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The Creativity Effect (with C. Sprigman)

Christopher J. Buccafusco, Chicago-Kent College of Law

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The Creativity Effect

Christopher Buccafusco & Christopher Sprigman†

In this Article we report on the second installment in a planned series of experiments designed to determine whether transactions in intellectual property are subject to the valuation anomaly commonly referred to as the “endowment effect.” In previous work,¹ we conducted experiments that demonstrated a substantial valuation asymmetry between authors of poems and potential purchasers of them. Our previous article was the first to show that the endowment effect attended transactions in goods that were (1) actually created by the owners and (2) non-rival (i.e., a good where consumption by one person does not prevent consumption by another). In this Article, we extend our previous work and report the results of an experiment suggesting that transactions in intellectual property are also subject to a separate creativity effect – i.e., a valuation anomaly, distinct from mere endowment effects, which may affect the way in which the originators of creative works assign value to their creations. The creativity effect further enlarges the gap that endowment effects already create between the price at which creators are willing to transfer their work and the price that buyers are willing to pay. Our latest experiment thus suggests that markets for the licensing and transfer of IP may be subject to special inefficiencies above and beyond those imposed by the endowment effect generally. As a result,

† Assistant Professor, Chicago-Kent College of Law and Professor, University of Virginia School of Law, respectively. This research has been supported by grants from the John Olin Foundation and the University of Virginia Law School Foundation. The authors wish to thank Diego Leclery and Michelle Grabner of the School of the Art Institute of Chicago for helping organize the study and Meg Scalia, Lindsay Bartlett and Doug Boyle for their superb research assistance. The authors are grateful for helpful comments received from Dan Gilbert, Orly Lobel, Jonathan Masur, Jeff Rachlinski, and participants at a conference on the licensing of intellectual property at The University of Chicago Law School.

IP law’s current structure, which relies heavily on property rules (i.e., rights to exclude) rather than liability rules (i.e., rights to compensation for use) may create substantial barriers to optimal transacting, suggesting that we may wish to consider shifting IP law’s mix of entitlements toward liability rules.

I. VALUING INTELLECTUAL PROPERTY

A. The Endowment Effect and Intellectual Property

Intellectual property (“IP”) law relies heavily on legal rights structured as “property rules” – i.e., rules establishing an owner’s ability to exclude others – as distinguished from “liability rules”, which permit access to an owner’s property but mandate some payment to the rightsholder.\(^2\) The decision to formulate most IP rules as providing rights to exclude is based in large part on a belief that individuals engaged in market transactions will do a better job relative to government at setting prices for access to IP.\(^3\) If the law gives rightsholders a right to exclude, the price for access is set for individual transactions according to private negotiations. If, on the other hand, the law establishes a liability rule, then the price of access will have to be determined by some public rule-maker, most likely a legislature, agency, or court, and usually for categories of transactions (at least if the price of access is determined ex ante rather than post hoc).


IP law’s deeply-rooted preference for market price-setting is based on an even more fundamental presumption that underlies classical economic theory in general – viz., that people act as rational agents who make choices based on their own stable and well-defined preferences.¹ In particular, economic theory posits that, when making decisions, people rationally weigh the utility they will derive from different choices and assign monetary values to the options based on the anticipated utility these choices will provide. This supposition, which has been labeled the “rational choice model,” is so fundamental to the structure of intellectual property law that it is often simply taken for granted.⁵

Although the right to exclude conveyed by a copyright or patent very often locates an initial entitlement in a party poorly situated to exploit a particular expressive work or scientific invention (i.e., the work’s author (copyright) or inventor (patent)), the law does not concern itself overmuch with this possibility. It presumes, instead, that parties will negotiate to transfer property rights in creative goods to those who might best exploit them. Negotiation is, of course, potentially burdened by a number of different transaction costs, but at the abstract level of economic thinking that drives most intellectual property policymaking, private negotiations are presumed to be efficacious in most instances.⁶ This confidence is bolstered by an unreflective⁷ application of the Coase theorem, which holds that in the absence of transaction costs, the initial

³ See Note, Designing the Public Domain, 122 HARV. L. REV. 1489, 1496 (“The standard economic theory of intellectual property includes the simplifying assumption that humans are selfish rational actors.”).
⁶ To the extent that transaction costs are recognized in orthodox IP scholarship, they tend to be those costs associated with bargaining, hold-outs, and information rather than the costs associated with irrationalities. See Merges, supra note 3, at 1328–40 (discussing costs associated with bargaining, valuation, and detection).
⁷ We say “unreflective” because of the tendency to overlook Coase’s main insight – that transaction costs are almost never zero and are usually considerably positive. See Robert D. Cooter, Coase Theorem, in 1 THE NEW PALGRAVE: A DICTIONARY OF ECONOMICS 457, 458 (John Eatwell et al. eds., 1987).
entitlement of property rights will not affect their final allocation\textsuperscript{8} because efficient transactions will occur such that property rights will end up in the hands of the party who values them the most.\textsuperscript{9} This prediction itself leans heavily on the rational choice model – i.e., it relies on the assumption that preferences are stable and that transacting parties will value an asset or right the same whether they are considering buying or selling it.\textsuperscript{10}

Over the past few decades, important new research in behavioral psychology and experimental economics has challenged fundamental social scientific assumptions about individual rationality and the efficient functioning of markets.\textsuperscript{11} The “rational actor” model of classical economics, which assumes that people have stable preferences and make decisions that maximize their utility, is being eroded in favor of a more nuanced and empirically robust view of human decision-making as “boundedly rational.”\textsuperscript{12}

Perhaps the most important contribution of the behavioral economics research is the discovery that people’s valuations of goods or states of affairs is highly dependent on the way those goods are framed.\textsuperscript{13} Whereas classical economic theory assumes that the value a person attaches to an item is endogenous (i.e., based on the person’s internal preferences), a mountain of survey and experimental data has shown that people attach substantially higher value to goods if they own them then if they are considering purchasing them.\textsuperscript{14} People are reluctant to part with

\begin{itemize}
\item[9] Id. at 7–8.
\item[14] For a review, see Korobkin, \textit{Endowment Effect}, supra note 13, at 1230–42.
\end{itemize}
their property, and the amount that they are willing to accept (WTA) to sell it generally far exceeds the amount that others are willing to pay (WTP) for it. This WTP/WTA gap has been termed the “endowment effect,” and it has been detected for an astounding variety of forms of property.\textsuperscript{15} The valuation anomalies caused by the endowment effect threaten to generate considerable inefficiencies in a variety of markets because initial property distributions will tend to be sticky, thereby impeding efficient transacting. The legal implications of this research have been traced in a number of fields including contract, tort, and property law.\textsuperscript{16}

\textbf{B. Our Prior Research}

In previous work, we extended the endowment effect research to the realm of intellectual property by studying goods that were not merely endowed but were instead created by our experimental subjects. Our goal was to create a market that represented the value of intellectual property rights. To that end, we created a contest with a known payout and allowed subjects the opportunity to buy and sell chances to win the contest. These chances would model the value of IP rights which is primarily derived from rent-seeking opportunities. For more details on the methodology see Part II.A.

