Cost of completion versus diminution of value damages for deliberate breach: an economic analysis*

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Abstract

Whether courts should measure expectation damages by the buyer's cost of completing the contract or the buyer's loss in value from the uncompleted contract is a central, and unresolved, issue in contract law. This paper uses a formal model to address this issue. Assuming that the court cannot observe a buyer's idiosyncratic value for the contract, the paper finds that while the cost of completion can deter efficient breach, the diminution of value measure can induce inefficient breach. The latter problem is more severe the more likely the buyer is to have large idiosyncratic value. Cost of completion is also tends to be superior if the low market value (or high cost) that leads to the breach is very likely because contracting in this situation indicates substantial idiosyncratic value.

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1 Introduction

The issue of cost of completion versus diminution of value damages is a staple of every first year contracts course. Two cases that are almost always used to illustrate the issue are *Jacobs and Young v. Kent*[1] and *Peevyhouse v. Garland Coal.*[2] In *Jacobs and Young*, a construction firm promises to build a house using Reading pipe. Once the house is almost entirely completed, the buyer finds out that much of the house was built with a different type of pipe and refuses to make his final payment. The contractor sues and Justice Cardozo sides with the contractor arguing that the pipe that was used was just as good as Reading pipe. The decision is, at least partially, grounded in what has been termed the economic waste doctrine. It would result in tremendous economic waste to undo much of the construction to replace the existing pipe with Reading pipe, thus, the court will not award the buyer damages for the completing the contract to the original specifications.

In a case that was decided similarly, but arouses very different sympathies from first year contracts students, Garland Coal pays the Peevyhouses to be able to strip mine their farm and agrees, as part of the deal, to restore the land to its original condition. Garland breaches the restoration provision, the Peevyhouses sue, and the Supreme Court of Oklahoma rules that the market value of the land is only $300 less in its unrestored state, so it awards $300 in damages rather than the $29,000 it would cost to restore the land. This court also invoked the economic waste principle.

Not all cases are decided this way, however. In *Groves v. John Wunder Co.*[3], the defendant paid the plaintiff to remove gravel from his land and agreed to restore the land to a uniform grade. The defendant took the gravel but did not restore the land. While the defendant argued for diminution of value, the court awarded cost of completion damages arguing that the defendant's behavior exhibited bad faith.

Despite the fact that this issue is a staple of the first year contracts curriculum, there has been surprisingly little formal economic modeling examining under what circumstances diminution of value or cost of completion is the more efficient damage rule. The only paper to directly model this question that I am aware of is Schwartz and Scott (2008). They argue that cost of completion damages (what they term market damages) are always

[1] 129 N.E. 889 (N.Y. 1921). See Goldberg (2015) for a fuller discussion of this case.

[2] 382 P.2d 109 (Okla. 1962)

[3] 286 N.W. 235 (Minn. 1939).

superior to diminution of value damages because they take into account the buyer's idiosyncratic value of performance that the court cannot observe. While Schwartz and Scott are correct that this is an important advantage of cost of completion damages, several features of their model eliminate the potential countervailing benefits of the diminution of value method.

In this paper, I argue that either rule could be optimal depending on certain conditions. I use a simple formal model of the contracting process to delineate the conditions under which each rule is likely to be optimal. In the model, at the time of contracting, there is common uncertainty about the market value of the service (one could also include uncertainty about cost and obtain similar results). The buyer has private information about her idiosyncratic value. There is a competitive market for sellers, so the price is set so that the seller earns zero expected profit given the damage rule. I assume the buyer pays the contract price in advance. If the buyer and seller sign a contract, then the seller makes a cost reducing investment (either large or small). Then market values are realized and the seller decides whether to breach the contract or perform. If the contract is breached, then the buyer sues, both sides incur legal costs, and the seller pays the buyer damages.

Because there are legal costs from breach and the seller has made at least a small cost-reducing investment, the seller always performs under cost of completion damages. Thus, there can be inefficient performance if the buyer's value is less than the seller's cost of performance (I assume no renegotiation, more on this below). The seller can also be induced to make too large a cost-reducing investment relative to the first best because it expects to perform with probability one (this result would hold even with renegotiation). On the other hand, under diminution of value damages, the seller will breach if its costs exceed the buyer's market value, which is inefficient if the buyer has a large enough idiosyncratic value (again, this relies on there not being perfect renegotiation). In addition, when the idiosyncratic value is large, the seller will invest less than the first best amount in cost reduction because it expects to breach in situations in which performance is efficient (this is robust to renegotiation).

