# An Economic Theory of Avant-Garde and Popular Art, or High and Low Culture*


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**Abstract**

Artists face choices between the pecuniary benefits of selling to the market and the non-pecuniary benefits of creating to please their own tastes. We examine how changes in wages, lump sum income, and capital-labor ratios affect the artist's pursuit of self-satisfaction versus market sales. Using our model of labor supply as a guide, we consider the economic forces behind the high/low culture split, why some artistic media offer greater scope for the avant-garde than others, why so many artists dislike the market, and how economic growth and taxation affect the quantity and form of different kinds of art.

JEL Codes Z11, L82, J22

## 1. Introduction

Artists both produce and consume their own work. Artists seek not only profit, but also fame, critical praise, the satisfaction of creating works that speak to them personally and the enjoyment which flows from artistic labor. Most generally, artists produce works of a type which pleases themselves, in addition to pleasing the market. We attempt to develop a general treatment of how producers weigh their own interests against those of the market when money and satisfaction conflict - the dual function of output as both consumption and sale good drives our central questions and most of our results.[1] In Section Two of the paper, we formally model the relevant trade-offs between the pecuniary and non-pecuniary satisfactions of art and investigate how changes in wages, lump sum income, and market size will affect an artist's pursuit of market sales versus self-satisfaction. We also examine how reproducibility (i.e., electronic recording, the printing press) affects the incentive of artists to cater to mass taste rather than to the demands of connoisseurs.

Section Three of the paper argues that under certain conditions artist self-satisfaction may be mapped onto the empirical categories of high versus low art and avant-garde versus popular art. With this mapping we are then able to discuss a number of other issues in the economics of the arts. Most generally, when do artists choose high art and when do they choose low or popular art? Moving to a more specific question, why do some artistic media offer greater scope for avant-garde styles than other media do? Why, for instance, do most prominent painters serve minority tastes, whereas most prominent filmmakers aim at satisfying popular taste? Even relatively avant-garde moviemakers typically aim at a larger audience than most painters do. Our analysis helps to explain how technical aspects of artistic media combine with economic incentives to direct artistic creativity

towards various styles of art.

The analytical apparatus is also used to explain the forces behind the split of high and low culture. We address the stylized fact that the most popular styles have diverged from the most critically acclaimed styles over time (Gans 1974, Postman 1985, Brantlinger 1984, Bloom 1987, Levine 1988). Mozart was critically acclaimed as a great composer in his generation and his music was also popular. Shakespeare's work was not considered avant-garde or inaccessible in his time but it was acknowledged as being of very high quality. Today the gulf between the critics and the masses is much wider. Elliott Carter does not sell millions of CDs, and Michael Jackson does not command Carter's musical respect. With increasing frequency popular art is not critically acclaimed and critically acclaimed art is not popular. We provide an economic account of this stylized fact. Finally, we analyze how taxation affects the supply of art and the content of artistic products.

Our investigation is motivated both by our interest in the theory of choice and by the importance of the arts sector in today's economy. Culture - movies, music, books, theater, television, etc. - accounts for approximately 2.5 percent of American GDP and provides America's strongest export sector. The economic importance of the arts is arguably larger, given the non-pecuniary returns to artists and given that art is partially non-rivalrous and non-excludable. Victor Hugo's *Les Miserables*, Mozart's opera *The Magic Flute*, and da Vinci's Mona Lisa all offer continuing value far in excess of their original market prices, and some current works will follow in their footsteps. The arts also may produce significant positive or negative externalities on the mores and culture of a nation. America's changing social climate, for instance, is often linked to the influence of television, rap music, etc. Similarly, the virtues of classical Greek and Roman civilizations are often attributed partially to their poetry, rhetoric, and drama. These differences between art

and other goods enhance the overall significance of the arts to society above that as traditionally measured.[2]

## 2. Artist Labor Supply and Satisfaction

We model an artist's utility function as an additively separable function of consumption and art production. The assumption of additive separability is introduced to make the model tractable.

$$U_A(c, L, s) = U(c) + V(L, s) \tag{2.1}$$

$U(c)$ is the utility derived from consumption of goods other than art and art production. $V(L, s)$ represents the utility of working $L$ units of time on art of "satisfaction level" $s$; we assume $V(L, s)$ is concave. An art work consists of many different characteristics, a painting, for example, has color, style, form, subject matter and so forth. Each work of art is a bundle of characteristics. Increases in $s$ represent "higher satisfaction" bundles to the artist; $s$ may be thought of as a subjective index of quality and $V_s(L, s)$ as the non-pecuniary returns from a change in the characteristics of an art work. By definition, artists in our model always prefer to create art with higher $s$ values. Only by accident, however, will a consumer share exactly the same tastes as an artist. Each consumer, therefore, has a most preferred $s$.

Artists have rejected market sales in pursuit of the non-pecuniary benefits of high satisfaction art in numerous historical instances. Beethoven wrote his late string quartets to satisfy his creative urges, knowing the works were too complex to satisfy a wide public audience at the time. Donatello and Michelangelo, perhaps the best-known sculptors from the Italian Renaissance, would walk away from commissions if they could not determine the content of the project. James Joyce chose a level

of esoterica for his Finnegans Wake that excluded most of the world's readers, even intellectually inclined ones. Today, movie stars will sometimes accept a lower cut of the box office if they can work on projects of their own choosing. In a sample of over one thousand U.S. painters, 70 percent reported rejecting on more than one occasion high paying but artistically unfulfilling commissions (Jeffri, 1991).

Mathematically, we assume $U_c, V_L, V_s > 0$, $U_{cc}, V_{ss} < 0$ and $V_{Ls} > 0$.[3] The last assumption says that the marginal utility of labor in art is increasing as the artist works on more preferred or higher satisfaction art. A positive $V_{Ls}$ is a stronger assumption than we need for our results. Normality of $L$ and $s$ is enough to support our results. A positive $V_{Ls}$ is sufficient for both $L$ and $s$ to be normal.[4]

The artist wishes to maximize $U_A$ subject to the budget constraint:

$$c = w_1(s)L + w_2(1 - L) + y \tag{2.2}$$

Consumption is limited to the sum of income from the art sector, $w_1(s)L$ , income from the non-art sector (which we will call the "manufacturing" sector), $w_2(1 - L)$, and lump-sum or non-wage income $y$. Our budget constraint draws attention to two factors often neglected in economic treatments of the arts. First, artists may support themselves by receiving external grants or outside lump sum support. Family funds, bequests, and other lump sum grants have been important encouragements to the careers of many artists. Nineteenth century French cultural activity, for instance, relied heavily upon family funds and bequests. French painters who lived from family wealth include Delacroix, Corot, Courbet, Seurat, Degas, Manet, Cezanne, Toulouse-Lautrec, and Moreau; the list of writers includes Baudelaire, Verlaine, Flaubert, and Proust.[5]

Second, the budget constraint represents the ability of artists to earn income in the manufacturing sector of the economy. Part- or full-time participation in non-artistic work is not restricted to the budding amateur, or to the New York waiter trying to land a part in a Broadway production. Wassall and Alper (1992) found in their survey of contemporary New England artists that 76 percent held part-time jobs. Surveys by Statistics Canada indicate that 60 to 80 percent of the Canadians working in the performing arts also have jobs in other sectors (Watson, 1988).[6]

We also treat $y$ as representative of wealth in a very broad sense. As the economy grows, the labor time required to purchase goods falls and thus real wages in both sectors of the economy rise - in this model this is equivalent to an increase in lump-sum income. Thus, economic growth will increase $y$ and induce changes in labor supply and occupational choice. The model is written for one artist, but we will also be interpreting it as the "reduced form" of a model with many heterogeneous agents (for example, agents may have different preferences for working in the art sector or different artistic abilities). Thus, we will sometimes speak of an increase in $L$ as an increase in the supply of labor to the arts. In this paper, we analyze the causes and consequences of long run changes in occupational choice and art quality. We thus ignore the role of the artist as price-setter and instead focus on the trade-off between pecuniary and non-pecuniary returns in a given market setting.[7]

To examine the trade-off between the pecuniary and non-pecuniary benefits of art, we make wages in the art sector a function of $s$, $w_1(s)$, and wages in the manufacturing sector fixed and exogenous, $w_2$. (Later we delve more deeply into the foundations of the $w_1(s)$ curve, and the factors causing the curve to shift). Utility maximization yields the following first order conditions with respect to $L$ and $s$ respectively:[8]

$$-Lw_sU_c = V_s \tag{2.3}$$

$$(w_2 - w_1(s))\,U_c = V_L \tag{2.4}$$

Equation 2.3 states that the artist increases $s$ until the loss in utility from the income decline is just balanced by the increase in utility from working on more preferred art. If higher satisfaction art (high $s$) pays a higher wage then the artist will certainly produce the higher satisfaction art. Since the non-pecuniary returns to higher satisfaction art are positive, it follows that at the margin artists must pay a price for successive increments of fulfilling their artistic visions, i.e. that $w_s < 0$. Note that we do not assume that $w_1(s)$ is decreasing over its entire range (indeed we make no assumptions on $w_1(s)$). Over a certain range the public may be quite willing to pay more for what the artists agree is more prefered of art, ie. $w_1(s)$ may be increasing. What we assume is that unlike consumers, an artist's utility is unbounded in $s$ because artists wish to push the artistic boundary and go beyond what is commonly accepted. Figure 2.1 shows a particular $w_1(s)$ curve. Equation 2.3 implies that artists will choose an $s^* > s^{P\max}$.