For the previous experiment, we recruited subjects from the Charlottesville area and randomly assigned them roles as Authors, Owners, and Bidders. Each Author was seated at a computer and asked to provide some demographic information. They were then told that they

\textsuperscript{15} See id. As Kathryn Zeiler notes, the use of the term “endowment effect” for the observation of a WTA-WTP gap can create biases of its own as it imports an explanation of the gap into the description of the behavior – i.e., that the valuation gap is due to sellers’ attachment to the good based in their ownership of it. See Kathryn Zeiler, The Endowment Effect: Implications of Recent Empirical Developments for Legal Theory, at 10, n. 32 (2008), available at www.ssrn.com. We choose to employ the phrase throughout this Article because it has been widely adopted by most commentators on the literature. Importantly, however, we join Zeiler is resisting the temptation to use the “endowment effect” as fully explanatory of the WTA-WTP gap. Instead, our experimental design inquires into the underlying psychological mechanisms that might be motivating the gap.

\textsuperscript{16} For a review see Buccafusco & Sprigman, supra note __, at __.
would be competing in a haiku writing competition with nine other subjects. At the end of the task, a poetry expert would choose the best poem, and its writer would receive a $50 prize. The subjects were given instructions on writing haikus along with a sample poem. They were then given time to compose their poems.

After completing their poems, the Authors were told that there were an additional ten subjects, the Bidders, who would be given an opportunity to buy the Authors’ chance of winning the prize should their poem be chosen. Each Author was informed that her poem would be assigned to a Bidder who would indicate the most amount of money (in whole dollars) that he would be willing to pay to purchase the Author’s chance to win, and that the Author should indicate (in whole dollars) the least amount that she would be willing to accept to sell her chance. The Author was told that if the Bidder’s amount was higher than the Author’s amount, the Bidder would pay the amount of the bid to the Author in return for the Author’s chance at the prize money. The Authors were reminded in italics that they were only exchanging their chance to win the money and that the poem itself, which would be emailed to them, would still be theirs. We hoped that this reminder would help focus Authors’ attention solely on the poem’s value as an entry in the contest rather than on any additional personal or use value that they might attach to it. Each Author then entered a WTA amount and answered some follow-up questions including ratings of their poem and predictions of its probability of winning the prize.\footnote{The follow-up questions asked the subjects to indicate why they chose the amount they did, the probability that their poem would win the prize, and a series of questions about their abilities as creative artists.}

The Bidders were told that the experimenters were holding a contest between ten poems written by other subjects for a $50 prize. They were informed that they would be shown one of the poems and that they would have the opportunity to purchase that poem’s chance of winning
They were told to indicate the most amount of money that they would be willing to pay to purchase the poem’s chance of winning from its author, and they were given information about the transaction procedures. The Bidders then entered a WTP amount and answered the same follow-up questions.

The Owners were told that the experimenters were hosting a $50 poetry contest. They were told that they would be assigned one of the ten poems in the contest and that they would have an opportunity to sell their chance to win to another subject acting as a Bidder. The instructions given to the Owners about the bidding were similar to those given to the Authors. Each Owner was randomly assigned one of the poems previously written by an Author. The Owners then entered a WTP amount and answered the follow-up questions.

We subsequently ran as separate experiments several variations on this protocol. Most importantly, we ran a variation where the prize was awarded to the winner of a lottery – i.e., by pure chance – rather than via a contest where a judgment of quality would determine the result. By shifting to a lottery, we hoped that we would be able to identify whether the cause of any WTP/WTA gap we observed could be assigned to optimism bias (i.e., an irrationally high expected return on the part of sellers) or regret aversion (i.e., the sellers’ anticipation of regret arising from the contemplated transfer, which increases sellers’ price demands), or perhaps a mix of both.

Our experiments demonstrated a very substantial WTP/WTA gap, which our experimental protocol suggested stemmed from a mix of optimism bias and regret aversion. Our data revealed creators valuing their work more than twice as high as potential buyers do ($20.05

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18 For simplicity’s sake, we chose to make the information available to buyers and sellers of creative works symmetrical, with each having identical knowledge about the nature of the market. In many IP markets, however, the buyers of IP rights (publishers, movie studios, etc.) will have substantially greater information about the market. Our experimental protocol is setup to work with asymmetrical markets as well, and we hope to publish that data soon.
vs. $9.21). Importantly, we were unable to diminish the asymmetry either by using transaction intermediaries\(^{19}\) or providing additional market information. The significant differences in valuation we observed in our initial experiments suggest that (1) the preferences of IP creators, owners, and purchasers are unstable and dependent on the initial distribution of property rights in creative works, and (2) large gaps arise between WTP and WTA even though the poems are non-rival property and the contemplated alienation of the property is therefore only partial. Our results further indicate that IP licensing markets may be substantially less efficient than previously believed.

Our findings suggest that private transactions in creative goods may face significant transaction costs arising from cognitive biases that drive the price that creators and owners of IP are likely to demand considerably higher than what buyers will, on average, be willing to pay. This does not mean, of course, that transactions in IP will not take place – we see such transactions happening out in the world every day. Our research suggests, however, that IP transactions may occur at a level that is significantly suboptimal,\(^{20}\) and that the baleful effect of cognitive and affective biases is likely to be more serious for transactions in works of relatively low commercial value or for which no well-established custom or pattern helps to inform valuation. These results have considerable implications for the structuring of IP rights, IP formalities, IP licensing, and fair use.

Our first set of experiments answered our most fundamental question: our results aligned with our hypothesis that the endowment effect does extend to created goods. The first set of data did, however, also produced an unexpected result that suggested this second study. We initially

\(^{19}\) The subjects who served as mere Owners of a poem’s chance to win the prize did not differ from Authors in terms of mean valuation.

\(^{20}\) By “suboptimal” we mean that fewer mutually beneficial transactions will take place because of endowment effects than would in the absence of such biases.
predicted that Authors would exhibit greater valuation biases than Owners – i.e., that authors’ valuation of their work would produce a wider WTP/WTA gap than in the case of mere owners. We anticipated that Authors would have a greater attachment to the poems they had written than Owners would to poems that had been given to them and that this attachment would result in higher WTA values.

This result failed to materialize – our first set of experiments found no statistically significant differences in valuation between Authors and Owners. Both valued their poems at a level more than twice the WTP of the median Buyer but within the standard range of error of each other. So what happened? We have two thoughts. One possibility is that the creativity effect that we initially posited simply may not exist. This is possible, but we cannot say with confidence that it is accurate. A second, more likely, possibility is that the lack of a difference is an artifact of our experimental design. In most real world settings, creativity is primarily internally motivated by the desire to create (contrary to most economic accounts),21 whereas in our experiment, Authors were told to write their poems and did so without the “spark” of creative motivation. Additionally, the size of the creative effort in our study was quite small. The five to ten minutes that subjects took to write their three-line poems is not equivalent to the effort that goes into painting a portrait, writing a concerto, or filming a movie. At this level of creativity, we may simply have missed important aspects of real-life authors’ preference functions that might distinguish them from third-party owners.

The experiments reported in this Article are designed to determine whether Authors who are (1) internally motivated, at least in part, and (2) expend significant creative effort on their...

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works, will in fact manifest a significantly larger WTP/WTA gap relative to that produced by transactions involving mere owners. If so, then this would be a distinctive valuation anomaly tied to creative authorship, one which we label the “creativity effect”. We turn now to a description of our experimental protocol.