This generates a couple of clear legal implications. First, if breach is deliberate[4] and the market value outcome is not surprising[5] (it is close to what

[4]The model in this paper applies only to deliberate breaches. If the seller is choosing a level of effort that affects the probability of breach, then one needs a different model.

[5]If there were cost uncertainty, the same principle would apply to the cost realization.

the parties would have expected ex ante), then cost of completion damages are almost certainly optimal. In such cases, the fact that the parties contracted indicates the buyer's value exceeds the cost of the service. If the seller is breaching, it indicates a strategic attempt to take advantage of the fact that the court will not award damages based on idiosyncratic value under diminution of value. In fact, if the parties' know that courts will award diminution of value damages, they cannot profitably contract in cases in which idiosyncratic value is critical to making the contract efficient.

Second, if the market value (or cost, if that were uncertain) outcome is surprising,[6] then the court needs to consider the likelihood of substantial idiosyncratic value. (In the prior case, this is unnecessary because the fact of contracting provides definitive evidence that there must be idiosyncratic value.) Diminution of value is superior if the buyer is sufficiently unlikely to have significant idiosyncratic value because it enables efficient breach. Cost of completion is superior if idiosyncratic value is likely to be significant because it prevents inefficient breach. While this second implication is well-known and reflected in the law,[7] the first one is, to my knowledge, not widely appreciated, have never been formally established, and is not reflected in any case law.

As mentioned above, Schwartz and Scott (2008) is the first (and, to my knowledge, only other) paper to formally model the choice between diminution of value and cost of completion. They argue that cost of completion (what they term market value damages) should always be used in place of diminution of value (what they term market delta damages). I'll explain why they get different results here. First, because they assume no legal costs for breach, the seller is indifferent between performing and breaching under cost of completion damages when costs are high so they assume the seller breaches. In my model, however, there are positive (though, maybe, very small) legal costs from breach. So, since cost of completion damages eliminate any profit from breach, the seller never breaches. This is why I get inefficient performance from cost of completion in my model and they do not.

Second, the assume a fixed cost for sellers and also that price equals average cost *of production* in a competitive market rather than the full cost of

[6] In the context of the model with binary values, if low market value occurs and the ex ante probability of low market value was high, then the outcome is not surprising. If the probability of low market value was low, then the low market value is surprising.

[7] See Restatement Second, Contracts, Section 348.

the contract which may include profits or losses from breach. Because breach can be profitable under diminution of value, to generate zero profits under competition, they have to get inefficient entry which increases the average cost of production. In contrast, in my model, sellers compete prices down to the full cost of the contract and sellers make zero profits including profits from breach. This eliminates any risk of inefficient entry under diminution of value in my model (which they use in their model to argue for the superiority of cost of completion damages).

Chakravarty and MacLeod (2009) analyze the standard contracts in the construction industry and show how they can represent an optimal response to the way American law enforces building contracts and briefly discuss its implications for cost of completion versus diminution of value damages. Avraham and Liu (2012a and 2012b) argue in favor of determining damages based on ex ante expected damages rather than ex post damages because the option not to sue prevents courts from awarding negative damages, leading ex post damages to encourage excessive performance in expectation.

The next section outlines the model. Section three discuss the first best. Section four outline how the seller will respond to each damage rule. Section five derives the contractual payoffs from each rule and derives the main result of the paper. Section six concludes. The proof of the main result is in the appendix.

2 Model

A buyer values a project at $b + v$, where v is an observable market value and $b \in [0, B]$ represents a possible idiosyncratic value. The buyer knows b. The seller knows it is distributed with distribution and density functions F and f, respectively. A large number of sellers can perform the project at a cost of $c - s$ (when they contract to do so in advance) where c is a market cost parameter and $s \in \{l, h\}$ represents a cost reducing relationship-specific investment choice, $0 < l < h$. The cost of this investment is k_l or k_h with $k_h > k_1$ and $c - h + k_h < c - l + k_l < c$. I assume the realized value of s are verifiable in court but are not observable to the buyer unless the case goes to court. If there is no advance contracting, then any of the sellers can perform the project at a cost of c.

