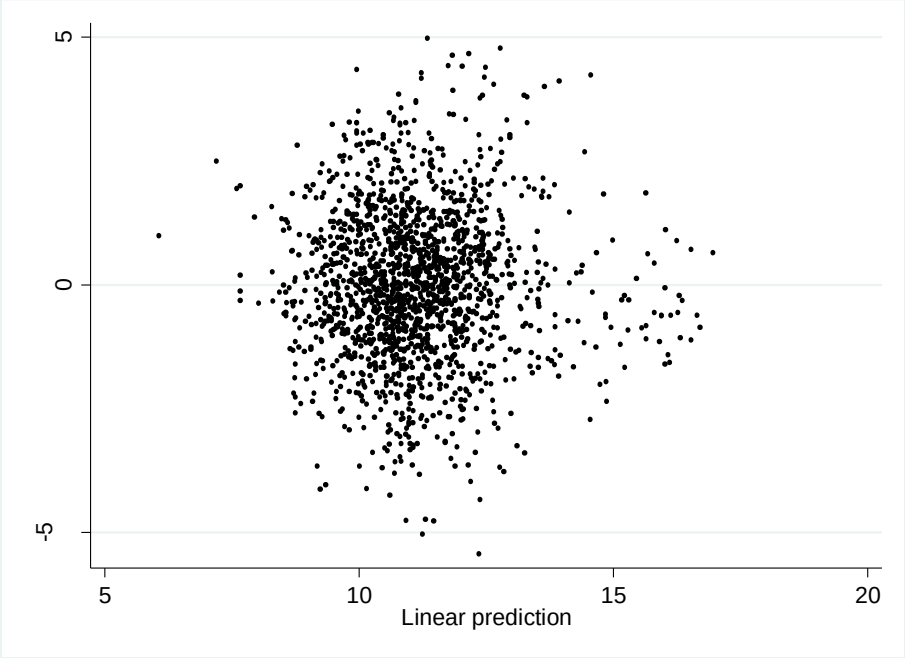
Additionally, the column-inch variable, included only in the OLS, proved highly significant in all specifications, and the properties of the column-inch variable certainly lends support to it as a means of measuring an artist's general prominence and reputation. This implies

that certain artist specific-specific variables may have a direct influence on price. In strengthening the support that artist based variables affect the price of art, further characteristics like familial status, become other viable avenues of investigation.

Finally, one of the last characteristics corrected for in these sets of regressions was the subject of the piece of work. As noted earlier, the pieces were divided by broad characteristics into several categories, and a set of dummy variables were generated. While some minor differences among the value of different subjects were expected, the inclusion of this variable was on the periphery on the study, and perhaps only a way to delineate how types of subjects react to certain variables, however several interesting relationships were found. The OLS shows correlation between the different types of subjects and price (some significant at 0.10 and some insignificant), and after performing a joint f-test within, a p-value < 0.10 was calculated. While the OLS shows some sense of significance related to the subject of a piece of art, the Fixed Effects model reports each subject variable as statistically significant. Taken even further, after applying yet another joint f-test, the combined variables' p-value in the Fixed Effects model calculates a p-value < 0.01. Indeed, although there may be no clear theory on which subjects command the highest price, according to this sample historical and abstract type art command higher prices, while illustrations, and figure type art are worth the least (however figure art can arguably be seen more of an artistic exercise than a serious application; see **Table 1** for more specific definitions of this study's subject categories). While in this sample the subjects registered as significant both in separate cases and taken as a whole, the relatively small size of the sample suggests that expanded research is needed, perhaps with clearer or more specific categorical definitions of subjects.

Ultimately, even though many of the coefficients indicated possible significance and possible correlations related to price, the regressions do not explain the data consistently; the goodness of fit of each specification is, as seen in the adjusted R^2, less than staggering. Although the residuals of the regressions suggest no extreme forms of bias (as seen in the OLS residuals in **Figure 7**), it seems that as previously mentioned William Baumol, art prices "float more or less aimlessly," (Baumol 1985).These methods of measurement may offer other possible approach techniques and variables to include but still lack a way of describing a specific relationship with regard to art prices.

Figure 7



Conclusion:

The original purpose of this paper was to address the question: "Does the presence of a family affect the value of an artist's work?" Using two methods, one that assumes fixed effects

and one that does not, a possible relationship between the price of art and female artists who either had children or was married, is suggested. The relationship found suggests that if a female artist has a marriage, a child, or both, the value of her art decreases. It is important to note that this study focuses on *not* on levels of output responding to either of these new variables, but the monetary value of a work, determined by auctions held in 2013. Previous studies regarding family variables and workers traditionally focus on the quantity of outputs but in this study, the quality of the outputs was the focus (Stack 2004 and Hundley 2000). If this sort of relationship can be extrapolated from artists to other types of workers, the primary caregiver and spouse responsible for most housework would, this study suggests, see a decline in the inherent quality of their market outputs.

Additionally, this study suggests price may, in part, be determined by subject. Measuring pieces of art may by their subject may prove to be an important variable to include in further studies based on the coefficients attributes in the Fixed Effects model. However, these famous and well-known artists who have sold their paintings between $166 and $145,405,000 may not translate perfectly to current artists. Finally, each significant variable mentioned above may prove to be important with further study, however based on the relative smallness of the sample or other possible biases, I hesitate to claim these relationships are anything other than future avenues of investigation.

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