II. THE EXPERIMENT

In Valuing Intellectual Property we created an informal model for establishing the economic value of intellectual property rights. Unlike rights in real or personal property that have value based on individual use and exchange, intellectual property rights primarily derive their value through the statutory monopolies that enable rent-seeking from other users, licensors, and creators. Thus, the value of an IP right is based on the ability to condition use of the underlying work or invention on the payment of fees over some period of time. The value of any particular, individual IP right, then, can be thought of as simply the probabilistic value of the rents that can be obtained from holding the right to a given work. For example, the ex ante value of a copyright in a newly created work can be estimated by multiplying the amount of money that the copyright holder could obtain through using, selling, or licensing the work in the market by the probability that it will succeed in generating that money.

Of course, creators may value IP rights for reasons beyond mere rent-seeking. They may value social recognition associated with being awarded a patent, for example. Or the IP right may serve to protect other personal or moral interests creators have in their works. Although we are interested in these “intrinsic” values, we have decided to bracket them for purposes of this research for two reasons. First, we wanted to create a simple and reliable method for testing

\[22\] Buccafusco & Sprigman, supra note __, at __.
economic value and were concerned that other interests would unduly complicate our results.
Second, most judicial and academic writing on IP focuses primarily on economic value at the
expense of intrinsic value. Accordingly, our initial experimental designs have attempted to
isolate the economic value of IP rights.23

A. Method

To model the rent-seeking nature of IP transactions, we established a contest with a
payout of known value. As noted above, we hypothesized that our failure to find a difference
between creators of works and mere owners of them in our first experiment was based on the
small creative endowment associated with haikus. Moreover, the motivation for creating the
haikus was purely external. In this experiment, we used student painters who had invested
substantially in their works and who were primarily internally motivated to create them. We
solicited undergraduate and graduate painting students from the School of the Art Institute
(SAIC) in Chicago as subjects. The subjects were told to choose a medium-sized painting for
entry into a contest for a $100 prize. We received twenty submissions and held two contests of
ten paintings each. Each of the painters was paid $15 for participating. The contest was hosted
in an exhibition space at SAIC, and the paintings were judged by a faculty member of the SAIC.

When the painters arrived at the exhibition space they mounted their works in groups of
ten. They were then given sheets of paper describing the contest. They were told that they
would be competing with the nine other painters in their group for a $100 prize. They were next
told that they would be matched with one of ten additional subjects known as “the Buyers” who
would make them a cash offer for their chance to win the prize. The painters were told to

23 We are currently modifying the experiment to evaluate the way creators may derive value from
attribution and publication in addition to licensing and rent-seeking.
indicate the least amount of money that they would be willing to accept to sell their chance to win. If the Buyer’s amount was equal to or higher than the amount indicated by the painter, the Buyer would pay the painter the amount of the Buyer’s offer and receive the chance to win the $100 prize. If the Buyer’s offer did not meet the painter’s WTA price, the painter would retain her chance to win the prize. Neither party would know the other party’s offer before responding. The painters were reminded in bold that they were not transferring the painting itself or any rights in it other than the chance at the prize if their painting was selected as the winner.

After viewing all ten paintings and indicating the lowest amount that they would be willing to accept, the painters then answered some additional questions about their paintings. They were asked to estimate the probability that their painting would be chosen as the winner, the quality of the painting, the number of hours they spent on the work, the amount of personal or emotional attachment they felt towards the work, and the amount of regret they would feel if they sold the painting’s chance and it won in another’s hands.

In addition to the painters, we recruited 40 students from Chicago-Kent College of Law to be subjects in the experiment. As these subjects arrived they were randomly assigned to either the role of Buyer or Owner. They were each paid $15 for participating. The Buyers were told that they would be matched with one of ten painters who had entered paintings into a $100 contest. The Buyers would be able to make an offer to purchase the painter’s chance to win the prize. They were told to indicate the most they would be willing to pay to buy the painter’s

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24 This question read, “How would you rate your level of personal and emotional investment or attachment to the painting?” It was followed by a scale from 1 to 10 with 1 labeled “Not at all” and 10 labeled “Very Much.”

25 This question read, “Imagine that your painting sells for the amount you indicated and that it goes on to win the prize. How much regret do you anticipate feeling about another person winning with your painting?” It was followed by a scale from 1 to 10 with 1 labeled “Not at all” and 10 labeled “Very Much.”
chance to win. After viewing the paintings and indicating a WTP amount, the Buyers were asked the same questions about probability, quality, and regret.\footnote{The Buyers’ question about regret was somewhat different. It read, “Imagine that you fail to purchase the photo for the amount you indicated and that it ends up winning the prize. How much regret do you anticipate feeling?” It was followed by a scale from 1 to 10 with 1 labeled “Not at all” and 10 labeled “Very Much.”}

The Owners were placed in a similar position to the Painters with respect to the contest. They were told that ten paintings had been entered into a contest for $100 and that they had been assigned to be the owner of one of the paintings. If “their” painting was chosen as the winner, they would receive $100.\footnote{Our “Owners” were not perfect models for real world owners. Unlike real owners of IP who presumably own the IP because they purchased it, our owners were simply gifted the chance to win the prize. We hope to study this difference in future experiments.} They were then told that a Buyer would make them a cash offer for their chance to win the prize, and that if the Buyer’s offer exceeded the least amount that they would be willing to accept, they would receive the cash offer in exchange for the chance to win. After viewing the paintings and indicating a WTA amount, the Owners were asked the same questions about probability, quality, and regret.

In order to facilitate administration, we were given permission by the Institutional Review Board to only make the transactions between buyers and sellers that would have affected the distribution of the final prize. No such transactions occurred (Painter/Owner WTA exceeded Buyer WTP), and the winning Painters and Owners were given their prizes.

\section*{B. Results}

Classical economic theory dictates that our subjects should have assigned values to the paintings by treating them as weighted lottery tickets with the weights determined by the respective quality of the paintings. The paintings’ value could be determined by multiplying their weighted chance to win the prize by the total prize. Thus, if all of the paintings were
equally good and equally likely to win the prize, then each painting should have a value of $10 (10% \times $100 = $10). Of course, some paintings might be more likely to win than others, and their value should increase proportionately. Importantly, we find that subjects’ predictions of their painting’s probability of winning significantly predicted their valuation.\(^{28}\) This suggests that they understood the task. It does not, however, mean that they always behaved rationally. Although some paintings might be more likely to win, others would necessarily have to be less likely to win. Thus, because the contest is a zero-sum game the mean valuation\(^{29}\) of the paintings should remain $10.\(^{30}\) This is, however, not what we see. The Painters’ mean WTA was $74.53, while Buyers’ mean WTP was only $17.88.\(^{31}\) Also, Owners’ mean WTA was $40.67. Both the Painters’ and Owners’ values differed significantly from the Buyers’, and, unlike in our previous experiment, the Painters’ values differed significantly from the Owners’.\(^{32}\) These results are strongly suggestive of the existence of a creativity effect. When internally motivated and engaged in considerable creative effort, creators seem to value their works substantially more than do potential buyers or mere owners of the works.