The trade-off between pecuniary and non-pecuniary benefits may help to explain the notorious antipathy of many artists towards the market. The market "disciplines" the artist and forces him to pay a price for producing the art he most desires. Artists typically feel that market incentives lower the quality of art. This perception is correct, at least if we define the quality of art in terms of the artist's own subjective index. Artists who maximize utility will not maximize profits - they will move beyond the point along the $s$ dimension where profits and artistic vision are in harmony and move to a point where these two goods clash. An increase in $s$, therefore, can be understood as

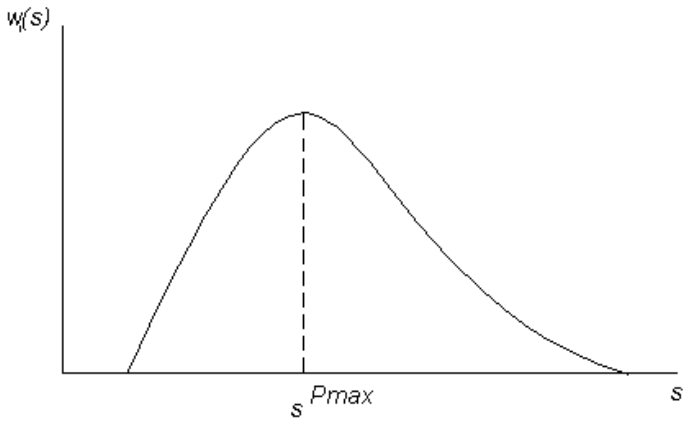


Figure 2.1: Artist's will choose a level of quality beyond $s^{P\max}$.

a shift away from production for market sales towards production in pursuit of artistic satisfaction. We show below the various factors which will cause an artist to become less market oriented.

Equation 2.4 says that the (marginal) opportunity cost of working in the arts is set equal to the marginal non-pecuniary benefit of working in the arts. Equation 2.4 represents the compensating difference intuition familiar since Adam Smith's discussion in *The Wealth of Nations*. Since we have assumed $V_L > 0$, wages must be greater in the manufacturing sector if individuals are to work in manufacturing.[9]

Functional separability of the utility function implies the artist's problem can be broken down into two steps. First, choose an optimal division of resources between consumption and all art-related goods. Second, maximize the subutility function, $V(L, s)$, holding consumption constant at the optimal level. Separability allows us to look at the problem graphically.

Holding consumption constant the slope of the "budget constraint" is given by:

$$\begin{aligned} \frac{dL}{ds} &= \frac{w_s(s)L(s)}{w_2 - w_1(s)} \\ \text{where } L(s) &= (c - y - w_2)/(w_2 - w_1) \end{aligned} \tag{2.5}$$

Note that the FOC can now be reinterpreted as $\frac{dL}{ds} = -\frac{V_s}{V_L}$. In Figure 2.2, the line $zz$ indicates all the combinations of $L$ and $s$ such that consumption is held constant at some level $\overline{c}$. Equilibrium occurs at point $a$ where the slope of the budget constraint is equal to the slope of the indifference curve. Figure 2.2 indicates that the budget constraint is not necessarily linear and can in fact take on all manner of shape.

If we write a regular budget constraint in standard form ($PX = I$) and differentiate with respect to goods we get back prices; the same is true here except that all prices are "local" rather than constant. The artist's price of satisfaction is $-w_s L$ and the price of laboring in the art sector is $w_2 - w_1(s)$. Note that the price of satisfaction is a function of $L$ and the price of laboring in the art sector is a function of $s$. This explains why the budget constraint is non-linear. Intuitively, the more the artist works in the art sector the more income he loses from a shift to higher satisfaction, but less saleable, art. An amateur artist who receives most of his income from labor in the manufacturing sector can afford to produce his own brand of art at little loss in income. A professional artist pays a high price for deviating from market taste. Similarly, the more avant-garde the artist, the higher the price for being a professional.[10]

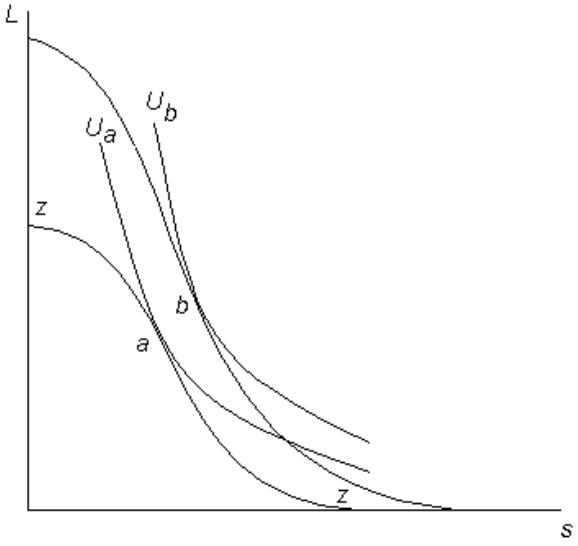


Figure 2.2: The budget constraint for the artist is non-linear. The figure shows the comparative statics of an increase in lump sum income.

### 2.1. Comparative Statics

Propositions 2.1 and 2.2 and 2.3 summarize the comparative statics of a change in lump sum income.

**Proposition 2.1.**

*An increase in lump sum income increases the supply of labor to the arts or artist satisfaction or both the supply of labor and artistic satisfaction.*

**Proof.** An increase in lump sum income reduces the marginal utility of consumption while holding the marginal utility of labor in art and art satisfaction constant. Optimal behavior by the artist implies that $L$ must increase, $s$ must increase or both must increase to restore equilibrium.

**Proposition 2.2.**

*Labor in the arts will increase with an increase in lump sum income provided the budget constraint is not "excessively" convex.*

**Proof.** See Appendix.

**Proposition 2.3.**

*An artist's choice of s will increase with an increase in lump sum income provided $w_s$ is not "excessively" negative.*

**Proof.** See Appendix.

Propositions 2.2 and 2.3 imply several interesting predictions. First, there should be a positive correlation between family wealth and choice of the arts as a profession. Indeed, in his study of the Dutch artistic guilds of the seventeenth century, Grampp (1989, 89) notes that young males from rich families tended to apprentice as painters, whereas young males from poorer families tended to apprentice in the more utilitarian field of earthenware design and decoration. More generally, there should be a positive correlation between family wealth and the non-pecuniary returns to childrens' chosen profession.[11]

Second, artistic labor supply and choice of $s$ should be sensitive to government support and spousal income. The low incomes of artists are often used as an argument in favor of increasing government support for the arts (Watson 1988, Throsby 1994b). Propositions 2.2 and 2.3 indicate that total earnings may be insensitive to government support.[12] As government or spousal support increases an artist will tend to work *more* hours in the art market (fewer hours in the manufacturing sector) and he will tend to produce art more in concert with his own tastes and less in concert with the tastes of the market. Since art wages are lower than wages in the manufacturing sector and

pursuit of aesthetic satisfaction reduces market sales, the artist's earnings fall as spousal earnings and government support rise.