The buyer contracts with one of many sellers in period 0 (or does not contract at all). In period 0, the sellers are all identical. To capture the typical situation in the cases, I assume the contract only specifies a price, p. The buyer pays the seller p in period 0. While in principle, the contract could specify s, I assume that it is too hard to describe s in advance, so that it is non-contractible ex ante, even though the costs are verifiable ex post.[8]

In period 0, v is unknown, $v \in \{v_l, v_h\}$; $v_l < v_h$. The probability of that $v = v_l$ is q_v; this is common knowledge. In period 1, if and only if there is an advance contract, the contracted seller chooses its relationship-specific investment, $s \in \{l, h\}$ and incurs the associated cost, k_l or k_h. In period 2, v is realized and the seller decides whether or not to perform or breach. (Because the buyer has paid in advance, the buyer has no incentive to breach.) If the seller breaches, the buyer can obtain the service from another firm at a price of c (a spot market transaction). After period 1, it is too late for a different seller to make any cost-reducing investment, thus the investment can only be made if there is an advance contract and only before the seller knows the market value. Breach also causes both sides to incur legal costs of $L > 0$.

<<See Timeline>>

I do not consider renegotiation in the model. Much of a rationale for caring about default rules in contract law is that such renegotiation is costly or imperfect. If the parties could easily renegotiate the terms of their contract, one might expect that they could also negotiate the original contract to choose the efficient damage measures. Thus, when courts are actually faced with choosing between cost of completion and diminution of value damages, the relationship is likely one where negotiation does not occur perfectly. Also, notice that there is two-sided asymmetric information (the buyer has private information about his idiosyncratic value, the seller has private information about her cost because the buyer cannot observe the seller's cost reducing investment without going to court), which would make perfect bargaining unlikely. That said, if one were to assume perfect renegotiation, the main trade-offs of the model would still apply, they would just only apply to the investment decision rather than to the investment and the performance decision.

In order to keep the problem interesting while limiting the number of

[8] There are many reasons why this might be the case. There could be fluctuations in the effectiveness of cost-reducing investments. The court could be able to observe the stochastic outcome of the cost-reducing investment. The buyer may lack the expertise to know what is efficient cost reduction. Descriptions of actual activities may not be sufficiently precise or known at the contracting stage.

cases to consider, I make the following parameter assumptions:

Axiom 1 *$v_h > c$; $v_l < c - h - 2L; v_l + B > c$*

This axiom states that if the market value is high, performance is always efficient, even in the spot market. If the market value is low, then performance is inefficient, even with large cost reducing investment and litigation costs associated with breach, if there is no idiosyncratic value. If idiosyncratic value is large enough, however, then performance is efficient even in the spot market. These assumptions rule out the easy cases such as where high investment and performance are always efficient (which would make cost of completion damages always optimal) or where idiosyncratic value matters very little (so that diminution of value damages are always optimal). What remains is the interesting cases in which diminution of value damages have the advantage of allowing for efficient breach but have the disadvantage of under-compensation when idiosyncratic value is important. I also assume L is small enough that suit is always optimal.

3 First best

In the first best, there is performance if and only if $v + b > c - s - 2L$. This holds for any b if $v = v_h$. Define cutoff $b^s = c - v_l - s - 2L$, such that for $v = v_l$, performance is ex post efficient with cost reducing investment s if and only if $b > b^s$, $s \in \{l, h\}$. Notice, that since $h > l, b^l > b^h$ (performance is efficient with a smaller idiosyncratic value if there is greater cost reducing investment). Thus, the total expected gain in total welfare from high investment relative to low investment is given by:

$$(1-q_v)(h-l)+q_v[(1-F(b^l))(h-l)+\int_{b^h}^{b^l}(v_l+b-c_l+h+2L)f(b)db]-(k_h-k_l) \tag{1}$$

If the market value of the service is high, then the contract is always performed, so investing high instead of low reduces cost by h instead of only l. If the market value is low, then then if b is large enough that the contract is performed whether the seller invests high or low, again the gain is $h-l$. This happens whenever $b > b^l$. If b is in the intermediate range where the contract is only performed if the seller invests high, then the gain from investing high is simply the surplus from performance over breach, $v_l + b - c + h + 2L$.

