Visual Artists' Resale Royalty: A Mechanism Design Approach

Abstract

The visual artist's resale royalty right entitles an artist to a percentage of the price received by subsequent owners when her works are resold. Finally adopted by the integrity of EU countries in 2006, the question of the Federal recognition of this right in the US is currently discussed. Economic analysis of this right mostly concluded its inefficiency. In this paper we examine the issue from the stand point of incentives provided by each legal framework , with and without this right, for the artists in maintaining a level of artistic effort. We show that an optimal mechanism designed to implement a maximum level artistic effort in the society coincides with the adoption of this right.

Keywords: Contract Theory, Copyright; Droit de suite; Mechanism design; Principal and agent; Visual artist's resale royalty.

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1   Introduction

The visual artists' Resale royalty or *droit de suite* entitles the author of an original work in the domain of visual arts to an economic interest in its successive sales. The *droit de suite* is granted to the authors of works for which the usual attributes of copyright can not appropriately function:unlike literary, musical and cinematographic works painting and sculpture cannot be dissociated from their original material form in other words they cannot be copied. Therefore the artist's compensation becomes the price received form the sale of the original material form plus the eventual royalties from its reproduction through other media such as the painting's photography. Since the price of the original work is susceptible to tremendously increase in the subsequent sales and that mostly results from the establishment of the artist's name fairness consideration motivated some legislators to accord this right as means of supplementary compensation for the artist.

This observation was at the origin of visual artists' resale royalty or *droit de suite.* This right is originated from France following the resale of Millet's 1858 famous painting, *The Angélus,* after the First World War. The owner of the painting made a huge profit from the resale while the artist's family was living in extreme poverty at exact same time. In order to remedy this problem French parliament voted an act attributing to authors a percentage share of the further sales and for a period similar to the validity period of other copyrights. Note that not all works of art are eligible for resale royalty. In general all legislations

have limited its validity to the cases where first, the work is resold in an auction or *via* a professional dealer, second its resale price is higher than a threshold.

After French recognition other countries in continental Europe have gradually adopted this right. Therefore legally speaking the resale royalty became a part of copyright dispositions in Civil law (as opposed to common law) regimes. In Common law countries the adoption was long debated but has partially taken place recently as a result of the EU's harmonization in 2001 therefore European Common law countries (UK and the Republic of Ireland) have now recognized this right. Furthermore Australia and New Zealand voted their national legislation in 2005. This right is not recognized by the US besides in the state of California. Given the considerable share of the country in this market the US recognition can facilitate the international trade of painting and sculpture.

The federal US adoption of this right was debated not only from a legal stand point but also from the view point of economic efficiency. The economists who have analyzed the consequences of the resale royalty have generally concluded its inefficiency. For instance in Greffe (2005) it has been debated that this right is susceptible to reduce the number of transactions in the art market and may reduce the first sale price ultimately harming young artists while a more general treatment of the issue is present in Coase (1972). The question is treated within an optimal risk sharing setting in Solow (1998). And still within efficiency framework the administrative costs of the implementation of this right has been considered in Stanford (2003).Those who are in favor of the recognition of this right tend to concentrate upon the uneven bargaining position between the artist and the art dealer, and condemn the profits that the dealers and auction houses make from young artists like in Perloff (2003). This division in the opinion of economists and mostly in favor of the inefficiency of this right has contributed to the non-harmonization of legislations at the universal level.

Our contribution is to examine the question from a mechanism design approach taking the regulator as the designer of a mechanism meant to allow for the efficient contractual scheme in the context while valuing the implementation of high level of artistic effort. Using the general framework of principal and agent model our conclusion is in favour of the recognition of this right as we show that it indeed implements a higher level of artistic effort. The paper is organized as follows. In the next section we build the model. The following section we will compare the optimal mechanism with the prototype of legislations in this domain. The concluding remarks will follow this section.

