

Does Halpin Dis-Prove the Coase Theorem?

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The so called “Coase Theorem” is still frequently discussed in law as well as in economics. But while economists appear to have generally accepted its correctness and narrow range of practical applicability due to its many and very demanding assumptions, some lawyers still seem to be puzzled by its validity. The latest attempt to attack the basic reasoning of Coase’s argument is forthcoming in [Halpin (2007)]. In this critique, Halpin mainly presents two arguments against the invariance thesis of the Coase-Theorem. I want to have a look at his thoughts and investigate their plausibility.

But before his arguments will be discussed, however, the Coase Theorem needs to be introduced. Then the framework which Halpin uses in his discussion will be presented and his initial “challenge” to the theorem will be stated. Coase’s answer then introduces the concept of “rents”. After showing how rents solve this “challenge”, Halpin’s main arguments against the Coase Theorem are finally explained and discussed.

The question of what exactly the Coase Theorem is, and what it states, is difficult to answer. Coase himself never stated his argument clearly as a theorem. Therefore, many different formulations exist. According to Coleman, one of the best known wordings is the following: “Given traditional assumptions of substantial knowledge, perfect rationality and the absence of both transaction costs and income effects, the assignment of legal entitlements in cases of two-party incompatible land uses will be neutral as to the goal of allocative efficiency” ([Coleman (1988), p. 69])¹. The argument, however, is not restricted to competing land uses. With perfect information, quasilinear utility functions², and no transaction costs³, two rational parties concerned with an externality (which is caused by the activity of one and affecting the activity of the other) will agree on how to use their resources if they are allowed

1 This formulation corresponds to the positive version of the theorem in the context of bargaining theory which is also the background for the discussion here. See for example [Cooter / Ulen (1988)].

2 This prevents income effects. For details see [Varian (1999), ch. 32] and [Hurwicz (1993)].

3 See also [Albach (2000), p. 29ff] and for a critique [Anderlini / Felli (2006)].

to bargain. This is the case because the one with the higher profit can compensate the other one for giving up the activity with the lower profit. The result is an efficient allocation of resources in line with the Kaldor-Hicks-criterion⁴. Therefore, this idea is also called the “efficiency thesis” of the Coase Theorem. In addition, the efficient bargaining solution will be the same irrespective of to whom legal liability is assigned. Due to its ability to compensate the other, the more valuable action always prevails. This is the so-called “invariance thesis” of the Coase Theorem. It is this thesis that Halpin’s arguments are directed at.

Using Halpin’s notation⁵, the following framework is used to present his first challenge to the Coase-Theorem:

A, B	parties
$i, j = \{a, b, p, q\}$	activities
v_i	value of activity i
s	excess gain
d_j	amount received as compensation for not doing j despite entitlement
n_i	amount retained after paying compensation for doing i without entitlement

- For $v_i > v_j$ is
- (1) $s = v_i - v_j$,
 - (2) $d_j = v_j + (s - n_i)$, and
 - (3) $n_i = v_i - d_j$.

Further assumptions are that A has alternatives a and p with $v_a > v_p$, that B can decide between activities b and q with $v_b > v_q$, and that only a and b have negative external effects causing a conflict between A and B. From these, Halpin concludes the following:

- (i) If $v_a > v_b$: a prevails only if either A is entitled to do a (in that case she does not need to compensate B and thus retains v_a) or if she is not entitled to do a, but $n_a > v_p$ after compensating B. However, if $n_a < v_p$, A would discontinue a and switch to p instead.
- (ii) If $v_b > v_a$: b prevails only if either B is entitled to do b (in that case he

⁴ [Hadelor/Arentzen (2000), p.1678].

⁵ Compare [Halpin (2007), p. 9f.]. The presentation here extends his notation slightly but does not change the argument.

does not need to compensate A and thus retains vb) or if he is not entitled to do b, but $nb > vq$ after compensating A. If $nb < vq$, however, B would stop b and pursue q instead.

This result contradicts the invariance thesis. Depending on the entitlement to pursue the activity in question, it might be preferable to switch to an available alternative.

Coase replies⁶ to this challenge by introducing “rents”, defined as the amount by which the value of an activity exceeds the opportunity costs of that activity. Opportunity costs are the value of the next best alternative to an activity, i.e. the profit forgone by using resources in a different way. Therefore, the rent $R_{i,j}$ of activity i compared to its next best alternative j equals the difference of the values of these activities: $R_{i,j} = s = v_i - v_j$. Figure 1 illustrates this:

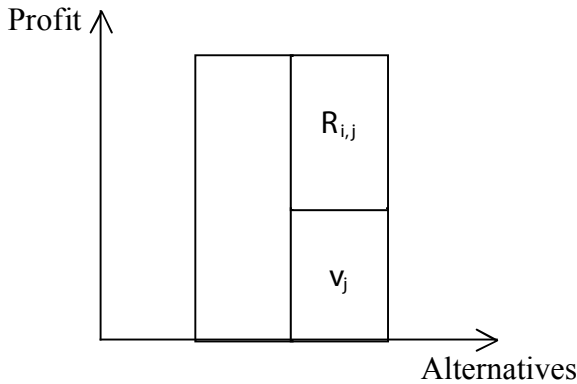


Figure 1 – Alternative Activities and Rent

How do rents affect the challenge to the Coase Theorem? Under the same assumptions as before, we can define A's rent $R_A = R_{a,p}$, and B's rent $R_B = R_{b,q}$. Which activity prevails now depends on which has the higher rent. The basic reasoning, nevertheless, stays the same. The activity producing the higher rent can compensate for its negative external effect, thereby inducing the activity with the lower rent to be ceased, and still be profitable. So the activity with the higher rent will continue, even if it is liable for its externalities. Using the above example, this means:

(iii) If $R_A > R_B$: a prevails regardless of whether A is entitled to do a or not. In

6 See [Coase (1988), 163ff.].

the first case she does not need to compensate B and thus retains v_a , whereas in the second case she compensates B for switching to v_q by pay-ing an amount db with $RB < db < RA$. The following Figure 2 illustrates the starting point of the negotiations between A and B:

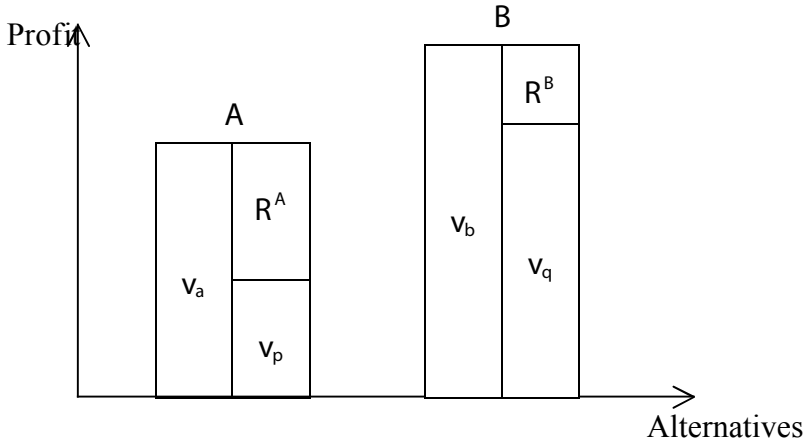


Figure 2 – The initial situation

The second case leaves A with $RA' = RA - db$ and $va' = va - db$, whereas B ends up with $va' = va + db$, as the following Figure 3 shows:

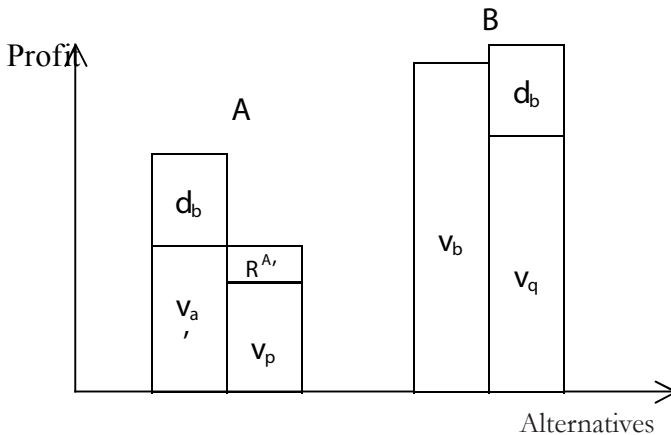


Figure 3 – The outcome

(iv) If $RB > RA$: b prevails regardless of whether B is entitled to do b (in that case he does not need to compensate A and thus retains vb) or not (in that case he compensates A for switching to vp by paying an amount da with $RA < da < RB$). The second case leaves B with $RB' = RB - da$ and $vb' = vb - da$, whereas A now has $va' = vp + da$.

Coase explains extensively the consequences of the introduction of rents resulting from his argument for a number of permutations of RA, RB, and the caused damage D that is compensated by di⁷. He shows that for all these permutations both the efficiency and the invariance thesis hold. However, the discussion here should have made the basic reasoning of his theorem sufficiently clear.

Halpin, on the other hand, thinks that this argument is not correct for it does not take properly into account alternative uses of the resources. To make his point, he uses the example of a rancher, whose cows partly destroy the crops of the neighbouring farmer. He argues that “the [compensation] payment [...] will not be sufficient to prevent activity on the adjoining land which [the rancher] would have to buy out if he continued to raise cows”⁸. In other words, using case (iii) from above⁹ with A being the rancher with liability for the negative externality caused by his cows, a being the activity of raising cows, B being the farmer, and b being the activity of growing crops, A has to pay more than db in order to continue with a.

According to Halpin, this is because the rancher “must be in a position to buy out all activity [...] on the adjoining land where his cattle may stray and cause damage”¹⁰ (Halpin’s emphasis). The reason is that “there remains the potential liability of [the rancher] to the next tenant, or to the owner”¹¹. More generally, A needs to compensate every other potential party C in order to bring about “abandonment of the activity [b] (or any other activity)” using b’s resources (Halpin’s emphasis).