4 Seller behavior

4.1 Cost of completion

Under cost of completion damages, the seller will always pay c if she does not perform because this is what it will cost the buyer to complete the contract on the spot market. Her total payoff if she does not perform is $p-c-k_s-L$. If she does perform, then her payoff is $p-c-k_s+s$ ($s \in \{l,h\}$). Since $0<l<h$ and $L>0$, she is strictly better off performing. Because the seller performs for all parameters under cost of completion, the seller will always choose $s=h$ under the Axiom. Thus, we have the following result.

Lemma 2 *Under cost of completion damages, both the buyer and the seller always perform (there is no breach). The seller makes the high relationship specific investment for all values of* q_v.

As mentioned above, this result assumes the buyer and seller cannot renegotiate the contract in period 2 other than just deciding to breach. If such renegotiation were feasible and worked perfectly, then the damage rule would only affect the seller's choice of non-contractible investment in cost reduction. The seller would still have an excessive incentive to choose the $s=h$ unless she received the entire renegotiation surplus. But, the seller would not perform if doing so were inefficient. As mentioned above, the no renegotiation case may be more relevant for cases in which the contract does not explicitly contract around the default rule and for cases, like this one, where there is two-sided asymmetric information.

4.2 Diminution of value

Now consider the case in which the buyer's damages for breach of contract by the seller are based on the loss in value. Assume, as is typically the case, that the court ignores the idiosyncratic value component, b, and simply awards damages based on the loss of the market value, v.

If the seller performs, then her payoff is, as before, $p-(c-s)-k_s$ (price minus performance cost minus investment cost). If she breaches, then she pays damages of v_j, $j \in \{l,h\}$, legal costs of L and her investment cost of k_s, for a total payoff of $p-v_j-k_s-L$. Now, she performs if and only if $p-c-k_s+s > p-v_j-k_s-L$ or $v_j > c-s-L$. Thus, if the seller invests high

$(s = h)$, then she will perform unless $v = v_l$. The seller's expected payoff from investing high is:

$$p - k_h - (1 - q_v)(c - h) - q_v(v_l + L) \tag{2}$$

The seller obtains the price but pays high investment costs, pays production costs of $c - h$ if market value is high (so she performs) and damages plus legal costs if market value is low (so she breaches). If the seller invests low $(s = l)$, then she will also perform if $v = v_h$, and otherwise she will breach. Thus, the seller's expected payoff from investing low is:

$$p - k_l - (1 - q_v)(c - l) - q_v(v_l + L) \tag{3}$$

The seller then invests high if and only if $(1 - q_v)(h - l) > k_h - k_l$, or:

$$q_v < 1 - \frac{(k_h - k_l)}{h - l} \equiv \bar{q}_v \tag{4}$$

Thus, we have the following result.

Lemma 3 *Under diminution of value damages, the buyer always performs. The seller performs only if the market value of performance is high. The seller invests high under diminution of value if and only if* $q_v < 1 - \frac{(k_h - k_l)}{h-l} \equiv \bar{q}_v$ *(the probability of low market value is sufficiently low).*

5 Contractual payoffs

5.1 Contractual prices

Because we assume a competitive market, the seller's payoff is always zero. This has two important implications: (1) the buyer's payoff will be equivalent to social welfare; (2) the contract price under both advance contracting and in the spot market is determined by the zero profit condition. Because the buyer always has the option of having the service supplied in the spot market (either for the first time or after a contract breach), it is important to consider the payoff from this alternative. In the spot market, price simply always equals the cost of supplying the service, c.[9] If the buyer contracts in

[9] There is no cost reducing investment in the spot market either because it is too late (if this occurs after breach) or because a seller will not incur the investment cost without a contract (due to hold-up concerns or simply because if market value is low the buyer may not do the project).

the spot market, then his payoff is the following:

$$(1 - q_v)(v_h + b - c) + q_v Max[0, v_l + b - c] \tag{5}$$

If the buyer's value is high, then spot market trade is efficient no matter what the buyer's idiosyncratic benefits are, so the spot market payoff is $v_h + b - c$. Otherwise, the spot market trade is only efficient if the buyer's idiosyncratic value is high enough.