\(^{28}\) Assigned value was significantly correlated with probability (r = .44, p < .01). Additionally, in ANCOVA analysis with role as a fixed factor and quality, regret, and predicted probability of winning as covariates, predicted probability of winning significantly predicted the value assigned to the poem, F (1, 47) = 6.93, p < .05.

\(^{29}\) We note here that there might be a valid distinction to be made between a subject’s “valuation” of the chance to win and her “pricing” of the chance.

\(^{30}\) Although subjects might not have perfect knowledge about their weighted chances to win, any errors should be randomly distributed around the mean.

\(^{31}\) As with our previous experiment, Buyers’ mean WTP was slightly higher than rational probability theory would predict. One possible explanation is that the nature of the scale resulted in a few high bids shifting the mean higher than expected. Another possibility is that Buyers may have attached some significance to the fact that they were being asked to bid on only one painting — and this may have raised their estimation of that painting’s chance of winning the contest. Finally, it is also possible that the Buyers developed a sense of attachment to their painting even though they didn’t own it. Having been told that this was the only painting they could bid on, they may have felt more strongly about it than they did the others.

\(^{32}\) All of these differences are statistically significant to p < .01. Similarly, in ANCOVA analysis with role as a fixed factor and quality, regret, and predicted probability of winning as covariates, the effect of role was highly significant. F (2, 47) = 18.13, p < .0005. All of the groups significantly differ from one another. Painters assign higher values than both Owners (t (33) = 4.11, p < .0005) and Buyers (t (37) = 7.75, p < .0005), and Owners assign higher values than Buyers (t (38) = 3.17, p < .005).
Figure 1

Table 1: Means (Standard Deviation)

<table>
<thead>
<tr>
<th>Role</th>
<th>Value</th>
<th>Probability of Winning</th>
<th>Quality</th>
<th>Regret</th>
</tr>
</thead>
<tbody>
<tr>
<td>Painter</td>
<td>74.53 (24.05)</td>
<td>52.76 (29.46)</td>
<td>8.35 (1.38)</td>
<td>5.07 (3.24)</td>
</tr>
<tr>
<td>Owner</td>
<td>40.67 (24.65)</td>
<td>41.89 (32.62)</td>
<td>5.56 (2.13)</td>
<td>3.69 (2.41)</td>
</tr>
<tr>
<td>Buyer</td>
<td>17.88 (22.75)</td>
<td>31.77 (29.41)</td>
<td>5.18 (2.36)</td>
<td>3.90 (2.53)</td>
</tr>
</tbody>
</table>
The follow-up questions that we asked the participants can help explain some of the psychological mechanisms that are responsible for these valuation asymmetries. We focused on three possible explanations: emotional attachment to the work, biased estimates of the likelihood of winning the contest, and anticipated regret at having sold the winning painting.

1. Emotional Attachment

We focused on creators’ emotional attachment to the paintings for two reasons. First, some explanations of the endowment effect posit that it results from owners’ stronger feelings of attachment to the object leading to greater unwillingness to give it up.\(^{33}\) Second, the creator’s sense of attachment to her work is central to most theories of intellectual property based on so-called moral rights, and we wanted to examine whether attachment seemed to be contributing to the value that creators assigned to their works. A moral rights theorist might interpret the valuation asymmetries in our experiment as evidence of the creator’s enhanced connection to the work. If so, the moral rights theorist may further assert that even though the WTA/WTP gap may result in what, from a purely economic point of view, would be a suboptimal level of transacting, the law should nonetheless recognize and give effect to authors’ special attachment to their work, and should make no attempt at “debiasing” authors.

Somewhat surprisingly, however, creators’ ratings of emotional attachment to their paintings did not predict their valuation. Painters who felt strongly attached to their works were no more likely to assign high values to them than were those who felt less attached to their works. Relatedly, the number of hours the painter spent on the painter was also uncorrelated

\(^{33}\) See Korobkin, supra note __, at __.
with the painter’s valuation. These findings suggest that the valuation asymmetries aren’t evidence of either the painters’ special bond to the work or of the value of their labor.\textsuperscript{34}

2. Optimism

As noted above, because of the zero-sum nature of the contest, the mean response to the question about the painting’s probability of winning the contest should have been 10%. A considerable body of research, however, has shown that people have a strong tendency to overestimate their chances of success, especially when the asked questions related to personal qualities.\textsuperscript{35} For example, most students predict that they will finish in the top half of a curved class. Similarly, the subjects in our study significantly overestimated their chances of winning the prize, with Painters’ estimates higher than Owners’ and both higher than Buyers’ (52.8, 41.9, and 31.8, respectively).\textsuperscript{36} Accordingly, it appears that creators’ overvaluations are in part logically derived from their assessments of how likely their works are to win the prize. The assessments themselves, however, appear to be considerably irrational. Creators are over-optimistic about their chance of winning and thus are unwilling to sell their chance for anything close to its probabilistic value. This is consistent with our findings from earlier research.\textsuperscript{37}

\textsuperscript{34} See David A. Armor & Shelley E. Taylor, \textit{When Predictions Fail: The Dilemma of Unrealistic Optimism}, in HEURISTICS AND BIASES, supra note ___ at 334, 334 (“By a number of metrics and across a variety of domains, people have been found to assign higher probabilities to their attainment of desirable outcomes than either objective criteria or logical analysis warrants.”); Zlatan Krizan & Paul D. Windschilt, \textit{The Influence of Outcome Desirability on Optimism}, 133 PSYCOL. BULL. 95, 95 (2007).

\textsuperscript{35} See David A. Armor & Shelley E. Taylor, \textit{When Predictions Fail: The Dilemma of Unrealistic Optimism}, in HEURISTICS AND BIASES, supra note ___ at 334, 334 (“By a number of metrics and across a variety of domains, people have been found to assign higher probabilities to their attainment of desirable outcomes than either objective criteria or logical analysis warrants.”);

\textsuperscript{36} We are uncertain why Buyers exhibited substantially higher probability estimates than would be predicted by classical economics. One possibility is that since they were assigned to an individual painting, they immediately felt a sense of attachment to it even though they didn’t “own” it. It is also possible that the subjects don’t understand probability estimates perfectly. Even if this is true, the relative differences between the groups still support our results.

\textsuperscript{37} Buccafusco & Sprigman, supra note ___, at ___.

3. Regret

A final possible explanation of the higher WTA amounts of Painters and Owners is that these subjects anticipated feeling regret if they sold what turned out to be the winning painting. If so, they might rationally conclude that receiving the probabilistic value of the painting would be insufficient to compensate them for the negative feelings associated with regret. Our previous research had suggested but not directly tested the possibility that such regret aversion was driving our results.

Our results in this study are somewhat mixed. On one hand, across all roles, subjects’ regret was very close to being a significant predictor of valuation when controlling for variance in role. This suggests that subjects’ valuation decisions might have been informed by their predictions of how much regret they would feel at giving up the winning painting. On the other hand, however, we detected no difference in predicted regret based on subjects’ role. Thus, Painters did not anticipate feeling more regret than did Owners or Buyers. Accordingly, we are hesitant to ascribe too much weight to the effect of regret on the creativity effect.