2   The Model

We assume that artists produce painting and sculpture through their effort, e, however the effectiveness of their effort depends upon a stochastic factor θ

inclusive of their talent, the correspondence of their style to the critics' opinion and public's taste as well as simply their luck. Therefore the variable θ will incorporate all the stochastic factors which will affect the success of an artist and subsequently the value of her work. This stochastic factor is unknown to everybody including the artist herself.

As we mentioned the artistic effort is e. For simplicity we assume that artists can choose between two levels of effort e_L (low level of effort) and e_H (high level of effort). The value of the work, p, is determined in a competitive market of art dealers. The dealer is assumed to be risk neutral. The artists are risk averse and they have utility from the compensation they get, an increasing function of the market value of their work, adjusted to the cost of their effort. The value of the art work, p, is a function of the artist's effort level e but also the variable θ.

To make things more realistic we assume that the variable θ is not directly and completely deducible from the work itself but higher values are more likely to be observed with a higher level of effort e_H, and lower values are most likely observed with lower level of effort e_L. In fact we can abstract from the stochastic element θ by assuming that the value of the work p conditional on the level of effort is itself a random variable. For doing so and in order to make things tractable we assume that the conditional distribution $F(p \mid e_H)$ first order stochastically dominates the conditional distribution $F(p \mid e_L)$. It means:

$F(p \mid e_H) \leq F(p \mid e_L)$ for all p with strict inequality of some open subset of the set of all possible values of p.

It implies that the expected value of the work is higher with e_H than e_L such that:

$$\int p \, f(p \mid e_H) dp \geq \int p f(p \mid e_L) dp$$

Therefore a simple characterization of artist's expected utility function with separable cost of effort can be:

$$u(p, e_i) = \int v(w(p)) \, f(p \mid e_i) \, dp - C(e_i)$$

where $i = H$ and L; $C(e)$ is the cost of the effort with $C(e_H)$ greater than $C(e_L)$ and the first part in the expected utility of $w(p)$ the compensation function increasing in p, and as artists are risk averse $v(w(p))$ is concave.

The regulator is called upon to define the legal framework for the contracts in this domain. The regulator values the production of art works therefore she cares about the level of artistic effort. Hence the mechanism design problem for the regulator becomes finding the legislation that will allow the optimal contracting between artists and dealers in this field while implementing high level of artistic effort.

Recall that we have assumed that the value of the art work is a function of the artistic effort but also the random variable θ. Therefore there is a component

of uncertainty in the setting. And an optimal contract should be able to provide incentive for higher levels of effort which are costly to the artist. Hence legislator needs to provide incentive in order to implement high level of effort. Now we can intuitively see that it requires the dependence of the compensation scheme to the realized value the art work making the artist taking some risk. It also becomes obvious that there is a loss of welfare compared to Pareto optimal situation where the risk neutral party, here the dealers, take all the risks. However this suboptimality in risk sharing as we will show below is counterbalanced by the maximization of total value in the sector *via* the implementation of higher level of artistic effort.

In order to proceed we first characterize the optimal contract then in the next section we will try to see which type of legislation (with or without resale royalty) implements it best. The mechanism design problem can be solved in two steps. First we need to define an incentive scheme for the artist's compensation then we need to decide about the optimal (desired) level of effort to be implemented. We will proceed to this in the following lines.

1. The Optimal Compensation Scheme

For a regulator who cares about the value of artistic effort the optimal contact solves for any given effort level e:

$$\underset{p}{Max} \ \int p \ f(p \mid e) \ dp \quad (1)$$

Subject to:

$(i) \qquad \int v(w(p)) f(p \mid e) dp - C(e) \geq \bar{u}$

$(ii) \qquad \underset{e}{Max} \int v(w(p)) f(p \mid e) dp - C(e)$

Where the $\bar{u}$ is the utility of the artist's outside option, alternatively her reservation utility. As such the first constraint is individual rationality or participation constraint and the second is the incentive compatibility constraint insuring that the effort level chosen by the artist is indeed the one meant to be implemented.