Recall that Lemma 1 shows that the seller always invests the high amount in cost reduction under cost of completion damages and never breaches. Thus, the seller's expected payoff from the contract under cost of completion is:

$$p - c - k_h + h \tag{6}$$

So the competitive market price under cost of completion damages is $p^{coc} = c + k_h - h$.

Under diminution of value damages, the seller invests high if and only if $q_v < \bar{q}_v$. So, the seller's expected payoff if $q_v < \bar{q}_v$ is given by (2). This makes the competitive market price under diminution of value damages and $q_v < \bar{q}_v : p_1^{dov} = (1 - q_v)(c - h) + q_v(v_l + L) + k_h$. Notice that $p^{coc} - p_1^{dov} = q_v[(c - h) - (v_l + L)] > 0$ by the Axiom. So, we have that $p_1^{dov} < p^{coc}$.

The seller's expected payoff if $q_v \geq \bar{q}_v$ is given by (3), so the competitive market price under diminution of value damages and $q_v \geq \bar{q}_v$ is $p_2^{dov} = (1 - q_v)(c - l) + q_v(v_l + L) + k_l$. Notice that

$$p_1^{dov} - p_2^{dov} = k_h - k_l - (1 - q_v)(h - l) \tag{7}$$

This is exactly zero at $q_v = \bar{q}_v$ and is strictly increasing in q_v, so when $q_v \geq \bar{q}_v$ we have $p_2^{dov} \leq p_1^{dov} < p^{coc}$.

5.2 Buyer Payoffs

5.2.1 Cost of completion

The buyer's payoff under cost of completion damages is given by $v + b - p^{coc}$ since the seller never breaches. (Because the seller never breaches, the buyer never contracts in the spot market after an advance contract.) Thus, his expected payoff is $q_v v_l + (1 - q_v)v_h + b - (c + k_h - h)$. Notice, this is exactly the average payoff from the project when the seller invests high. The buyer's net gain from advance contracting over waiting until the spot market under cost of completion is:

$$h - k_h - q_v Max[0, -(v_l + b - c)] \tag{8}$$

Notice that there will be advance contracting under cost of completion damages if and only if $b > c - v_l - \frac{h-k_h}{q_v}$. Otherwise, the buyer will prefer to wait to contract in the spot market if and only if market value turns out to be high.

5.2.2 Diminution of value

The buyer's payoff under diminution of value damages is more complicated because the seller sometimes breaches. Moreover, if the seller breaches, the buyer may, if b is large enough, contract in the spot market. If $q_v < \bar{q}_v$, the seller invests high and performs unless market value is low. When the seller breaches, the buyer receives v_l in damages. So the buyer's expected payoff is:

$$\begin{aligned} & q_v v_l + (1-q_v)v_h + (1-q_v)b - q_v(L - Max[0, v_l + b - c]) - p_1^{dov} \quad (9) \\ = \; & (1-q_v)(v_h + b - (c-h)) - q_v(2L - Max[0, v_l + b - c]) - k_h \end{aligned}$$

Under diminution of value damages, the buyer always obtains his market value, but only obtains his idiosyncratic value if the seller performs. If the seller does not perform (probability q_v), then the buyer pays legal costs and has the option to obtain performance in the spot market (for a payoff of $Max[0, v_l + b - c]$). This means the buyer's payoff is higher under diminution of value damages than cost of completion, for $q_v < \bar{q}_v$, if and only if $c - h - (v_l + b + 2L) > 0$.[10] For small enough b, this holds ($c_h - h - (v_l + 2L) > 0$ by assumption). For $b > b^h$, however, this does not hold.