The dependence of artistic satisfaction on government support introduces a possible bias into decision making. As government support increases, artists turn away from market sales and art wages fall. Thus, as government support increases, the market appears to become more philistine and the argument for government funding appears stronger.[13]

Propositions 2.2 and 2.3 can be understood by considering the "price" effects of an increase in income.[14] As $y$ increases, there is a tendency to purchase more $s$ which increases the price of laboring in the art sector, $w_2 - w_1(s)$, and which may increase or decrease the price of quality depending on $w_{ss} \gtrless 0$. Proposition 2.2 says that an increase in lump sum income will increase the supply of labor to the arts unless the relative price of satisfaction falls so rapidly that it pays the artist to consume so much more satisfaction that he can no longer afford to labor in the art sector at previous levels.[15] The scenario is made more likely if the price of satisfaction is falling in $s$, i.e. if $w_{ss} > 0$. Working in opposition to this effect are the declining marginal utility of art satisfaction, $V_{ss} < 0$, and the complementarity of art satisfaction and art labor, $V_{Ls} > 0$. Proposition 2.3 says that an increase in $y$ will increase $s$ so long as the artist's wage does not drop drastically with an increase in $s$. The complementarity of $L$ and $s$, $V_{Ls} > 0$, works towards increasing $s$.

Figure 2.2 illustrates the price effects of an increase in lump sum income and the typical comparative statics of $L$ and $s$. Note that an increase in $y$ makes the budget constraint become steeper at the same time as it shifts the curve outwards. The intuition is that at a higher level of $L$ the price of $s$ increases and vice versa.

Propositions 2.2 and 2.3 reflect the intuition that an increase in non-wage income or societal wealth will increase the propensity to choose pleasant but low paying jobs (Weiss, 1976). In more

general terms, an increase in income causes agents to increase their consumption of normal goods. In this case, as non-wage income rises artists purchase more of the consumption goods "aesthetically satisfying art" and "labor in the art sector." The price paid for such consumption is a decline in wage income.

Given that the income effects are positive we can sign some of the other comparative static relations.

**Proposition 2.4.**

*An increase in $w_1$ increases $L$, the supply of labor to the arts.*

**Proof.** See Appendix

As with linear budget constraints, the comparative statics of price changes can be broken down into an income effect and a substitution effect (Edlefsen 1981, Blomquist 1989, this appendix). The substitution effect of an increase in $w_1$ is positive (the price of $L$ falls) as is the income effect.

**Proposition 2.5.**

*An increase in $w_1$ will increase $s$ provided $w_s$ is not "excessively" negative.*

**Proof.** See Appendix.

The income effect of an increase in $w_1$ is positive. The substitution effect may be positive or negative depending on the balance of two opposing forces. From proposition 2.4 we know that an increase in $w_1$ will increases $L$ but this increases the price of $s$ causing an incentive to substitute away from $s$. If the market price of quality, $-w_s$, is not too high, however, the complementarity of $L$ and $s$ will overwhelm this effect and the substitution and income effects will both be positive.

The comparative statics for $w_2$ can all be derived from those of $w_1$ since $w_2$ and $w_1$ enter the budget constraint symmetrically. The income effect of a change in $w_2$ is the same as that for $w_1$ and the substitution effect is identical but of opposite sign (see appendix).[16]

**Proposition 2.6.**

*Under the conditions stated in propositions 2.2, 2.4 and 2.5 a decrease in the price the artist pays for aesthetic satisfaction, $-w_s$, will increase labor supply to the arts but cause artists to pay less attention to market sales.*

**Proof.** See Appendix

A decrease in the price the artist must pay for following his artistic vision results in a greater purchase of aesthetic pleasure and, because art satisfaction and labor supply to the arts are complementary, a greater quantity of art.

### 2.2. Reproducibility and Mass Market Temptations

Some kinds of art, such as film, literature, and certain musical performances (not all) can be reproduced at low cost and without great loss of value. Few people would pay more to view the "original" print of the movie Star Wars rather than a "copy". Other kinds of art, such as theatre or painting, are costly to reproduce or cannot easily be reproduced without considerable loss of value. A copy of a Monet painting sells for much less than a Monet original.

Reproducibility is closely tied to market size. Art works which can be reproduced at low cost have large potential audiences. A film has a potential audience in the millions. The potential audience for a theatre troupe or a painter is much smaller. When an art work is reproducible it may be easier to increase profit by increasing the number of consumers willing to pay for the art

work rather than by searching out those consumers most willing to pay. Appealing to large numbers of consumers usually requires an appeal to mass tastes. Artists of reproducible art works, therefore, face considerable temptations to suppress their own tastes and shift their products towards that type of art which appeals to the greatest numbers of consumers.[17] A painter who suppresses his own tastes is unlikely to greatly increase his audience. But a film maker might double or triple the box office take if he were to substitute a happy ending for what he perceives to be a more telling but dismal ending.[18]

When reproducibility is impossible or very costly, artists attempt to find the individual consumers willing to pay the greatest possible price. Almost surely such consumers do not have mass tastes. Assume, for instance, that an artist can finish only 100 major paintings in a lifetime. Pecuniary incentives will push the artist towards the 100 buyers who will pay the most for his or her paintings. The one hundred keenest buyers of an artist's work presumably share some of that artist's aesthetic vision; at least they will tend to share the artist's aesthetic vision more than the masses will. Art forms which are difficult to reproduce, increase the incentive of artists to produce works suited to their own taste. Both pecuniary and non-pecuniary incentives support this effect.[19]

The markets for reproducibile art forms may also show greater concentration, as suggested by Rosen (1981). Reproducibility enhances the effects of small quality differentials and can create a superstar market, at least if consumers agree who the best performer is. The most succesful artists earn more, in relative terms, than the less succesful artists. In Rosen's model, the only impact of market structure is on the earnings of artists, the charactertistics of art output are fixed. In our model, the potentially large earnings in the superstar market can tempt artists to shift away from producing for self consumption towards producing for market sales.

### 2.2.1. Comparative Statics of an increase in market size

An increase in market size enhances the effects described above. We analyze the case of reproducibility first. Assume that there are $n$ identical consumers with willingness to pay for art work of type $s$ given by $\omega(s)$. If the art work is reproducible then in this simple model $w_1(s) = n * \omega(s)$ and $w_s = n\omega'(s)$. An increase in $n$, therefore, increases the return to art, $w_1(s)$, and at the same time it increases the price of pursuing the artist's own tastes $-w_s$ since $-w_{sn} = -\omega'(s) > 0$ (at the margin). In a small market an artist gives up income of $dw_{Small}$ (see figure 2.3) by producing art of subjective quality $s'$ rather than the profit maximizing level of $s^{P\max}$. In a large market the same level of satisfaction comes at the price of $dw_{Large}$.[20] The increase in the price of satisfaction tends to reduce $s$, while the increase in income from a higher wage tends to increase $s$.

Despite these two contrary effects, some remarks about the net effect are possible. Since $\frac{\partial w_1}{\partial n} = \omega(s)$ the largest increase in wage occurs for those artists previously near the profit maximizing level of $s$, $s^{P\max}$. Furthermore, at $s^{P\max}$ the change in the price of quality is zero. Artists previously near the profit maximizing quality, therefore, will tend to take some of their wage increase in the form of higher aesthetic satisfaction. Artists further away from $s^{P\max}$ will (at least locally) face a smaller increase in wage and a larger increase in the price of pursuing their own tastes.[21] For artists near $s'$, for example, the higher price of satisfaction effect is likely to dominate the higher net wage effect - such artists will reduce $s$. A uniform increase in the size of market will therefore tend to homogenize the choices of artists. Artist's previously focused on market sales will take some of their higher wages in the form of aesthetic satisfaction while artist's who previously focused only on satisfying their own tastes will be induced to conform more closley to market demands. A larger market will also increase the supply of labor to the arts.

