

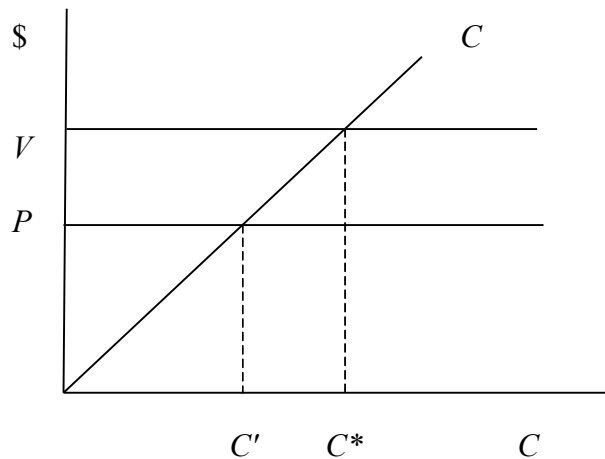
## Chapter 4 The Elements of a Valid Contract

### Contract Modification

Consider a contract between a buyer and seller where

$V$  = value of performance to the buyer;  
 $C_1$  = expected cost of performance to the seller;  
 $P$  = price, where  $V > P > C_1$ .

Suppose that after the price is set, but before performance, the seller claims that the cost of performance has risen to  $C_2$ , where  $V > C_2 > P$ . Thus, performance is still efficient, but the seller will only perform if the price is increased above  $C_2$ .



In the above diagram,  $C_1$  is less than  $C'$ , for otherwise the seller would not have agreed to the original price,  $P$ . The question is whether  $C_2$  is above  $C'$ , as claimed by the seller. If it is, but it is still less than  $C^*$  (i.e., if  $C_2$  is between  $C'$  and  $C^*$ ), then a modified price that makes performance profitable to the seller is efficient because there are still gains from trade. This reflects the facts of the *Goebel v. Linn* case.

However, if costs have not really increased, as was true in *Alaska Packers v. Domenico*, a price increase is not necessary to induce the seller to perform—it merely redistributes the gains from trade in favor of the seller. The problem is that the buyer generally does not know whether costs have truly increased or not, so the seller's threat to breach may be believable. (If the buyer knows the seller's costs have not increased, the seller's threat to breach is not credible, and the buyer should simply refuse to raise the price.) The

problem for the court is to determine, after the fact, whether the seller's costs have in fact increased and to enforce the price increase only if they have.

### Mistake

These notes generalize the numerical example presented in the text. Let

$V_F$  = value of a fertile cow;  
 $V_I$  = value of an infertile cow;  
 $a$  = fraction of fertile cows in the population.

The expected value of a randomly chosen cow is therefore  $V^e = aV_F + (1-a)V_I$ .

*Purely distributive information.* In this case, the true nature of the cow is eventually revealed through no effort by the parties after the contract is made but before delivery (as was true in *Sherwood v. Walker*). If the original price is set at the cow's expected value ( $P = V^e$ ) and the contract is enforced, the buyer's expected return is

$$a(V_F - P) + (1-a)(V_I - P) = 0, \quad (4.1)$$

while seller's return is  $P = V^e$ . Thus, the joint return is  $V^e$ .

If the contract is not enforced,  $P = V_I$  since any cows that turn out to be fertile must be returned to the seller. Thus, the buyer's expected return is

$$(1-a)(V_I - P) = 0, \quad (4.2)$$

while the seller's expected return is

$$aV_F + (1-a)P = V^e. \quad (4.3)$$

Again, the joint return is  $V^e$ , which shows that the enforcement rule has no effect on social value.

Now suppose that the buyer can test for fertility at cost  $c$  prior to entering a contract, and that he can withhold the results of the test. Thus, the test gives the buyer *foreknowledge* of the cow's type. As a result, he will only contract to buy fertile cows. If the contract is enforced, the price is  $P = V^e$  as above, and the buyer's expected return from conducting the test is

$$a(V_F - P) - c = a(1-a)(V_F - V_I) - c, \quad (4.4)$$

which may be positive or negative. Suppose it is positive, so the buyer conducts the test. The expected return for the seller is

$$aP + (1-a)V_I. \quad (4.5)$$

The joint return is the sum of (4.4) and (4.5), or  $V^e - c$ , which is just the expected value of the cow less the cost of the test. Thus, while the test is privately valuable to the buyer (by assumption), it is *socially wasteful*. This is true because the test does not change the use of the cow, only the party who ends up with it.

Now suppose the contract is not enforced. In that case, the buyer will never conduct the test, and the joint return will be  $V^e$  as above (given that the cow's type is revealed even without the test). Thus, enforcing the contract is inefficient in this case because it induces buyers to conduct wasteful testing.

*Socially valuable information.* Suppose both parties believe the cow is infertile and information about the cow's true nature will *not* come out, absent the buyer's test. Thus, all cows not identified by the buyer as fertile will be slaughtered. In this case,  $P = V_I$  for untested cows.

If contracts are enforced, the buyer's expected return from conducting the test is

$$a(V_F - P) - c = a(V_F - V_I) - c. \quad (4.6)$$

Assume this is positive so the buyer conducts the test. The expected return for the seller is

$$aP + (1-a)V_I = V_I \quad (4.7)$$

Adding (4.6) and (4.7) yields the joint return,  $V^e - c$ , which is the same as above.

If the contract is not enforced, the buyer will not conduct the test, and the cow will be slaughtered. The resulting value is  $V_I$ , regardless of the cow's true type. In this case, enforcement of the contract is efficient because it induces the seller to undertake efficient testing.