Under diminution of value damages and $q_v < \bar{q}_v$, the buyer's gain from advance contracting over waiting to contract in the spot market is:

$$(1-q_v)h - 2q_v L - k_h \tag{10}$$

By contracting in advance, the buyer benefits from the seller's lower cost if the seller performs, but pays for the investment cost and legal costs in the event of

[10] The difference in payoffs is $q_v\{Max[0, v_l+b-c] - (v_l+b-c+2L+h)\}$. If $v_l+b-c > 0$, then this becomes $q_v(-2L-h) < 0$. If $v_l + b - c < 0$, then it is $-q_v(v_l + b - c + 2L + h)$, which is positive if and only if $v_l + b - c + 2L + h < 0$.

breach (the buyer ends up bearing the seller's costs because they are reflected in the contract price due to the competitive market assumption). Thus, the maximum q_v for advance contracting is $q_v = \frac{h-k_h}{h+2L} \equiv \hat{q}_v^h$ under diminution of value and $q_v < \bar{q}_v$. If $q_v < Min[\bar{q}_v, \hat{q}_v^h]$, so there is advance contracting and high investment under diminution of value, then the buyer's (and, thus, social welfare's) net gain from diminution of value damages relative to cost of completion is:

$$-q_v(2L + Min[h, v_l + b - c + h]) \tag{11}$$

That is, diminution of value is superior if and only if $b < c - h - v_l - 2L$ (the buyer's idiosyncratic value is small enough; the Axiom guarantees this is possible).

If $q_v \geq \bar{q}_v$, the buyer's expected payoff is the same except that the price differs because the seller is investing low:

$$\begin{aligned} & q_v v_l + (1-q_v)v_h + (1-q_v)b - q_v(L - Max[0, v_l + b - c]) - p_2^{dov} \\ = \; & (1-q_v)(v_h + b - (c - l)) - q_v(2L - Max[0, v_l + b - c]) - k_l \end{aligned} \tag{12}$$

The buyer's net gain from advance contracting over waiting to trade in the spot market is:

$$(1-q_v)l - 2q_v L - k_l \tag{13}$$

Thus, the maximum q_v for advance contracting is $q_v = \frac{l-k_l}{l+2L} \equiv \hat{q}_v^l$ under diminution of value.

If there is advance contracting under diminution of value, the buyer's (and, thus, social welfare's) net gain from diminution of value damages relative to cost of completion, for $q_v \geq \bar{q}_v$, is:

$$k_h - k_l - (1-q_v)(h-l) - q_v(2L + Min[h, v_l + b - c + h]) \tag{14}$$

Thus, we have the following result.

Proposition 4 *If q_v is large enough ($q_v > Max\{\hat{q}_v^l, \hat{q}_v^h\}$), then cost of completion damages are superior. Moreover, the buyer's payoff from a diminution of value rule less his payoff from a cost of completion rule is strictly decreasing in q_v for all $f(b)$ such that $-l - 2L + \int_0^{c-v_l}(c - v_l - b)f(b)db < 0$. Otherwise, the net gain from diminution of value is maximized at q_v such that $-l - 2L + \int_{c-v_l-\frac{h-k_h}{q_v}}^{c-v_l}(c - v_l - b)f(b)db = 0$. There exists $f(b)$ for which both diminution of value and cost of completion are superior, but for $E[b] \geq (c - v_l) - \frac{(l+2L)(h-k_h)}{l-k_l}$, cost of completion is superior.*

Proof. See Appendix. ■

This proposition tells us several things. First, and most importantly, if the event that lead to breach (here, low market value for the property) was seen as likely enough ex ante, then cost of completion is the better damage measure. This is true regardless of the distribution of idiosyncratic benefits. The reason is that if both parties know that market value is very likely to be so low that breach is profitable under diminution of value, then they cannot profitably use advance contracting under such a rule. Cost of completion, however, does facilitate advance contracting if the buyer's idiosyncratic value is high enough. Thus, cost of completion weakly dominates diminution of value in this setting. Furthermore, if the court observes an advance contract in this case, it can infer that the buyer must have had sufficient idiosyncratic value to make cost of completion preferable to spot market contracting, suggesting that cost of completion strictly dominates diminution of value in cases before a court.