2. Implementing different levels of effort

Given the discrete level of efforts assumed to be available to the artist we treat e_H and e_L separately.

2.1. Implementing e_L

Since effort is costly for the artist implementing the lowest level of effort means relaxing the incentive compatibility constraint (ii) and it reduces the optimization problem to maximization of the value subject to individual rationality constraint (i) stating that the utility of the artist needs to be at least

equal to her outside option. The constraint (i) always binds at a solution given the competitive market of art dealers.

The first order condition of this maximization problem taking γ as the Lagrange multiplier becomes:

$-f(p \mid e) + \gamma \ \frac{\partial v(.)}{\partial w}\frac{\partial w}{\partial p} \ f(p \mid e) = 0$

or

$\frac{\partial v(.)}{\partial w}\frac{\partial w}{\partial p} = \frac{1}{\gamma}$

Given that $\frac{1}{\gamma}$ is a constant then the marginal utility of the compensation needs to be constant. So the optimal compensation in order to implement e_L will be providing artist with a flat payment sparing him from risk taking. Or if $\hat{p}_L$ is the realized value of the work then:

$v\left(w(\hat{p}_L)\right) = C(e_L) + \bar{u}$ (2)

From the legislator's stand point if the goal is to implement the lowest level of effort then the artist should be paid a constant compensation. And it is quite clear that the absence of resale royalty coincide with this scenario of mechanism deign.

2.1. Implementing e_H

Given our simplifications in assuming only two levels of effort we can rewrite the constraint (ii) for the regulator's maximization problem (1) as follows:

$$(ii) \int v(w(p)) \ f(p \mid e_H) \ dp - C(e_H) \geq \int v(w(p)) \ f(p \mid e_L) \ dp - C(e_L)$$

Solution to the maximization problem with Kuhn-Tucker conditions and putting μ and $\gamma \geq 0$ and as Lagrange multipliers of the constraints respectively yields the following first order condition:

$-f(p \mid e_H) + \gamma \ \frac{\partial v(.)}{\partial w}\frac{\partial w}{\partial p} \ f(p \mid e_H) + \mu f(p \mid e_H) - f(p \mid e_L)\frac{\partial v(.)}{\partial w}\frac{\partial w}{\partial p} = 0$

Or simply:

$[\frac{\partial v(.)}{\partial w}\frac{\partial w}{\partial p}]^{-1} = \gamma + \mu[1 - \frac{f(p|e_L)}{f(p|e_H)}]$ (3)

The equation (3) characterizes the optimal solution for compensation scheme to implement e_H. In order to proceed with the characterization of the optimal compensation scheme we state and prove the following lemma.

Lemma. At any solution to the equation (3) the Lagrange multiplier μ and γ are both strictly positive.

Proof.
1. Suppose it is not true for γ then it means that $\gamma = 0$. Then (3) becomes
$[\frac{\partial v(.)}{\partial w}\frac{\partial w}{\partial p}]^{-1} = \mu[1 - \frac{f(p|e_L)}{f(p|e_H)}]$
The term inside the brackets on the right hand side can eventually be negative given the assumption of first order stochastic dominance of conditional

distributions for some interval of p which in turn given that $\mu \geq 0$ implies $\left[\frac{\partial v(.)}{\partial w} \frac{\partial w}{\partial p}\right]^{-1} \leq 0$ which is impossible given the assumptions on utility and compensation functions. As such γ should be strictly positive.

2. Now suppose the lemma is not true for μ it means that $\mu = 0$. Then (3) becomes:

$\frac{\partial v(.)}{\partial w} \frac{\partial w}{\partial p} = \frac{1}{\gamma}$

But then as we have just showed it implies a fixed compensation and it will implement the effort level e_L. And it is a contradiction given the constraint (ii) of optimization problem. Hence μ should be strictly positive.

End of the proof.