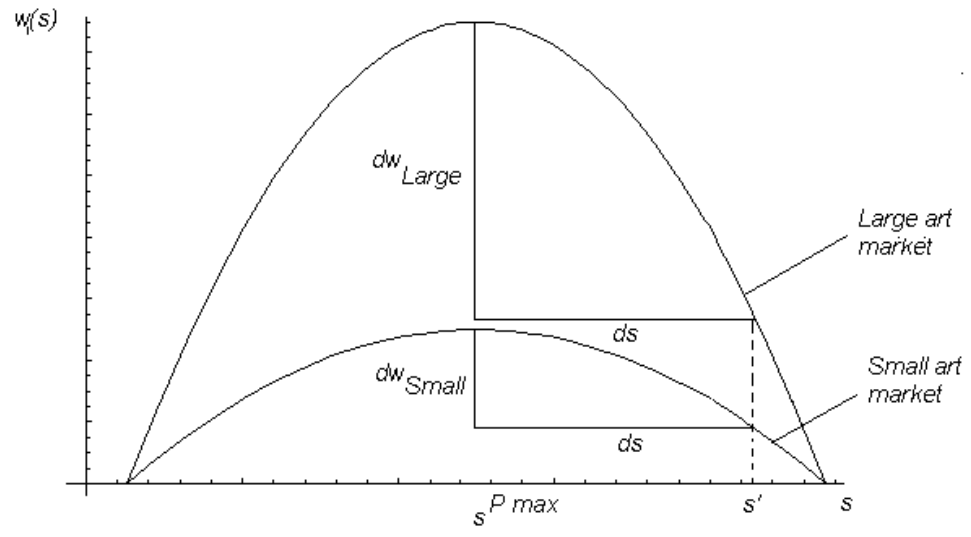


Figure 2.3: When an art form is reproducible an increase in the size of market increases the price of 'quality,' $\frac{dw}{ds}$.

An increase in the size of the market creates a dilemma for newly discovered artists. Prior to 'discovery' the Missippissi blues guitarist or the South African vocalist, for example, serves only his or her local-home market. If the local market is small, the incentives to choose a high $s$ are large. The local market might even mean the artist himself, in which case the artist loses nothing by catering solely to his own tastes. When the artist finds an opportunity to sell in the "world" market there are significant incentives to suppress the artist's own tastes in order to reach a mass audience.[22]

The temptation to cater to the tastes of the larger market may account for the common perception that some genres are best in their early years, before the artists have "sold out" in search of monetary income. We find such claims being made about Delta blues, small combo jazz, and punk music, for example.[23]

Unlike in the market for reproducible art, an increase in the size of the market for a non-reproducible art work will tend to reinforce the incentive to produce for self consumption. For a non-reproducible art work the artist seeks out those consumers most willing to pay for a given quality of art. Let there be $n$ consumers each with demand for art of quality $s$ given by $\omega_i(s)$. The function $w_1(s)$ is then equal to $\underset{i}{Max}\ [\omega_i(s')]\ for$ all $s' \in [0, \infty]$. An example is given in figure 2.4 where the lower solid curve, $w_1(s)$, is derived from the individual $\omega_i(s)$ curves.

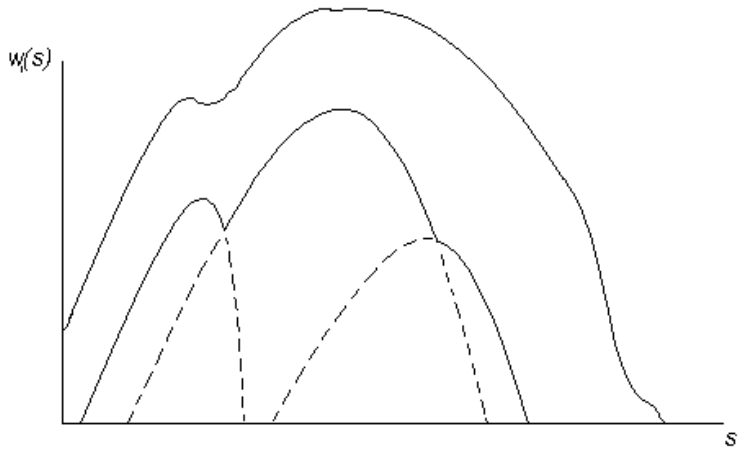


Figure 2.4: The lower solid curve shows the formation of the $w_1(s)$ curve for a non-reproducible art work. The upper curve shows the effect of an increase in market size.

As the market size increases the $w_1(s)$ curve will tend to shift upwards more or less uniformly as in Figure 2.4. That is, with a greater market to draw from the artist is more likely to find a consumer whose willingness to pay for any $s$ is higher and whose tastes are closer to his own. As a result, following propositions 2.4, 2.5 and 2.6, the artist will tend to increase the supply of labor to the arts and the subjective quality of art.

The mass market and the cognoscenti thus compete for the labors of the artist.[24] The cognoscenti can compete against the mass-market by bidding up the per-unit price of non-reproducible art

works. But even a billionaire probably will not out-bid the millions of Madonna fans for the product of her labors. Thus, the Delta blues musician discovered by the teenage-music market is likely to adjust his style more than the newly discovered sculptor. It is not surprising, therefore, that many musicians are said to have "sold out" but few sculptors or painters have been branded by this charge. Andy Warhol, one painter who has been accused of "selling out," in fact specialized in silkscreen painting, a form whose easy reproducibility he exploited to produce large numbers of multiples or near-multiples.

Access to the broader market does not in all cases cause artists to shift away from serving their own tastes, even if the art is reproducible. Discovery raises the absolute return to producing art, and provides a positive income effect, both of which will encourage the demand for non-pecuniary benefits. Market access, for example, has greatly benefited the Inuit carvers and painters of Alaska and northern Canada; Inuit artwork blossomed in response to outside market demand.[25] Artistic production expanded in these cases for two reasons. First, the mobility of goods allows Inuits to fund their art by selling sculpture to richer consumers in North America and Europe; Inuits reap many of the benefits of an advanced art market, even though the Inuit market itself is small. Second, the relative immobility of Inuit labor strengthens creativity further by keeping most Inuits in their native territories where their relative returns to sculpture are high. Those alternative opportunities which do exist, such as working for oil companies, are found highly distasteful by many Inuit. The combination of a strong outside market for art and a dearth of alternative internal economic opportunities has created artistic havens among the Inuit, the carpet weavers of Persia, and African and Caribbean musicians. The same also may be said for inner-city American blacks who created rap music, break-dancing, hip-hop style and a host of other innovative artistic forms.

## 3. Aesthetic Satisfaction and High and Avant-Garde Art

An artist's demand for $s$ is difficult to observe. We offer several behavioral postulates, however, that allow us to link $s$ to real categories of artistic achievement.

Under the first hypothesis, artists seek fame as the primary non-pecuniary component of art. That is, artists wish to go down in history as notable creators. Postulating such motivations is not new in economics. Adam Smith (1981 [1759], p.57) saw the search for approval as "the end of half the labours of human life." David Hume (1966 [1777], p.114) wrote of the "love of fame; which rules, with such uncontrolled authority, in all generous minds, and is often the grand object of all their designs and undertakings."

Artists therefore pursue artistic styles that are favored by the most prestigious critics, or in other words, they pursue high art. Low art, in contrast, receives little or no critical acclaim, by definition. The works of Beethoven, Shakespeare, and Leonardo all qualify as high art under this definition. High art can be popular art, as some artists are popular in their lifetimes and expect their fame to last the ages (e.g., William Faulkner or Picasso). Nonetheless, artists generally will face a trade-off at the margin between pursuing fame and money, as exemplified by equation 2.3. For this reason, they also face trade-offs between pursuing high and low art.

A second empirical hypothesis, with equivalent behavioral implications, suggests that artists and critics share similar tastes in art. Even if artists do not seek fame, their notion of artistic satisfaction corresponds to critical approval. Artists and critics tend to invest far greater amounts of time in studying particular genres than does the general public and thus to some degree they develop a common perspective. Musicians, for example, are more likely than the general public to share the critics' high opinion of Beethoven's string quartets. In other words, differences in

human capital account for some differences in tastes between artists and critics on the one hand and the general public on the other (Stigler and Becker, 1977). When critical tastes depart very widely from popular tastes art becomes avant-garde. Art is typically considered avant-garde if the style is offbeat and the product appeals to a select few. John Cage's compositions or James Joyce's *Finnegans Wake* provide paradigmatic examples of avant-garde art. We can hypothesize that artists prefer these styles for their artistic complexity and novelty, the same factors that make them inaccessible to the public and popular with high-brow critics. Alternatively, artists may seek approbation from their immediate peers alone, which again would link $s$ to avant-garde styles and the tastes of select minorities.