Although fear of regret may be playing some role in the heightened valuations of creators, the largest effect appears to come from their markedly over-optimistic assessments of their chances to win. And our results connecting most of the creativity effect with optimism bias has clear policy implications. While there might be good reasons to have credited creators’ valuations if they were the result of regret aversion or enhanced feelings of emotional attachment, we can see no valid reason for respecting pricing decisions that are driven almost

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38 In ANCOVA analysis of value, with role as a fixed factor and quality, regret, and predicted probability of winning as covariates, regret is very close to being significant (p = .057).
exclusively by irrational biases. For these reasons, our results suggest that debiasing, if it is possible at a reasonably low cost, is an appropriate task for the law.\textsuperscript{39}

Accordingly, the next Part turns to legal solutions for diminishing the creativity effect.

III. IMPLICATIONS FOR IP LAW AND POLICY

Our study revealed significant valuation asymmetries that created large gaps between (1) Buyers’ WTP and the WTA of both Painters and Owners, and, importantly, (2) the WTA of Painters compared to Owners. The first asymmetry – i.e., the one between the Buyers and the two types of subjects on the sell-side of the market (Painters, Owners) is a replication of the results of our first study, and it represents an extension of the standard endowment effect literature into the domain of intellectual property. The new finding in this study is the gap in the WTA of Painters versus Owners – this “creativity effect” is distinctive to creative authorship/inventorship and suggests that valuation anomalies affecting transactions in creative goods are likely to be especially severe when the seller or licensor in an IP transaction is the creator him- or herself.

A. Property Rules vs. Liability Rules

39 Relatedly, we should note one potential confound in our study. Prior research has shown that the strength of the endowment effect is positively correlated with length of ownership. Michael A. Strahilevitz & George Loewenstein, The Effect of Ownership History on the Valuation of Objects, 25 J. Consumer Res. 276 (1998). In our study, the Painters obviously had spent much more time with their works than had the Owners. Thus, it is impossible for us to isolate the amount of the valuation difference attributable to creativity from that attributable to length of ownership. (We are indebted to Orly Lobel for this observation.) Although identification of the precise source of the creativity effect awaits further elucidation, we have two observations which suggest that our results from this experiment are nonetheless valuable. First, length of ownership will tend to differ in the real world; in the usual course creators will possess their works for some time before licensing or transferring them to intermediaries, and even after license or transfer creators are often likely to continue to think of their work as “theirs”. It seems to us, for this reason, that differing length of ownership is an ecologically valid feature of our experiment – i.e., it likely reflects real-world conditions. Second, and importantly, we believe that the effect, if any, of differing length of ownership is testable empirically. And even if length of tenure accounts for a substantial portion of the creativity effect (which we doubt, at least as an initial hypothesis) we are still faced with creators’ tendency to manifest higher WTP, which results in a sub-optimal level of contracting compared with deals involving mere owners.
The first and most important implication of our study relates to a perennial question in IP law: whether we should organize the law as a set of strong property rights (i.e., rights to exclude), or, alternatively, as a set of liability rules (i.e., rules that allow users access without the need to ask permission, but require payment).\textsuperscript{40} IP law is presently structured around property rules. But if the wide disparities between Buyers’ WTP and Painters’ and Owners’ WTA that we found in our study characterize a range of IP transactions, then parties seeking to license or otherwise transfer ownership of creative works will face substantial negotiation costs arising from the need to bridge wide differences in valuation.

The higher transaction and negotiation costs associated with bridging a large bargaining gap are particularly troubling in the IP context where efficient transfer of rights proves crucial. In both the copyright and patent contexts, initial rightsholders (usually authors in the case of copyright\textsuperscript{41} and inventors\textsuperscript{42} in patent) often are not particularly well-positioned to exploit their work.\textsuperscript{43} Screenwriters cannot make their movies nor pharmacologists manufacture their drugs without the assistance of other parties with different talents and resources.\textsuperscript{44} Given the gap between initial entitlement and effective commercial exploitation, an efficient IP law must


\textsuperscript{41} Copyrights arise in a work’s natural author, 17 U.S.C. § 201(a) (2000), unless the work is recognized as a “work made for hire” – i.e., either the work of an employee acting within the scope of his/her employment, or a “sponsored work” within certain categories and denominated a work made for hire via a written instrument signed by both parties – in which case initial ownership of the work vests in the employer. See 17 U.S.C. §§ 201(b) (2000) (defining “work made for hire”).

\textsuperscript{42} U.S. patent law contains a strong “inventorship” requirement – patents may be applied for and granted to only by the actual inventor. See 35 U.S.C. § 102(f) (2000).

\textsuperscript{43} See Merges, \textit{supra} note 3, at 1307 (“Assigning an entitlement to its most efficient holder is generally not possible in the complex field of intellectual property, where creative works have many uses requiring multiple transactions.”).

\textsuperscript{44} On copyright bargaining see Maureen A. O’Rourke, \textit{Bargaining in the Shadow of Copyright Law After Tasini}, 53 CASE W. RES. L. REV. 605 (2002).
provide a smooth transition between the initial rightsholder and the eventual transferee or licensee. Unfortunately, there is, little empirical evidence bearing on whether the current law creates an efficient environment for such transfers.\(^45\) Thus far the law’s preference for property rules is based primarily on a *presumption*, driven mostly by theory and ideology rather than data, that markets and arms-length negotiations will allocate rights more efficiently than the alternative; i.e., a legal regime based in liability rules, in which users are free to take, and the price of use is set not via private negotiation but by a legislature, court, or government agency.\(^46\)

Our study undercuts that presumption. While liability rules require non-market price setting, which is beset by its own costs and is likely to lead to misallocation in some cases,\(^47\) IP’s strong property rules may sometimes lead to significant pricing anomalies that hinder transactions and impose separate inefficiencies that liability rules may not create.\(^48\) The creativity and endowment effects that we have identified add a significant and previously unrecognized premium to the transaction costs associated with IP bargaining. The WTA-WTP gaps that we report may result in substantially higher costs of bargaining and, accordingly, fewer otherwise valuable transactions taking place.\(^49\)

\(^45\) In fact, the evidence that does exist suggests that IP rights often hinder efficient transactions. *See Michael Heller, The Gridlock Economy* 1–23 (2009) (describing the bargaining problems associated with anticommons effects).

\(^46\) *See* Merges, *supra* note 3, at 1308. Current IP law does include some liability rules; for example, under U.S. copyright law one may re-record a musical composition (i.e., make a “cover” version) without the need to ask permission, and subject to a royalty set by a government agency. *See* 17 U.S.C. § 115 (establishing compulsory license for “mechanical reproduction” of copyrighted musical compositions).

\(^47\) *See* Merges, *supra* note 3, at 1299.

\(^48\) *See* Jeffrey J. Rachlinski & Forest Jourden, *Remedies and the Psychology of Ownership*, 51 Vand. L. Rev. 1541, 1549-50 (1998) (demonstrating much lower endowment effects when a right is owned subject to a liability rule compared with the same right subject to a property rule).

\(^49\) *See* Russell B. Korobkin, *Who Wins in Settlement Negotiations*, 11 Am. L. & Econ. Rev. 162, 196 (2009) (showing that the distance between parties’ initial offers is inversely correlated with the likelihood of successful bargaining).
When considering the respective costs and benefits of property and liability rules, it is important to remember that the inefficiencies created by property rules are neither different in kind nor necessarily less severe than those created by liability rules. Worse, property rules generate inefficiencies that are systematic in one direction – overvaluation and failed bargains – whereas the errors created in valuation under liability rules are more likely to by distributed symmetrically on both sides of the optimal price (i.e., non-market pricing is as likely to produce under-valuation as over-valuation).\(^5^0\) If this is right, then symmetrical mispricing may not create substantial ex ante disincentives to engage in the creation of new works, for even if the creator understands that mispricing is likely under a liability rule, there is equally a chance of over- as of under-compensation.