Let's take $w(\hat{p}_L)$ (the flat payment) as the artist's total compensation if the mechanism designer decides to implement e_L and $w(\hat{p}_H)$ the total compensation for the opposite case then given the assumption $F(p \mid e_H) \leq F(p \mid e_L)$ the lemma implies the following:

$w(\hat{p}_H) \geq w(\hat{p}_L)$ if and only if $f(p \mid e_L) \leqq f(p \mid e_H)$ (4)

$w(\hat{p}_H) \leq w(\hat{p}_L)$ if and only if $f(p \mid e_L) \geqq f(p \mid e_H)$ (5)

Which means that if we want to implement e_H then in the optimal contractual scheme $w(\hat{p}_H)$ will be greater than the flat compensation $w(\hat{p}_L)$ if the realized value of work is more likely resulting from a high level of artistic effort. And the reverse is true for the alternative meaning that the compensation of the artist will be lower than the flat compensation if it is more likely that the artist has only provided the low level of effort. Note that our result is in conformity with other researchers' conclusions about the eventuality of decrease in the first sale price in case of the adoption of resale royalty (Solow, 1998). However we pointed out that such event is accompanied by a positive impact which is providing incentive for artists to undertake higher level of artistic effort.

3   Application

Here we explain how the actual legislations on resale royalty coincide with the optimal contract meant to implement higher level of artistic work or e_H. We showed that an optimal contract which intends to implement higher levels of artistic effort (desirable from the hypothetical regulator's stand point) should provide the artist's with a non-constant compensation or the artist should share the risk of effectiveness of her artistic endeavor. As such the integral compensation of the artist may be lower or higher than the no royalty setting:

Let's call the author's total compensation in a regime with no resale royalty **NRR** and let's call **RRR** as the total compensation in a regime with resale royalty right. NRR is then only the first sale price (equivalent to $w(\hat{p}_L)$ in the mechanism design problem) while RRR is either only the first sale price or

the first sale price plus resale royalties (equivalent to $w(\hat{p}_H)$ in the mechanism design setting) and it is so because resale royalty is accorded only when:

1.The resale is undertaken in an auction or through a professional dealer

2.The resale price is higher than a threshold

Taking the above two conditions as *the presumptions of high level of artistic effort* the recognition of resale royalty becomes equivalent to the optimal mechanism designed to implement e_H. Details follow. In a regime with resale royalty the integrity of the artist's compensation (RRR) may be lower than her compensation in a regime without resale royalty but if and only if, given the legal conditions, the work can de *presumed* to be of low quality (alternatively incorporating low level of effort). It means that the artist will be only paid a first sale price which is now lowered than a first sale price in a regime with no resale royalty and this case corresponds to inequality (5). Or in the opposite case, where given the satisfaction of legal conditions the work can be *presumed* to be of high quality, the artist's compensation may be higher than her compensation in a no resale royalty regime. It becomes then inclusive of first sale price and subsequent payment over resales. This case corresponds to the inequality (4). As such we showed that recognition of resale royalty is equivalent to an optimal mechanism designed to implement the highest level of artistic effort.

Note that resale royalty is a percentage over the price received by the subsequent owner in a resale and the percentage typically decreases as the resale price increases. In the table below we report the resale royalty rate in French law:

Resale Price in Euro	Royalty %
1-3000	0
3001-50000	4
50001-200000	3
2000001-350000	1
3500001-5000000	0.5
5000000 and higher	0.25

4 Conclusion

We showed that an optimal contractual design where the legislator's goal is implementing higher levels of artistic effort coincides with the adoption of resale royalty right. However we believe some amendment may be possible. The most important is the *inalienable* or extreme nature of resale royalty in Civil law regimes where the prototype is French law as the artist can not withdraw from her right. One can argue that taking this constraint (imposed resale royalty right) off the artist and setting her free to choose the framework (with or without royalty) is more optimal. The other debatable pitfall is that in most systems the royalties are calculated on the basis of the integrality of each resale's price rather than the increase in the work's price. We think more formal research can be carried out to compare the aforementioned alternatives.

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