Most likely, some combination of all three hypotheses operate. Artists face trade-offs between market sales and non-pecuniary satisfactions which correlate with the pursuit of high art and the pursuit of avant-garde style, depending on the particular artist involved. Our empirical propositions, combined with the formal model, allow us to analyze the effect of market changes on more than one quality dimension so long as artists perceive a tradeoff between market sales and that dimension of quality.

### 3.1. Observed Trade-Offs

Why do movies tend to be part of popular or low culture while paintings tend more towards high culture and the avant-garde? Our explanation focuses on the different goals of artists and capitalists. Artists often sacrifice pecuniary rewards to achieve the considerable non-pecuniary benefits available in the art sector. As discussed above, these benefits may include fame, creative satisfaction, and critical praise. Capitalists and secondary laborers, however, do not usually reap comparable non-pecuniary benefits. Marilyn Monroe has achieved immortal fame, but the shareholders of

Paramount have not. Shareholders therefore will more likely pursue outright profit maximization, with little or no regard for non-pecuniary benefits. The producer of a recent movie interviewed by Roger Ebert had this to say about a director who refused to change certain scenes:

> "...you have to respect him for sticking by his guns. But, hey, I have no problem with artistic integrity. I'll just walk right around it. I have people to answer to. Studios who give you all that money to work with."[26]

Artists who seek non-pecuniary rewards will be willing to accept lower wages to have the product made to their tastes. As the share of capital costs in the final product becomes high, however, lower artistic wages have a smaller effect on final rates of profit. When creative labor accounts for 50 percent of total cost, willingness to take a pay cut may influence the nature of the final product; artists and shareholders have room to trade. When creative labor accounts for only one percent of total cost, however, an offer to lower artistic wages to zero will probably not induce the shareholders to move in less popular directions. Thus, artistic products tend to fit into money-making popular culture genres when shareholders have a strong influence on the final product, and tend more towards the avant-garde when shareholders are absent or have little influence.

To emphasize the key variables we abstract, in this section, from labor supply and let $L = 1$. Allowing $L$ to vary will not introduce any effects not already discussed. To create art, the artist must combine his labor with capital goods and perhaps also with the labor of others. We denote these costs by $k_t$ where the subscript indicates the type of art. We refer to $k_t$ as capital costs even though these costs also include the cost of hiring secondary labor. We define secondary laborers as those, who like capitalists, obtain smaller or zero non-pecuniary benefits from artistic production.

The artist's utility function and budget constraint are written:

$$
\begin{aligned}
U_A(c,s) &= U[c] + V[s] \\
c &= w_1(s) + y - k_t
\end{aligned}
$$

**Proposition 3.1.**

*The artist's pursuit of non-pecuniary satisfactions declines with an increase in capital costs.*

Proof:

$$\frac{\partial s}{\partial k_t} = \frac{w_s U_{cc}}{|H|} < 0$$

The numerator of the comparative static is positive, the Hessian, in this case just a second derivative, is negative.[27]

Although artists care about non-pecuniary factors many "art capitalists," especially profit-maximizing corporations, do not. Payments to capital therefore constrain the artist's choice of $s$. Film is a more capital intensive medium than theatre and theatre is a more capital intensive medium than painting. Proposition 3.1 helps explains why film is typically popular culture, theatre is "mid"-culture and painting is high culture. Proposition 3.1 can also be applied within media. Films with expensive special effects, for example, will tend to be of popular or low culture so that capital costs can be recouped.

Our results on reproducibility and on capital costs indicate that film is a doubly popular medium and painting doubly avant-garde or high art. High capital costs constrain film makers to suppress their own tastes and aim for the mass market at the same time as easy reproducibility increases their incentives to do so. Painters are neither constrained by high capital costs nor can they greatly

increase the size of their market by appealing to mass tastes. Other arts tend to fall in between the spectrum bounded by film and painting.

### 3.2. Economic Growth, and High and Avant-Garde Art

The comparative statics propositions presented in section two help explain why both high and avant-garde art have flourished to such a considerable degree in wealthy capitalist countries. As income rises the quantity and quality of art are increased by factors on the demand *and* supply side. On the demand side, increased income causes the return to art, $w_1(s)$, to rise and, following propositions 2.4 and 2.5, this increases the quantity of art and the artist's pursuit of self-satisfaction. On the supply side propositions 2.1, 2.2 and 2.3 indicate that, *holding demand constant*, economic growth will cause artists to become more willing to sacrifice income for non-pecuniary benefits, (i.e. $s$ increases) as well as more willing to devote time to the art market. In 1875 it required 1800 hours of labor to earn enough income to feed oneself, today it requires just 260 hours (Fogel, 1999). This effective increase in income is used to purchase "leisure time," time to do what we like rather than what we must. One application of this general result is that as the wealth of society increases the number of market sales required to support an artist decreases. Thus, the wealthier the society the more liberated the artist.

High art in particular has flourished in relatively prosperous societies. The high art of the Renaissance came from Florence and the Italian city-states, the richest part of the Western world in their day. Periclean Athens was a relatively wealthy trading city. Shakespeare, Mozart, Beethoven, and the French Impressionists all relied upon growing propserity to sustain their activities. The great cultural eras of the Eastern powers, China and Japan, also correspond roughly to the relative economic supremacy of these territories. Conversely, low-wage countries, such as twentieth century

India and China, usually do not become high culture leaders. Artists in these countries tend to produce for the market rather than for their own tastes hence art from low-wage countries is typically "folk art," i.e. art which is locally popular. Avant-garde art, a product of recent times, tends to flourish only in extremely wealthy societies. Avant-garde artists such as John Cage or Nam June Paik can earn a living in wealthy capitalist societies; we cannot imagine such artists having managed to support themselves in Colonial America, for instance.[28]

### 3.3. The Divergence Between High and Low Culture over Time

Cultural commentators (e.g., Gans 1974, Brantlinger 1984, Postman 1985, Bloom 1987, Levine 1988) frequently point out that the modern world is marked by an increasing split between high and low culture. In the eighteenth and nineteenth centuries, for instance, the most renowned composers also enjoyed high degrees of popularity. Mozart, Haydn, and Beethoven were very successful with public audiences, both in the concert arena and with their sheet music. Today we have many renowned composers - Carter, Boulez, Babbitt, and many others - who receive high critical plaudits but have virtually no public audience. At the same time many popular artists - George Michael, Michael Bolton, Paula Abdul - sell millions of recordings but may not pass into the history books or receive critical praise. We observe similar phenomena in painting and literature. The most renowned painters of the Italian Renaissance created styles that appealed to a broad public, whereas the most renowned painters today have moved in a less popular direction. Similarly, John Grisham sells more copies than Gabriel Garcia Marquez or Claude Simon does. In earlier times, renowned writers, such as Dickens, Balzac, or Hugo were the bestselling authors of their day but this phenomena appears to become progressively rarer. An examination of modern best-seller lists also illustrates this tendency. In the 1920s, four of the Pulitzer Prize winners for

fiction were among the top ten best selling fiction books in a particular year (the Pulitzer Prize started in 1918). In the 1930s, five Prize winners were best sellers, in the 1940s two were, in the 1950s four were, in the 1960s five were. Since 1968, however, only one Pulitzer Prize winner also has been a best seller (Saul Bellow's *Humboldt's Gift*, prize winner in 1976).[29]

The divergence between high and low culture over time follows from several factors. Propositions 2.3 and 2.5 show that as an artist's income increases, whether from general economic growth or an increase in the demand for art, the artist becomes more willing to sacrifice income in return for the non-pecuniary benefits of higher satisfaction art. Economic growth also tends to lower capital costs and so, following proposition 3.1, the preferences of artists come to play a larger and larger role in genres once considered purely popular. For the artist, economic growth brings liberation from the market. The consumer, however, is likely to perceive that over time artists become more "self-indulgent, narcissistic, and inaccessible." When an artist's values clash with those of the dominant culture the artist and his work may even be seen as degenerate and subversive.

Despite these forces, which pull artists away from consumers, popular culture may be growing at the same time as high art and the avant-garde. Not all artists are motivated by non-pecuniary benefits. As the size of the market increases, many artists become more avant-garde but the number of "crowd pleaser" artists will increase as well. Mass culture will attain greater size and scope. As both popular and avant-garde sectors grow, we will observe an apparent divergence of high and low culture. The avant-garde artists have a smaller chance of taking the greatest market share, and the crowd pleaser artists have a smaller chance of winning critical acclaim.