Accordingly, if IP law’s preference for strong property rules is to be sustained, it must rest not on the basis of presumptions and ideologies but rather on evidence about the costs and associated inefficiencies of negotiation versus non-market pricing.\(^5^1\) These are empirical questions, and the answers may vary for different types of creativity and different markets. To make a start, we need more studies inquiring into whether pricing anomalies attend IP markets in a variety of circumstances, how large the WTA/WTP gaps are likely to be, and what can be done to shrink them.\(^5^2\)

\(^{50}\) We are indebted to Mark Lemley for this point.

\(^{51}\) Importantly, a shift from property rules to liability rules in the IP context might enhance efficient transfers without entirely undermining bargaining between parties. An experiment by Jeffrey Rachlinski and Forest Jourden suggests that a shift from property rule protection to liability rule protection might eradicate valuation anomalies associated with endowment effects. Rachlinski & Jourden, supra note ___ at 1566. Thus, the expected bargaining in the shadow of the liability rule would likely take place without the additional transaction costs associated with the creativity and endowment effects. See Daniel A. Crane, Intellectual Liability, 88 Tex. L. Rev. (forthcoming).

\(^{52}\) It is possible that the sense of ownership and attachment that creators feel might cut both ways in its effects on IP licensing and transfer. While the endowment effect that we have shown likely inhibits IP transfers, many creators may be motivated by more intrinsic desires for publication and reputational benefits that could promote transfers. For example, creators might be so motivated just to see their work in print or to have their names...
B. The Role of Royalties and Formalities in IP Valuation

When thinking about the value of property vs. liability rules for intellectual property, we should also inquire whether mechanisms exist that might undermine the pricing anomalies we observe, thereby mitigating the difficulties posed by strong property rules. Accordingly, this section first turns to the role royalty contracts may play in mitigating the valuation asymmetries that we discovered. Although little research has been done on the theory or practice of royalty bargaining, it is possible that royalty contracts might lessen the effects of creativity and endowment. Next this section considers the use of various formalities in copyright and patent law to diminish the impact of creativity and endowment effects by restricting property rules remedies to works that meet some substantial valuation threshold.

We suspect that the relative efficiency of property rules versus liability rules will vary depending on the particular form of creativity at issue and, importantly, the value of the work that is the subject of a particular transaction. For copyrighted and patented works with significant commercial value, there are various tools that parties may use to reduce the effect of valuation anomalies. Importantly, parties may structure IP licenses to employ running royalties, and this alternative may serve to mitigate endowment effects. The running royalty – i.e., an arrangement where periodic payments are made according to some percentage of sales or revenues\(^5^3\) – is a way of effectively “agreeing to disagree” over the value of a creative work. In cases where an author or inventor believes that the work is likely to produce substantially more

revenue than the purchaser, use of a running royalty may allow both parties to structure a deal that matches their expectations and that reduces inefficiencies caused by optimism or regret aversion.

It is difficult to tell how effective running royalties will be at mitigating endowment effects, and there are good reasons for both positive and negative conclusions. Surprisingly little empirical research has been performed on the negotiation of royalties, so it is difficult for us to predict how creativity and endowment effects will affect royalty bargaining.\(^{54}\) One possibility is that royalties might reduce the effects of optimism by allowing the parties to move forward without resolving their differences regarding the likely return on the transaction. But it also seems plausible that the substantial differences in estimates of likely success will continue to hinder parties’ ability to agree on an acceptable split of the profits – the seller’s inaccurately high estimate of the likelihood of the work’s success may feed into a conviction that he deserves a more advantageous split of projected revenues. It is also possible that royalty payments may protect the creator’s feelings of attachment to the work because she will still be compensated if the work is successful thereby mitigating regret aversion. Or, the parties may continue to disagree over valuation, because the seller’s valuation impounds an increment to compensate for anticipated loss that is nowhere reflected in the buyer’s valuation. Thus, the seller is likely to demand a rate for a running royalty that is calculated to produce a payment larger than the buyer will be willing to provide.\(^{55}\)

\(^{54}\) We hope that future experiments will illuminate this unexplored area.

\(^{55}\) Indeed, these questions present another level of complexity: in many IP contexts the royalty rate will not be subject to bargaining, because it will be set by industry norms. Again, it is difficult to predict in settings where bargaining is impossible or unlikely whether the inability to bargain and the strength of norms will undermine endowment effects. Inability to bargain may result in an exercise of buy-side market power that partially or wholly offsets endowment effects. Or, it may simply result in a negotiation failure.
Should royalty contracts turn out to mitigate creativity and endowment effects through one of these mechanisms, they are very unlikely to be a complete answer to the problem of valuation. Running royalties are expensive to negotiate, implement, and administer. They involve the necessity of ongoing monitoring and periodic payments. As a result, running royalties are appropriate only for transactions that are valuable enough to bear the transaction costs of the running royalty arrangement. Importantly, the transactions that are not valuable enough to warrant the expense of royalties are also likely to be those for which creativity effects are most prominent – those created by one-time individual players.\textsuperscript{56}

These observations suggest that it may make sense to restrict IP law’s property rules only to works that are likely to trade above a certain minimum value. In the patent context, that work is to some extent already done. Patents are granted only after an examination procedure to ensure that rights are created only in inventions that are novel, non-obvious, and useful. The process does not always work – every year many patents are granted that should not have been. The examination procedure does nonetheless provide a screen that is useful for our purposes – because it is expensive (on average, $22,000), the patent examination requirement tends to filter out inventions that are commercially valueless.\textsuperscript{57} We should be clear that we are not denying

\textsuperscript{56} And while individually these creations might not generate impressive value, their aggregate value is substantial – witness, for example, the litigation and settlement disputes surrounding the Google Book Search project. There, Google and the Authors Guild have attempted to bind a huge number of individual authors in a class settlement agreement that gives Google rights to use the works of the class authors in their online tool for searching the contents of books. In order for the Google search tool to be valuable, it must encompass as many published books as possible; absent the settlement – and at the time of this writing it is far from clear that the settlement will be approved – Google would be obliged either to negotiate with a huge number of individual authors, or rely on a chancy fair use argument. Were Google to follow the negotiation route, each individual deal may be for little value, but aggregated the value would be very large. The Google Book Search settlement can be seen, in this light, as an attempt to construct, through very creative use of the class action mechanism, an effective private liability rule for Google’s use of books. In this way, it mirrors some of the bargaining to liability rules discussed by Merges. \textit{See} Merges, \textit{supra} note 3, at 1296–1302. We express no view on the desirability of the Google Book settlement.

\textsuperscript{57} \textit{See} Jonathan Masur, \textit{Costly Screens and Value Asymmetries}, J. LEG. ANALYSIS. (forthcoming). The same is true of the patent system’s maintenance fees: all utility patents are subject to maintenance fees which must be paid 3.5, 7.5, and 11.5 years from the patent’s date of issue. \textit{See} 35 U.S.C. § 41(b) (establishing maintenance fees). The
that there are commercially valueless patents – there are many. They tend, however, not to be licensed. For the patents that are licensed, there tends to be some non-de minimis commercial value.