However this argument is not clear to me. In my opinion, Halpin does not recognize that rents are for a specified period only and that it is exactly the non-use of the resources in question in that period for which B is compensated. After compensation, as Halpin correctly cites Coase, “that tract of land is left uncultivated”¹².

7 See [Coase (1988), p. 166-170].

8 See [Halpin (2007), p. 13].

9 By analogy, the example could also be using case (iv) from above. For the sake of clear argumentation, however, this and the following examples use case (iii).

10 See [Halpin (2007), p. 13].

11 Ibid.

12 Ibid.

Thus, ex definitio there can be no other tenant in that period that would need to be compensated.

Halpin continues to state that “even if [the farmer] is the owner of the land and proceeds to take up his next most profitable activity on the land in return for the [compensation], there is a distinct possibility that straying cattle will cause damage to that activity so landing [the rancher] with further liabilities that he cannot afford”¹³. But again, this contradicts Halpin’s own assumptions for he assumed that the alternatives p and q are not causing conflicts.¹⁴

Furthermore, even if q would be an activity for which A would need to compensate B in order for B not to engage in it, the Coase Theorem still holds. The following Figure 4 illustrates this by further extending case (iii) from above by introducing a third-best alternative activity t for B together with the corresponding rent $R_{q,t}$:

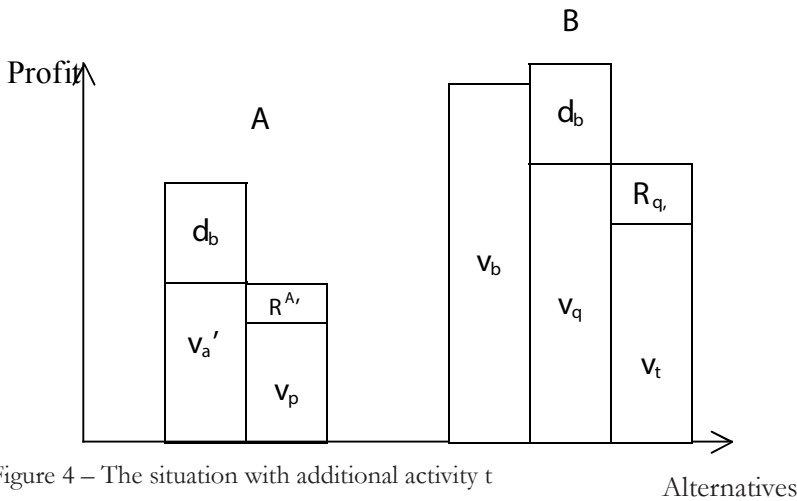


Figure 4 – The situation with additional activity t

As the figure has been drawn, A indeed ceases a. However, this is not because “the alternative of paying B a total sum in excess of his initial profit and rents”, as Halpin suggests, but because $R_{q,t} > RA$. Even if liability and entitlement were the other way around, i.e. if B would be liable for external effects of q on a, q would prevail because B could compensate A. But this is exactly what the invariance thesis of the Coase Theorem states!

13 Ibid,

14 See [Halpin (2007), p.8].

Does Halpin Dis-prove the Coase Theorem?

Maybe Halpin overlooks this because he does not understand the introduction of a third alternative t to create a new instance of the Coase Theorem. Instead, he supposes that the current instance is still looked at, that the prevailing activity changes due to the legal liability and that therefore the theorem would not hold. I think, however, that this is wrong because we are now concerned with different activities. We do not look at a and b anymore, but at a' and q . With these, the activity with the higher rent prevails again just as the Coase-Theorem predicts. Halpin's argument, therefore, seems to me to provide a further illustration of the Coase-Theorem rather than to dis-prove it.

Halpin also presents a second argument against the invariance thesis of the Coase Theorem. He argues that if the rents are equal but less than the damage caused by the externality, i.e. $RA=RB<D$, "legal liability would determine which activity prevailed, precisely because the party having to acquire the entitlement would not have sufficient surplus in his rents over the rents of the other party to buy out his activity"¹⁵.

Although this sounds *prima facie* plausible, Halpin makes a logical mistake. As Medema and Zerbe point out¹⁶, this case simply cannot occur under the given assumptions. If the rent of the "victim" of the externality is less than the damage caused, he would immediately be driven out of business. With his activity, the externality would be eliminated, as there would be nothing more on which it could have negative consequences. As Medema and Zerbe put it: "[...], rents must exist for negotiation over rights to even be in the realm of possibility; that is, they are prior to the Coase Theorem analysis"¹⁷. Therefore, Halpin's second argument is also not suitable to dis-prove the invariance thesis of the Coase Theorem.¹⁸

Halpin also tries to make the case that the efficiency thesis of the theorem as a consequence of his arguments no longer holds. But as we have seen, the "flaws" he identifies in Coase's reasoning do not stand scrutiny. Therefore, they can-not be used as a basis to argue against the efficiency thesis. As a result, it seems that not only Coase's efficiency thesis, but also his invariance thesis stand as before.

15 [Halpin (2007), p. 12].

16 [Medema/Zerbe (2000), p. 841].

17 Ibid.

18 A similar argument can be made against Halpin's third challenge, "The case of no rents".

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