The growth of new genres may provide further impetus to the high/low culture split. For most genres capital costs will fall over time, increasing the scope for less popular productions. Yet in a technologically progressing society new artistic genres will arise, such as the movies, television, rock

and roll, etc. New genres are often highly capital intensive (else they would have been discovered and exploited at an earlier time) and hence begin as popular mediums. Older, more less popular genres will grow through falling (and low) capital costs, while new, popular genres will simultaneously grow through falling (and high) capital costs. Rather than observing popular culture growing at the expense of high and avant-garde culture, or vice versa, we may see both growing at the same time, as we find in today's world.

### 3.4. Taxation

Taxes can increase the number of artists and the quality of art because taxation increases non-pecuniary returns relative to pecuniary returns.

**Proposition 3.2.**

*An increase in the wage tax will increase the supply of labor to the high and avant-garde arts, given that the elasticity of marginal utility with respect to consumption is less than one,* $|\eta_{U_c}| \leq 1$. *The latter condition is sufficient but not necessary. (The condition holds for a variety of utility functions, including log utility and Cobb-Douglas utility.)*

Proof: See Appendix.

The intuition behind proposition 3.2 is straightforward - a tax on money income leaves the non-pecuniary return to labor in the arts untaxed. Proposition 3.2 states a general result that a tax on labor income will shift labor towards jobs with high non-pecuniary returns. The quality of art also increases with an increase in taxes because the tax reduces the relative return to popular art. Consider, for example, a wage tax of 100%; in such a case every artist would produce only to satisfy their own aesthetic demands. Recall that an artist's choice of popular art is driven by the

prospect of a pecuniary return. Remove the pecuniary return to low quality and the percentage of art which is of avant-garde or high style will increase.

Modern governments, therefore, provide very considerable incentives for avant-garde and high art, to the extent that creators pursue non-pecuniary benefits. High marginal rates of income taxation encourage artists to increase the supply of avant-garde and high art. This indirect support of high art and the avant-garde may be far greater than the direct effects of government support. In the United States, for instance, NEA expenditures are less than a dollar per capita, whereas marginal tax rates (including all levels of taxation) frequently exceed thirty percent. To the extent that European art tends to be more avant-garde than American art (this is a common perception although we have not attempted to quantify any differences) we hypothesize that it is due to higher marginal tax rates rather than to differences in culture or tastes.

## 4. Discussion and Conclusion

Artists are not unique in deriving non-pecuniary returns from particular forms of labor or in desiring to choose projects of high satisfaction. Academics, including many economists, also enjoy "working," especially when they can work on projects of their own choosing. Other examples include chefs, architects, athletes and volunteers of all kinds. Our model predicts that economic growth has and will increase the number of people entering these jobs and professions. Fogel (1999) argues that this shift from what he calls "earnwork" to "volwork," work done in large part for pleasure even if it carries with it some payment, is in fact the major story of economic growth.

Our model makes a number of predictions about the market for economists (academics). It predicts, for example, that the awarding of tenure will increase the subjective quality of publication as viewed by the writer but will reduce the quality of publication as viewed by the profession (mea-

sured say by the quality of journal in which the publication appears). The market for publications and tenured jobs constrains economists in the same way that the market for art constrains artists. The model also predicts that tenure is unlikely to greatly reduce the quantity of publications, a prediction borne out by the data.[30] Our model also helps to explain the increasing distance between what consumers of economics desire and what economists produce. Economics is often attacked for being too abstract, irrelevant, and impractical. Such attacks are the counterpart to attacks on artists for being too self-indulgent and inaccessible. As economic growth increases, economists choose to take more of their net wage in the form of choice of project. They choose to work on the peculiarities of the art market rather than serving as consultants to the business world.

Economists, of course, are not the sole targets of critical attacks; such attacks pervade academic life and have been levelled at philosophers, English professors and theoretical physicists, among others. In each case practitioners make the argument that in the long run high theory makes good practice; there is some evidence for this in the art market and economics, as well as in the hard sciences. Nonetheless the cause of increasing "irrelevance" is found in the preferences of the suppliers and not in the internalization of some future, unknown, demand.

## 5. Appendix

### .1. Proof of Propositions 2.2 and 2.3

Let $F = U_A(c, L, s) = U[c] + V[L, s]$, let $c = w_1(s)L + w_2(1 - L) + y$ and let $H$ be the matrix of second partials, the Hessian matrix, then:

$$\frac{\partial L}{dy} = \frac{\begin{vmatrix} -F_{Ly} & F_{Ls} \\ -F_{sy} & F_{ss} \end{vmatrix}}{|H|} \tag{.1}$$

$$\frac{\partial s}{dy} = \frac{\begin{vmatrix} F_{LL} & -F_{Ly} \\ F_{sL} & -F_{sy} \end{vmatrix}}{|H|} \tag{.2}$$

Where $|H| = -U_c^2 w_s^2 + 2(w_2 - w_1)LU_c w_s^2 U_{cc} + (w_2^2 + w_1^2)LU_c U_{cc} w_{ss} -$

$2Lw_2 w_1 U_c U_{cc} w_{ss} + (w_2^2 + w_1^2)U_{cc} V_{ss} - 2w_2 w_1 U_{cc} V_{ss} - 2U_c w_s V_{Ls} +$

$2(w_2 - w_1)(Lw_s U_{cc} V_{Ls}) - V_{Ls}^2 + L^2 w_s^2 U_{cc} V_{LL} + LU_c w_{ss} V_{LL} + V_{ss} V_{LL}$

$H$ must be positive for a maximum and 2 endogenous variables. The sign of the comparative statics results, therefore, can be found by evaluating the numerators of .1 and .2.

$$\mathrm{Si}\,gn\frac{\partial L}{dy} = \mathrm{Si}\,gn \begin{vmatrix} -F_{Ly} & F_{Ls} \\ -F_{sy} & F_{ss} \end{vmatrix} = \mathrm{Si}\,gn \left[ U_{cc} \begin{pmatrix} (w_2 - w_1)(LU_c w_{ss} + V_{ss}) + \\ Lw_s(s)(U_c w_s + V_{Ls}) \end{pmatrix} \right]$$

$$\frac{\partial L}{dy} > 0 \text{ iff } U_{cc}\left(LU_c\left(w_s^2 + (w_2 - w_1)w_{ss}\right) + (w_2 - w_1)V_{ss} + Lw_s V_{Ls}\right) > 0. \tag{.3}$$

A sufficient condition for $\frac{\partial L}{dy} > 0$ is $w_s^2 + (w_2 - w_1)w_{ss} \leq 0$, (call this condition one). To interpret condition one recall that the local price of $s$ is given by $-w_s L$ and the local price of $L$ by $(w_2 - w_1)$. Condition one is true if the price of $s$ relative to the price of $L$ increases with $s$, i.e. if $\frac{\partial(-w_s L)/(w_2 - w_1(s))}{\partial s} > 0$. Intuitively, an increase in $y$ will increase $L$, which is a normal good, unless an increase in $s$ increases the relative price of $L$ so much that it pays to substitute away from $L$. Or, as stated in the text, an increase in lump sum income will increase the supply of labor to the arts unless the price of quality falls so rapidly that it pays the artist to consume so much more quality that he can no longer afford to labor in the art sector at previous levels.

Here is another way of looking at this issue: Graphically the slope of the iso-budget constraint is given by $\frac{L(s)w_s}{w_2 - w_1}$ where $L(s) = \frac{-(c-y-w_2)}{w_2 - w_1}$. The constraint is concave if $\partial\left(\frac{\partial L}{\partial s}\right)/\partial s = \frac{2L(s)w_s^2}{(w_2 - w_1)^2} + \frac{L(s)w_{ss}}{w_2 - w_1} \leq 0$, or rewriting, if $2w_s^2 + (w_2 - w_1)w_{ss} \leq 0$. Concavity of the constraint is, therefore, a sufficient condition for condition one which itself is sufficient for $\frac{\partial L}{dy} > 0$ but concavity is far from necessary. Considerable convexity is required before our sufficient condition is violated and considerably more convexity is required before $\frac{\partial L}{dy} > 0$ is violated. Thus, we require only that our constraint not be "excessively" convex.

