

Toward a Clarification of the Block-Demsetz Debate on Psychic Income and Externalities

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Published online: 14 November 2007
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For over a quarter of a century, one small corner of the voluminous literature on the Coase theorem has been the scene of an animated and, at times, heated debate between Walter Block and Harold Demsetz. Over the entire course of the debate, Block (1977, 1995, 2000) has argued that when individuals have only psychic income with which to maintain their property rights, the Coase theorem fails.¹ And Block (1977, 1995) holds the position that his psychic income case represents a conceptually distinct qualification to the Coasian position. Demsetz (1979, 1997) maintains that Block's case against the Coase theorem, at least in its weak form, involves nothing more than a demonstration of the potential importance of income effects and as such does not constitute a conceptually distinct qualification.

Despite the many thousands of words spent over the issue by the two opponents, it is hard to be satisfied with the current state of the debate. Few points of agreement have been made. In his last paper on the issue Demsetz commenting on Block's then latest foray states: "I learn nothing from reading his part of this debate, and apparently he learns nothing from reading my part, so I write this reluctantly and refuse to join in any future similar exercise in futility" (1997, p. 101).

For his part, Block (2000) continues to argue that the Coase theorem can fail even if transactions are zero and is exasperated by Demsetz's failure to appreciate his putatively fundamentally different slant on the Coase theorem.

In this note I seek to clarify some aspects of the debate between Block and Demsetz. In doing so, I show that the debate has been more than one full of sound and fury signifying nothing: their debate over technical aspects of the Coase theorem once properly interpreted yields important insights for public policy.

¹Block (1977, p. 111) quotes from Coase's paper (Coase 1960, p. 10) on the problem of social cost and identifies the so-called Coase theorem as revolving around the following claim: "with costless market transactions, the decision of the courts concerning liability for damage would be without effect on the allocation of resources." But just what the Coase Theorem precisely entails has been the subject of many articles. Recent research, such as Butler and Garnett (2003) suggests that the real message of Coase's paper has been misinterpreted by a host of expositors.

The Broad Terms of the Debate

Much of the debate between Block and Demsetz, at least in the latter stages of the debate, has been conducted in terms of a budget-indifference curve diagram. Figure 1 taken and modified from Demsetz (1979), depicts the farmer's income on the vertical axis and a flower garden assumed to be of size F_2 is measured on the horizontal axis.² Demsetz assumes the farmer's initial income is some positive amount, say, Y_4 . In the absence of any externalities the farmer has a flower garden and her endowment point is at point E. But soot from a neighboring factory can destroy the farmer's garden. In that event the farmer's endowment point would be at point Y_4 .

Demsetz imagines the factory can install pollution abatement equipment at a cost of, say, $Y_4 - Y_1$. If the farmer is granted the property right to be free of soot, then the farmer can elect to give up the garden in return for compensation from the factory. The maximum compensatory payment the rational factory owner would be willing to offer will be no more than the cost of installing the pollution abatement equipment, represented by $Y_7 - Y_4$, which by construction equals $Y_4 - Y_1$. If the maximal compensation is offered and accepted the farmer's budget constraint is represented by B_4 .

If the factory is given a property right to carry out his activity, then the factory will install the pollution abatement equipment when the farmer covers the cost of the equipment. On such an occasion, the gardener's budget constraint is represented by B_3 as the vertical difference between B_3 and B_4 measured in terms of income equivalents reflects the cost of the pollution abatement equipment.

Armed with the principal features of the interdependency between the factory owner and the farmer, Demsetz (1979) sets out the central features of the so-called strong and weak versions of the Coase theorem. The strong version of the Coase theorem states that if transaction costs are zero, then the allocation of resources will be identical irrespective of the initial assignment of property rights. When the farmer has the property rights she maximizes her consumption at point E on constraint B_4 . The farmer will not relinquish her garden for the compensatory payment because the use value of the garden is greater than the maximum payment offered by the factory owner to forgo the garden, that is $Y_8 - Y_4$ exceeds $Y_7 - Y_4$. Alternatively, if the factory owner is accorded the property right, then the farmer will pay the factory owner to install the pollution abatement equipment. By making a payment of EJ (equals $Y_7 - Y_4$) the farmer can improve her level of satisfaction over the level she would sustain were she to not pay for the installation of the abatement equipment, that is U_6 is greater than U_4 . Although the distribution of incomes alters with the change in property rights, the garden continues to flower and prosper at level F_2 irrespective of the initial assignment of property rights. Here the strong version of the Coase theorem holds.

Before turning to the weak version of the Coase theorem I set out the basis of Block's argument against the Coase theorem. From the outset Block (1977) has

²The figure is "taken" from Harold Demsetz's paper (1979, p. 99). Taken is used judiciously as while the figure does contain the fundamental features of his original figure it is here heavily modified from the one constructed by Demsetz.