The same is not true in the case of copyright – or, to be more accurate, is no longer true. The U.S. copyright system traditionally made the grant and maintenance of copyright subject to a set of mandatory requirements that together became known as copyright’s “formalities.” At copyright’s inception in 1790 and for almost 200 years thereafter, the initial grant of copyright was made subject either to a requirement that the author enter the work on the official copyright registry, or that he mark all published copies with notice of copyright (or both). In addition, traditionally the copyright system required authors to renew (effectively, to re-register) their works after a relatively short initial term. Failure to comply with registration and/or notice formalities meant that the work entered the public domain without a copyright ever arising. Failure to comply with the renewal requirement means that the work moved into the public domain after the expiration of the initial term of copyright. There were, in addition, fees associated with the registration and renewal formalities, and these fees served as a filter – similar to those operating today in the patent system – that tended to restrict copyright to works with some substantial commercial value.

Following the Copyright Act of 1976, however, mandatory formalities have been removed from the law. Copyright now arises automatically and indiscriminately whenever a

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58 For a summary of the details and effect of the traditional system of copyright formalities, see generally Christopher Jon Sprigman, Reform(alizing) Copyright, 57 Stan. L. Rev. 485 (2004).

59 See id. at 502.
creative work is fixed in any tangible medium of expression.\textsuperscript{60} There is now no screen that limits the application of copyright’s strong property rights to works with some substantial commercial value. As a consequence, many – indeed, the vast majority – of works that are subject to copyright’s property rule have no substantial commercial value. Until recently, that hardly would have mattered – the economics of distribution meant that few uses could effectively be made of works with low commercial value. But as the Google Book Search project – and other efforts involving mass digitization, such as the Internet Archive’s Million Books Project – show, in the current environment of very low-cost digital distribution of works, a wide range of uses of works of otherwise low commercial value become possible. These contemplated uses, which may produce social value, may, however, often be insufficiently valuable (at least with respect to individual works) to bear the significant negotiation costs required to overcome the valuation anomalies arising from endowment effects, in addition to other negotiation costs and the risk of strategic behavior. And again, these transactions are likely to involve the kind of sellers most subject to valuation biases.

We are not free, however, simply to reintroduce into the copyright law the traditional formalities. As a signatory to the Berne Convention, the leading international agreement governing copyright law, the U.S. is forbidden from implementing formalities that affect the “exercise and enjoyment” of copyright,\textsuperscript{61} and the traditional formalities, which remove all rights in a work upon non-compliance, are squarely within the forbidden territory. We can, however, obtain many of the benefits of the traditional formalities without offending Berne. One direct way would be to construct an effective liability rule through a revised set of copyright remedies. Current copyright law provides both compensatory remedies and disgorgement of any profits

\textsuperscript{60} See 17 U.S.C. § 102(a) (defining copyrightable subject matter).

\textsuperscript{61} See Sprigman, Reform(alizing), at 547.
realized by the infringer that are related to the infringement, as well as readily-available injunctive relief. In addition, current law provides the option of significant statutory damages (i.e., damages awarded without regard to any showing of actual harm) and an award of attorneys fees in infringement actions involving works registered prior to defendant’s commencement of infringement. Our results suggest that – at least for unregistered works – copyright’s remedies regime should move closer to a liability rule. Current law already limits the award of statutory damages and attorneys fees to works registered before the commencement of the infringement at issue. If we treat registration as a rough proxy for works with some commercial value, then we could improve copyright’s remedies regime by also conditioning the availability of disgorgement and injunctive relief on timely registration. There is reason to believe that even very low cost

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64 See 17 U.S.C. §§ 504(c) (providing for statutory damages), 505 (providing for costs and attorneys fees). Copyright’s remedies provisions are aimed squarely at deterrence – even for unregistered works, the combination of compensation, disgorgement, and freely-granted equitable relief are consistent with copyright’s strong property rule. But there is nothing inevitable about this consistency between a legal rule and the remedies available for its breach. Indeed, copyright’s sister legal regime, patent, features substantive rights that are structured as strong property rules but also remedies provisions that are oriented more directly at compensation, rather than deterrence.

The Patent Act, in particular, limits monetary damages to a reasonable royalty. See 35 U.S.C. § 284 (“Upon finding for the claimant the court shall award the claimant damages adequate to compensate for the infringement, but in no event less than a reasonable royalty for the use made of the invention by the infringer, together with interest and costs as fixed by the court.”). The award may be trebled for willful infringement, id., but courts do this sparingly. Courts have long held that an award of enhanced damages requires a showing that the defendant’s infringement was willful. Jurgens v. CBK, Ltd., 80 F.3d 1566, 1570 (Fed.Cir.1996) (holding that bad faith infringement, which is a type of willful infringement, is required for enhanced damages). Recently, the Federal Circuit -- the federal appellate court that has the principal role in judicial interpretation of the Patent Act -- made clear that a finding of willfulness required evidence that the defendant's infringing conduct was objectively reckless. In re Seagate Technology, LLC, 497 F.3d 1360 (Fed. Cir. 2007). Similarly, awards of attorneys’ fees are limited to “exceptional cases” and are, relative to the rate at which they are awarded in copyright infringement lawsuits, rarely ordered. 35 U.S.C. § 285.

The Patent Act also provides for preliminary and permanent injunctions, see 35 U.S.C. § 283, but since the Supreme Court’s opinion in eBay Inc. v. MercExchange, L.L.C., 547 U.S. 388, 390 (2006), it has been clear that injunctions are not available as a matter of course but rather the need for relief beyond monetary compensation must be established by the plaintiff according to traditional rules of equity.

In short, patent’s remedies regime does not faithfully reflect patent’s strong property rules – indeed, patent law provides remedies that, at least in cases where damages are limited to those required to compensate, and equitable relief is held inappropriate, are effectively equivalent to a liability rule.
formalities could have a substantial effect on the nature and extent of copyright protection. These formalities would return the U.S. to an opt-in regime for copyright. Although economic theory predicts that the nature of the default rule will not affect choice outcomes when the costs of choosing are minimal, a growing body of empirical data suggests that defaults are incredibly “sticky.”\(^\text{65}\) Thus, even if the costs of opting into full copyright protection were very close to zero, many authors might still choose not to participate. Accordingly, copyright would not have to adopt the expensive screens used in patent law to achieve a significant shift in the nature of ownership. The result of such a shift would be to expose low-value works to the effective equivalent of a liability rule. The low-value works are precisely those for which various means for reducing endowment effects – e.g., use of intermediaries or running royalties – are least likely to be used, due to their high cost relative to the low value of the transaction.

C. The Creativity Effect and the Work-Made-For-Hire Doctrine

Aside from the overarching debate about property rules versus liability rules, our research also has narrower but nonetheless important implications for both patent and copyright doctrine. The valuation gap in our study between Painters and Buyers is substantially larger than that between Owners and Buyers. This is not to say that Owner-Buyer transactions are proceeding according to the rational actor model – these transactions are subject to a substantial pricing anomaly, but they are closer than Painter-Buyer transactions to efficient outcomes. Our data suggest that, on average, we can expect that transacting will be more efficient when rights to

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creative goods are in the hands of intermediaries, rather than authors (in the case of copyrighted works) or inventors (in the case of patented inventions).