Similarly,

$$\frac{\partial s}{dy} > 0 \text{ iff } -U_{cc}\left((w_2 - w_1)U_c w_s + L w_s V_{LL} + (w_2 - w_1)V_{Ls}\right) > 0 \tag{.4}$$

The multiplying factor $-U_{cc}$ is positive as is $Lw_s V_{LL}$and $(w_2 - w_1)V_{Ls}$. Thus, if $w_s$ is not too negative $\frac{\partial s}{dy} > 0$.

Edlefsen (1981) and Bomquist (1989) show that a close variant of the Slutsky theorem holds for non-linear budget constraints. If we write the budget constraint as $g(x, \theta)$ where $x$ are variables

and $\theta$ are parameters then:

$$\frac{\partial x}{\partial \theta} = \frac{\partial x}{\partial \theta}^{h} - g'_{\theta}\frac{\partial x}{\partial y} \tag{.5}$$

(Note that if the budget constraint were linear then $g'_{\theta} = x$ and the usual result obtains.) The following comparative statics relations are written in this form.

**.2. Comparative Statics of Price Changes**

The sign of $\partial L/\partial w_1$ is given by:

$$\begin{aligned} &-\left(L^2 U_{cc} w_s^2 U_c + U_c\left(LU_c w_{ss} + V_{ss}\right)\right) + \\ &LU_{cc}\left(LU_c\left(w_s^2 + (w_2 - w_1)w_{ss}\right) + (w_2 - w_1)V_{ss} + Lw_s V_{Ls}\right) \end{aligned} \tag{.6}$$

The first term is the substitution effect, the second term is the income effect. The substitution effect is positive (given our sufficient condition on the income effect) and the income effect is positive. Therefore, $\partial L/\partial w_1 > 0$.

The sign of $\partial L/\partial w_2$ is given by:

$$\begin{aligned} &L^2 U_{cc} w_s^2 U_c + U_c(LU_c w_{ss} + V_{ss}) + \\ &(1 - L)U_{cc}\left(LU_c\left(w_s^2 + (w_2 - w_1)w_{ss}\right) + (w_2 - w_1)V_{ss} + Lw_s V_{Ls}\right) \end{aligned} \tag{.7}$$

The substitution effect is negative, the income effect is positive, thus we cannot sign $\frac{\partial L}{\partial w_2}$ apriori.

The sign of $\partial s/\partial w_1$ is given by:

$$U_c\left(U_c w_s - w_s L U_{cc}(w_2 - w_1) + V_{Ls}\right) + \tag{.8}$$

$$L\left(-U_{cc}\left((w_2 - w_1)U_c w_s + L w_s V_{LL} + (w_2 - w_1)V_{Ls}\right)\right) \tag{.9}$$

The substitution effect is of uncertain sign but will be positive if $V_{Ls}$ is large or $w_s$ small, the income effect is positive.

The sign of $\partial s/\partial w_2$ is given by:

$$\begin{aligned} - \quad & U_c\left(U_c w_s - w_s L U_{cc}(w_2 - w_1) + V_{Ls}\right) + \\ & (1 - L)\left(-U_{cc}\left((w_2 - w_1)U_c w_s + L w_s V_{LL} + (w_2 - w_1)V_{Ls}\right)\right) \end{aligned} \tag{.10}$$

The substitution effect has uncertain sign, the income effect is positive.

**Proposition .1.**

*Under the conditions stated in propositions 2.2, 2.4 and 2.5 a decrease in the price the artist pays for quality, $-w_s$, will increase the supply of labor to the arts, $L$, and the quality of art, $s$.*

Proof: To examine the comparative statics of changes in the price of quality we consider the demand curve $w(s) = A - bs - cs^2 + ...O(s^n)$ $(b > 0)$ which may be thought of as exact or as a Taylor approximation to the true curve. We take a change in $w_s$ to be a change in $b$, that is, we hold all other derivatives constant. A change in $w_s$ will change $L$ "indirectly" through changes in

$w_1$. Thus the comparative statics of a change in $w_s$ on $L$ will be a combination of $w_1$ income and substitution effects.

The sign of $\partial L/\partial b$ is given by:

$$sU_cV_{ss} - U_{cc}Ls(w_2 - w_1)V_{ss} - U_{cc}sL^2w_sV_{Ls} - LU_c^2w_s + U_{cc}(w_2 - w_1)L^2U_cw_s -$$

$$LU_cV_{Ls} + sLU_c^2w_{ss} - U_{cc}(w_2 - w_1)sL^2U_cw_{ss}$$

Upon rearranging and adding and subtracting terms we have:

Sign $\frac{\partial L}{\partial b}$ = Sign:

$$\begin{aligned} &-L * U_c\left(U_cw_s - w_sLU_{cc}(w_2 - w_1) + V_{Ls}\right) - \\ &s * \left(-L^2U_{cc}w_s^2U_c - U_c(LU_cw_{ss} + V_{ss}\right) - \\ &sL * U_{cc}\left(LU_c\left(w_s^2 + (w_2 - w_1)w_{ss}\right) + (w_2 - w_1)V_{ss} + Lw_sV_{Ls}\right) \end{aligned} \tag{.11}$$

Note that $\frac{\partial L}{\partial b} = -LSub_{sw_1} - sSub_{Lw_1} - sL * \frac{\partial L}{\partial y}$.[31] Note also that the derivative of the constraint with respect to the $b$ is $sL$. Result .11, therefore, conforms to the generalized Slutsky decomposition given in equation .5. Each term is negative given propositions 2.2, 2.4 and 2.5 .

The sign of $\frac{\partial s}{\partial b}$ is given by the following:

$$-sU_c^2w_s + 2s(w_2 - w_1)LU_cU_{cc}w_s - sU_cV_{Ls} + sL(w_2 - w_1)U_{cc}V_{Ls} +$$

$$Lw_2^2U_cU_{cc} - 2Lw_2w_1U_cU_{cc} + Lw_1^2U_cU_{cc} + sL^2U_{cc}w_sV_{LL} + LU_cV_{LL}$$

which can be written:

$$U_{cc}LU_c(w_2-w_1)^2+LU_cV_{LL}-sU_c\left(U_cw_s-w_sLU_{cc}(w_2-w_1)+V_{Ls}\right)-$$

$$sL\left(-U_{cc}\left((w_2-w_1)U_cw_s+Lw_sV_{LL}+(w_2-w_1)V_{Ls}\right)\right)$$

The first two terms are negative, the third term is $-s*Sub_{sw1}$ (when divided by $|H|$) this is negative under proposition 2.5, the final term is $-sL$ times $\frac{\partial s}{\partial y}$ (when divided by $|H|$) which is negative given 2.3, thus $\frac{\partial s}{\partial b}<0$.

**.3. Proof of Tax Proposition (Proposition 3.2)**

Write labor earnings as $(1-t)\left(w_1(s)L+w_2(1-L)\right)$ then:

$$\frac{\partial L}{\partial t}=-\frac{U_c}{U_{cc}}\frac{\partial L}{\partial y}-(w_1L+w_2(1-L))\frac{\partial L}{\partial y}$$

Thus:

$$\frac{\partial L}{\partial t}>0 \text{ iff } -\frac{U_c}{U_{cc}}-(w_1L+w_2(1-L))>0$$

Using the definition of consumption in equation 2.2 we can rewrite this condition as $\frac{U_c}{U_{cc}}+c-y<0$ and noting that the elasticity of the marginal utility of $c$ with respect to $c$ is given by $\eta_{U_c}=\frac{cU_{cc}}{U_c}$ we have:

$$\begin{aligned} \frac{c}{\eta_{U_c}} + c - y &< 0 \\ = c\left(\frac{1+\eta_{U_c}}{\eta_{U_c}}\right) &< y \end{aligned}$$

A sufficient condition for the last inequality to be true for $y \geq 0$ is $\frac{1+\eta_{U_c}}{\eta_{U_c}} \leq 0$ or $1 \geq |\eta_{U_c}|$. This condition holds for a variety of utility functions including log utility and Cobb-Douglas utility of the form $U(c) = Ac^{\alpha}$ ($\alpha \leq 2$). QED.

For effect of taxes on quality note that:

$$\frac{\partial s}{\partial t} = -\frac{U_c}{U_{cc}}\frac{\partial s}{\partial y} - (w_1 L + w_2(1-L))\frac{\partial s}{\partial y}$$

The rest of the proof then follows that given above.