Second, the proposition says that unless a large amount of the probability mass on private benefits is close to zero, larger q_v (low market valuation is more likely) tends to make cost of completion relatively more desirable. The reason for this is similar to the reason above. When this is the case, the fact that the parties nevertheless contracted in advance suggests that idiosyncratic benefits must be significant. If there are large idiosyncratic benefits, then diminution of value necessarily is under-compensatory and therefore can induce inefficient breach. Cost of completion prevents this. On the other hand, if q_v is small, then the parties may have contracted in advance because they expected market value to be high. If, they are surprised by low market value, then the contract may not be efficient, making diminution of value superior.

Third, there is no general principle that one rule is necessarily superior to the other. If idiosyncratic benefits are very heavily weighted towards zero, then diminution of value is the superior rule. In that case, diminution of value allows for efficient breach while cost of completion does not. For this to the be case, however, it is necessary that the expected value of idiosyncratic benefits is sufficiently small.

6 Conclusion

While this paper does not support a simple universal rule in favor of either cost of completion or diminution of value, it provides courts useful guidance as to when one rule or the other is likely to be superior. In addition to the obvious focus on idiosyncratic value, the paper shows that courts should play particular emphasis to how whether or not the events that led to the breach (low market value or high cost) were very surprising or reasonably likely. The more the parties expected these events ex ante, the more the existence of the contract suggests that the buyer must have significant idiosyncratic value. In fact, diminution of value can completely prevent parties from profitably contracting in advance if these "bad" events are quite likely ex ante.

Applying these results to the *Peevyhouse* case, for example, says that the court should have focused on whether there were significant, unexpected shocks that led to the breach. If the cost of restoring the land was much greater than either party could have anticipated, for example, that would tend to support diminution of value. Whereas, if the cost was close to what was predictable, then this would tend to support cost of completion. Similarly, there was a sudden, surprising drop in the value of farmland, this would tend to support diminution of value since one could not necessarily infer high idiosyncratic value from the original contract if this drop were unexpected. If, on the other hand, the value of the farmland was not greatly changed between the time of contracting and the time of breach, this would strongly support cost of completion.

While courts will not be able to perfectly observe parties expectations at the time of contracting, it should not be hard to get reasonably good predictions of likely market values and costs in many situations. While knowing much about the buyer's idiosyncratic value is always difficult, the other factors the model identifies should not be too difficult to estimate, making the model's suggestions plausibly implementable, at least in many situations.

7 Appendix

Proof. First, consider $q_v \geq \bar{q}_v$. If $v_l + b - c > 0$, then the net gain from diminution of value over cost of completion is $k_h - k_l - (h-l) - q_v(2L+l) < 0$– cost of completion is superior. If $v_l + b - c < 0$, then the net gain from diminution of value over cost of completion is $k_h - k_l - (h-l) - q_v(2L + v_l + b - c + l)$. If q_v is large enough, then this is positive for small enough b. At the maximum q_v for advance contracting this is, $k_h - h - \frac{l-k_l}{l+2L}(v_l + b - c)$. Thus, a necessary condition for diminution of value to be superior to cost of completion is that $E[b] < (c - v_l) - \frac{(l+2L)(h-k_h)}{l-k_l}$.

First, consider $q_v \geq \bar{q}_v$. If $q_v > \hat{q}_v^l$, then cost of completion is superior since it provides the option of advance contracting. Notice, however, that $q_v \in (\bar{q}_v, \hat{q}_v^l)$ is feasible if $lk_h - k_l h > 0$ since $\hat{q}_v^l - \bar{q}_v = \frac{l-k_l}{l+2L} - (1 - \frac{k_h-k_l}{h-l}) = \frac{lk_h - k_l h - 2L(h-l-(k_h-k_l))}{(h-l)(l+2L)}$. If $q_v \leq \hat{q}_v^l$, then the expected gain from diminution of value over cost of completion is given by:

$$\int_{c-v_l-\frac{h-k_h}{q_v}}^{B} \{k_h - k_l - (1-q_v)(h-l) - q_v(2L + Min[h, v_l + b - c + h])\} f(b) db \tag{15}$$

$$+F(c - v_l - \frac{h-k_h}{q_v})[(1-q_v)l - 2q_v L - k_l] =$$

$$-k_l + (1-q_v)l - 2q_v L - (1 - F(c - v_l - \frac{h-k_h}{q_v}))(h - k_h) + q_v \int_{c-v_l-\frac{h-k_h}{q_v}}^{c-v_l} (c - v_l - b) f(b) db$$

The first line comes from the the fact that for $b < c - v_l - \frac{h-k_h}{q_v}$, the buyer does not engage in advance contracting under cost of completion, thus the relevant comparison is diminution of value versus spot market contracting.