Our data are only a first cut, but they suggest that we should think further about the value, in both the copyright and patent context of encouraging initial ownership of IP rights in some person or firm other than the creator. In the copyright context, that means revisiting the scope of the rules governing whether a particular work is treated as a “work made for hire” (“WMFH”). In the patent context, we might wish similarly to reconsider the current law’s very strict “inventorship” requirement. And with respect to both patent and copyright, we might also re-structure the current rules requiring that assignments and exclusive licenses be in writing. We should make clear that we cannot, in the space allotted us here, give full consideration to whether any of these doctrines should be modified to account for the creativity effect and the special pricing anomalies that may follow from creative authorship/inventorship. We can, however, briefly describe the elements of copyright and patent law that we might consider changing if our concern with the efficiency of transactions is pressing enough.

Under current law, initial ownership of a copyrighted work vests in the work’s actual author, unless that work is denominated a work made for hire. The WMFH doctrine has two prongs. A work is a WMFH if either (a) it is created by an employee within the scope of his or her employment (as those terms are understood under the common law of agency), or (b) it falls within a narrow list of enumerated types of work that may be treated as works made for hire even in the absence of an employment relationship if the author and the sponsor agree in a written instrument that the work will be so treated.66

If, as our results suggest, copyright transactions are less inefficient where the seller is a mere owner rather than the author, there are several ways in which we might expand the current WMFH doctrine. Most dramatically, where an act of authorship involves some non-de minimis element of sponsorship, we might re-structure the doctrine as a default rule favoring initial ownership by the sponsor in the absence of a written agreement providing otherwise. Alternatively, we might achieve a less sweeping but nonetheless significant expansion of WMFH by adding additional categories of work to the current law’s second prong, or by allowing WMFH by written agreement for all works.

The case with patent law’s inventorship requirement is more stark. Under current law, a patent application may be filed only in the name of the actual inventor or inventors, in whom initial ownership will vest.67 Some have argued that the inventorship requirement is mandated by the Constitution’s text limiting the grant of patents to “Inventors”.68 That argument is weakened by the fact that copyright’s WMFH doctrine has endured in the face of equivalent language in the Constitution limiting the grant of copyright to “Authors.”69 In any event, as a policy matter, a strict inventorship requirement is nowhere entailed in the structure of patent law. We may choose to define circumstances in which a sponsoring entity gains initial ownership – e.g., where the parties agree beforehand in a written instrument, or even, were we to favor a more aggressive expansion of sponsor ownership of patented inventions, wherever there is sponsorship and the parties fail to agree beforehand that ownership willl not be in the sponsor.

D. Behavioral Biases and the Market Failure Theory of Fair Use

68 U.S. Const., Art. I, Sec. 8, Cl. 8.
69 Id.
The fair use doctrine in copyright law exists to exempt from liability some uses of a work that would otherwise infringe an owner’s copyright. While many accounts of fair use doctrine exist, one of the leading scholarly theories of fair use focuses on the doctrine’s application to market failures that prevent socially beneficial uses. According to this account, the existence of markets for creative works generally ensures that secondary users are able to license works when doing so will lead to beneficial uses (in the sense that the benefits of the second use exceed the cost of the license). In a number of situations, however, markets may fail to function properly, impeding valuable transfers. When this happens, courts should apply the fair use doctrine to enable secondary uses. Previous accounts of the market failure theory have focused on failures that arise from market barriers, bargaining costs, externalities, and anti-dissemination motives.

Our experiment adds an important new element to the equation. The creativity effect suggests that, in addition, otherwise mutually beneficial transfers may not occur due to biased valuations of creative works even where functioning markets exist. If authors and owners of copyrighted works make irrational demands that prevent the licensing of their work, then secondary works with surplus social value may not get made. For example, the creator of a

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70 17 U.S.C. § 107 (“…the fair use of a copyrighted work…is not an infringement of copyright.”).


74 See Gordon, supra note 72, at 1627–35.
copyrighted computer program might demand, in part due to the creativity effect, an irrational amount of money to license her program to another user who wants to use it in a new work. In such a case, if a court could reliably detect the presence of significant creativity and endowment effects, it might consider declaring the secondary use fair and thus not infringing.

In order for courts to more reliably to detect the presence and assess the likely magnitude of endowment effects, there must first be more research modeling a variety of IP transactions. Research will need to be conducted on different forms of creativity and different institutional settings where intermediaries and community norms may have differing effects on valuation. As we wait for this research it may yet be valuable for courts to begin incorporating the creativity effect into their fair use analysis as the mere threat of fair use declarations based on irrational valuations may help de-bias owners to begin with. The risk of no compensation if the proposed use is later found fair might actually encourage, regret averse creators and owners to bargain. Moreover, the threat of fair use as a corrective for irrational valuation may help undermine the “propertization” of IP law and refocus creators’ attention on its essentially regulatory character. As we begin to learn more about the existence of endowment effects in IP markets, we should be

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Much of the rhetoric surrounding IP, and especially that coming from IP-producing industries, portrays copyrights and patents as naturally endowed property rights in intellectual creations. See WILLIAM PATRY, MORAL PANICS AND THE COPYRIGHT WARS 113 (2009). This rhetoric distracts from the widely held academic and judicial view that IP is instead a regulatory mechanism for enhancing social welfare through the imposition of costs and benefits to creators and the public. While creators are given certain exclusive rights to their works, these rights are subject to limitations that protect the rights of the public and subsequent creators. To the extent that creators are encouraged to think of their works as “property,” Patry suggests that they will view use of their work without permission as “a personal attack” and “immoral.” Id. at 131-2. Moreover, their instinctual attachment to their created works – an attachment based on an endowment effect that Patry implies and that we demonstrate – prevents creators from appreciating the regulatory nature of IP and understanding the necessity of others’ uses. Accordingly, creators’ feelings of attachment are likely to undermine efficient market pricing resulting in suboptimal secondary use. Doctrines like fair use might be utilized to allow secondary uses that would not otherwise have occurred due to overvaluation of creators’ “property.”

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able to recognize situations in which valuation biases lead to market failure.\textsuperscript{76} That knowledge will be valuable to courts when determining whether certain uses should be allowed.

CONCLUSION

This Article has presented evidence that is suggestive of the existence of a creativity effect that distorts the valuations that creators attach to their work. Creators are likely to overvalue works that they were internally motivated to create and that required substantial creative effort compared with both potential purchasers and mere owners of the works. Our data suggest that this valuation anomaly is driven primarily by creators’ irrational optimism about the likelihood of success of their works. Accordingly, we have suggested possible legal solutions that might diminish the inefficiencies associated with the creativity effect either by de-biasing creators or by altering the legal mechanisms for owning, transferring, and using IP rights. In order to know which solutions are likely to be most successful, future research is needed to more fully understand the nature of the creativity effect.

\textsuperscript{76} Something like this appears to be happening in the market for sound recording licensing for music sampling. See Peter DiCola, Sequential Music Creation and Sample Licensing at 1–5, available at http://www.chicagoip.com/.