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**Notes**

[1]Economic treatments of the arts have traditionally focused on pecuniary incentives. The literature on Baumol's cost-disease, for instance, typically treats the artist as motivated by pecuniary income alone. See, for instance, the discussion in Cowen and Grier (1996). Throsby (1994a) provides the primary systematic treatment of non-pecuniary incentives to date. In a model with fixed consumption he shows how the presence of non-pecuniary benefits encourages art in a growing economy, but he does not address the questions of primary concern to this paper.

[2]Throsby (1994b) provides figures for the economic importance of the arts. Blaug (1976), Grampp (1989), Frey and Pommerehne (1989), Towse and Khakee (1992), and Heilbrun and Gray (1993) provide other good introductions to the economics of the arts. Cowen (1998) argues that the market economy creates favorable conditions for artistic production.

[3]The marginal utility of labor in the manufacturing sector is normalized to zero so $V_L > 0$ implies that the artist prefers to work in the art sector. This is equivalent to a setup in which labor is always burdensome but is less burdensome in the art sector than in the manufacturing sector. If wages in the manufacturing sector are higher than wages in the arts sector (which is true for most artists) then $V_L > 0$ is necessary to avoid a corner solution (see the first order conditions below).

[4]A positive and large $V_{Ls}$ appears to describe some of the great artists. Michelangelo, for example, if hired to paint the walls of a house pure white, will work less hard than if allowed to design his own composition for the Sistine Chapel.

[5]For information on the family support received by these creators, see Cowen (1998).

[6]Even very famous artists have used part-time jobs to their advantage. T.S. Eliot worked in a bank and as an editor, James Joyce taught languages, Wallace Stevens worked as an insurance executive, Paul Gauguin worked as a stock broker, and Beethoven and Mozart worked as piano teachers, to name but a few examples of many.

[7]We also focus our attention on interior solutions. At the corner solution where $L = 1$ the relevant comparative statics results hold *a fortiori*.

[8]To avoid notational clutter we drop the subscripted 1 on $w_1'(s)$ and write instead $w_s$.

[9]Although the non-pecuniary returns to art are widely recognized, little work has been done on measuring their exent. That artists tend to be poor, however, is "almost a truism in the literature" Watson (1988). More revealingly, the limited evidence collected indicates that the income of artists is low *relative* to their human capital (Throsby 1994b).

[10]The interactions between the quantity and subjective quality of art are similar to the interactions analyzed by Becker and Lewis (1973), between the quantity and quality of children.

[11]Holding all else equal, non-pecuniary returns and pecuniary returns will be negatively correlated. The tendency for children from wealthy families to choose professions with high non-pecuniary returns will bias studies of intergenerational income mobility towards a high mobility conclusion. The true income of children from wealthy families will be understated and the true income of children from poorer families will be overstated by monetary measures. However, unlike wealth, non-pecuniary returns cannot be transferred from one generation to another, this means that in the long run the true effect of non-pecuniary returns is to increase intergenerational mobility. The artist children of a rich man are not as poor as their income indicates but the grandchildren are poorer than they would have been had their parents not become artists.

[12]Watson (1988) notes that this appears to have been the case in Canada.

[13]Government funding does not shift artists away from market production and towards production for self satisfaction in all circumstances. "Matching grants", for example, will increase the incentive to produce for the market. At other times and in other countries government funding has been contingent on the "political" aspects of an art work. In these cases artists face a trade-off between the preferences of their political customers and their own perceptions of quality, just as they face an analogous trade-off in the market. In the contemporary United States, however, the NEA has consciously tried to support projects that the market will not. Grant-receiving artists and NEA administrators and judges (who are typically also artists) have often held common perceptions of quality. Contemporary U.S. government funding therefore often serves as a direct payment for a higher $s$ or as an increase in non-wage income.

[14]When budget constraints are non-linear, income effects also have price effects. Such price effects are sometimes called "substitution effects" although it seems better to reserve this term for true Hicksian substitution effects since even in the non-linear case we can still use a close variant of the Slutsky equation to partition income and (Hicksian) substitution effects, see Edlefsen (1981, 1505).

[15]Proposition 2.2 can also be understood as an application of the general principle that increasing returns leads to specialization while decreasing returns leads to diversification.

[16]Thus, an increase in $w_2$ creates opposite income and substitution effects on $L$ and without further information the total effect cannot be signed. Similarly if $\frac{\partial s}{\partial w_1} > 0$ then an increase in $w_2$

has an uncertain effect on $s$. The substitution effect is negative but the income effect is positive.

[17]Lower costs of reproduction do not per se deter artistic self-expression. If the costs of reproduction are low many markets can form which would otherwise not exist. The market for literature, for example, would be much smaller without the printing press (i.e., low costs of reproduction). The per-unit value of a book (even to its highest valuer) is not high enough to support many writers. It is a large mass-market in the context of a reproducible art work which tempts artists to aim their wares towards popular forms. If the size of the art market doesn't change then lower costs of reproduction will always increase quantity and quality.

[18]Robert Altman's film The Player is a wry examination of Hollywood which ably presents the incentives of film makers.

[19]Monet, in contrast to a musician, did not have the time or energy to produce a painting for every home, even if he could have cracked the mass market. He chose to specialize. If the paintings of future artists could be reproduced perfectly, future Monets might turn their eye to a more popular clientele. So called digital or computer art is perfectly reproducible and distribution on the Internet can be near instantaneous. We predict that this growing art form will be more popular in focus than most of today's paintings.

[20]Notice that artist shapes his decisions taking into account the entire curve $w_1(s)$. Thus, artists may make large changes in output decisions even when local price changes are small.

[21]From the first order condition, we know that the point of maximum increase in the price of art quality must be to the right of the point of maximum increase in art wage but without specifying the $\omega(s)$ function in more detail we cannot say how far to the right - the diagram gives one possibility.

[22]Notice that the change in satisfaction is brought about solely by a change in the size of the market. If world tastes differ from local tastes this can magnify or reduce the size effect.

[23]Nelson George (1988), for example, discusses the "Death of Rhythm and Blues" in his book of that title. Significantly, George blames the death on the crossover of black music to white listeners and the consequent attempt to increase profits by serving mass taste. For an analogous analysis of punk, see Jon Savage's (1991) book England's Dreaming.

[24]de Tocqueville (1969 [1835] vol.II, pp. 465-468) argues that American arts have suffered because America has no cultured aristocracy with high levels of taste. American creators instead produce for the mass market. See also the claims by William Hazlitt, (1948)[1814], who attributes the

supposed superiority of earlier creators to the smaller market of more cultured consumers which they faced. Neither de Tocqueville nor Hazlitt discuss the issue of reproducibility which crucially affects the relative strength of the mass market and cognoscenti.

[25]The Inuit typically carve animal and human figures out of ivory and stone, and sell these works to the outside world. Even a lesser Inuit work can easily sell for several thousand dollars. The Inuit have achieved this notoriety in spite of their very small numbers, approximately 17,000. On the Inuit, see Swinton (1992).

[26]Roger Ebert interview with Mel Gibson producer of Payback, Chicago Sun Times (Feb. 9, 1999).

[27]Capital costs enter the constraint symmetrically but with opposite sign than non-wage income. Proposition 3.1 is thus a restatement of our result that $s$ will increase with an increase in non-wage income.

[28]Kavolis (1989) surveys numerous historical studies that have shown a strong link between economic prosperity and achievement in high culture. See also Simonton (1984, p.142). Cowen (1996) provides a sustained treatement of the connection between wealth and high art.

[29]Our data on best sellers is drawn from Hackett and Burke (1977).

[30]In a survey of academics, Walden (1979) found that 95% believe tenure has no impact or a positive impact on productivity. Orpen (1982) found no productivity difference, as measured by articles in referred journals, in a matched sample of tenured and untenured faculty. Ransom (1993) notes that seniority has little impact on publications. We are not aware of a study which examines "quality" adjusted publications. Note that the cost of writing "quality" articles falls with the non-pecuniary return to writing such articles. Pre-tenure publication is therefore a good signal of post-tenure publication and the tenure process is likely to sort accurately.

[31]Recall that the exact comparative statics terms are given by the expressions in the text over the determinant of the Hessian matrix which is positive.