Taking the derivative of (15) with respect to q_v gives:

$$-l - 2L + \int_{c-v_l-\frac{h-k_h}{q_v}}^{c-v_l} (c - v_l - b) f(b; \lambda) db \tag{16}$$

Define λ^* implicitly by $-l - 2L + \int_0^{c-v_l}(c - v_l - b) f(b; \lambda^*) db = 0$. Then for any $f(b; \lambda)$ that is first order stochastically dominated by $f(b; \lambda^*)$, (15) is strictly decreasing in q_v.

First, consider $q_v < \bar{q}_v$. If $q_v > \hat{q}_v^h$, then cost of completion is superior since it provides the option of advance contracting. Notice, however, that $q_v \in (\hat{q}_v^h, \bar{q}_v)$ is feasible if $lk_h - k_l h < 2L(h - l - (k_h - k_l))$ since $\bar{q}_v - \hat{q}_v^h = (1 - \frac{k_h-k_l}{h-l}) - \frac{h-k_h}{h+2L} = \frac{hk_l - lk_h + 2L(h-l-(k_h-k_l))}{(h-l)(l+2L)}$. If $q_v \leq \hat{q}_v^h$, then the expected gain from diminution of value over cost of completion is given by:

$$-q_v \int_{c-v_l-\frac{h-k_h}{q_v}}^{B} \{(2L - Max[0, v_l + b - c]) + (v_l + b) - (c - h)\} f(b)db \quad (17)$$
$$+F(c - v_l - \frac{h - k_h}{q_v})[(1 - q_v)h - 2q_v L - k_h] =$$
$$-q_v(2L + h) + F(c - v_l - \frac{h - k_h}{q_v})[h - k_h] + q_v \int_{c-v_l-\frac{h-k_h}{q_v}}^{c-v_l} (c - v_l - b)f(b)db$$

The first line comes from the the fact that for $b < c - v_l - \frac{h-k_h}{q_v}$, the buyer does not engage in advance contracting under cost of completion, thus the relevant comparison is diminution of value versus spot market contracting.

Taking the derivative of (17) with respect to q_v gives:

$$-h - 2L + \int_{c-v_l-\frac{h-k_h}{q_v}}^{c-v_l} (c - v_l - b)f(b; \lambda)db \quad (18)$$

Define λ_h^* implicitly by $-h - 2L + \int_0^{c-v_l}(c - v_l - b)f(b; \lambda_h^*)db = 0$. Then for any $f(b; \lambda)$ that is first order stochastically dominated by $f(b; \lambda_h^*)$, (15) is strictly decreasing in q_v. Q.E.D. ■

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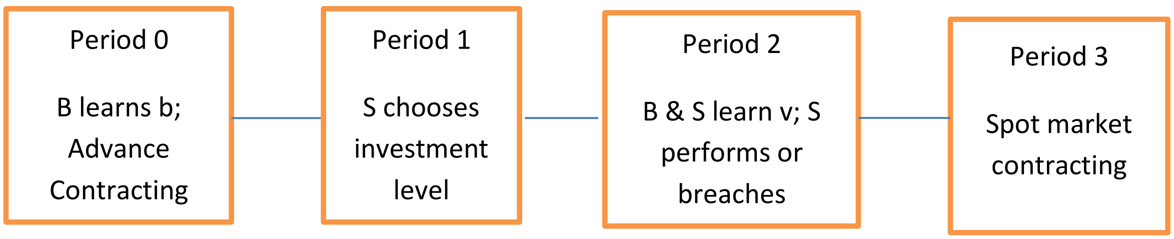
Timeline


Period 0
B learns b; Advance Contracting
Period 1
S chooses investment level
Period 2
B & S learn v; S performs or breaches
Period 3
Spot market contracting