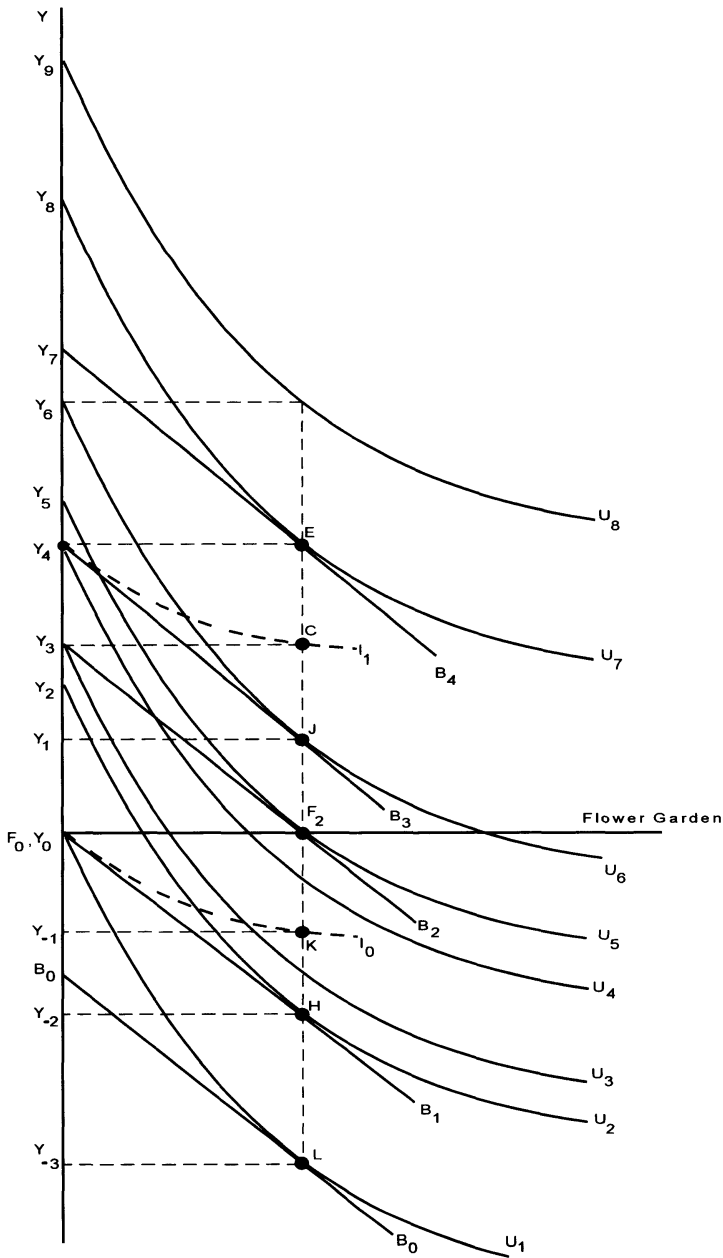


Figure 1 The Case of the Farmer and the Factory Owner

maintained that the Coase theorem relies on the hidden assumption that the farmer has sufficient pecuniary income to pay the factory owner for the installation of the pollution abatement equipment. Block’s argument posits that the farmer accrues psychic income from the garden and values it more than the cost of the abatement

equipment. But an offer of psychic income rather than cold hard cash will not convince the factory owner to install the scrubber. The private bargaining between the factory owner and the farmer imagined by a follower of the Coasian position will not take place. Consequently, if the factory owner is granted the property rights, then the garden will wither away under the soot from the factory. Alternatively, if the property rights are assigned to the farmer, then the garden will continue to bloom. Although Block did not use the terms weak and strong Coase theorem in his initial paper, his result, stated in more modern terminology, is that the strong version of the Coase theorem does not hold. The existence of the garden depends on the initial assignment of property rights. Significantly, Block (1977) maintains that his psychic income case against the Coasian position is conceptually distinct from the explicit reckoning of positive transaction costs. The standard items that fall under the rubric of transactions costs such as the free rider problem, information costs, and strategic behavior do not apply by assumption. The problem identified by Block is not a transactions costs argument. The problem is that the farmer lacks the pecuniary means to protect the use value of her garden.

Over the course of several papers, Demsetz (1997) has argued that Block's conceptually distinct challenge to the Coase theorem misses the mark once it is accepted that Coase really had in mind a weak version of the Coase theorem namely; if transactions costs are zero, then an efficient allocation of resources will be achieved irrespective of the initial assignment of property rights. Income effects can be neatly captured in the figure and Demsetz develops and employs it to good effect. Suppose the farmer's indifference curve is I_1 instead of U_6 . The income consumption curve is strictly horizontal passing through points E and Y_4 as opposed to the vertical income consumption present under the strong version of the Coase theorem. Then in the event the property rights are assigned to the factory owner, the farmer maximizes her satisfaction at a corner solution, consuming Y_4 and a withered garden F_0 . Demsetz (1997) acknowledges that while the final allocation can change from one property rights assignment to another, he claims the final allocations are all socially optimal³ and that the social-optimality invariance is one of the central lessons of Coase. Demsetz claims that Block's psychic income charge is nothing more than an income effect and as such does not represent a conceptually distinct case of why the Coase theorem would fail.

Block's Latest Defense

Not prepared to accept Demsetz's 1997 paper which is an elaboration of the 1979 work, Block (2000) returns to the issue and attempts to explain how Demsetz has misunderstood his argument. After introducing two new terms to the economic literature, namely, an *ex ante* and *ex post* income effect, Block acknowledges that the

³ Demsetz (1979) does not set out the case to explain why the allocations at E and Y_4 are Pareto optimal. I set out the logic that appears to underlie Demsetz's claim in the next section of the paper.

weak Coase theorem holds under the *ex post* income effect but fails under the *ex ante* income effect.⁴

I agree that the [*ex post*] income effect requires a parallel shifting budget line, and certainly, the difference between winning and losing the court case will translate into just this phenomenon. However, my criticism of Coase focused on just one of these states of affairs, the one where the farmer lost the case. I maintained, and I still maintain, that if we focus on just this situation, there can be no income effect and that, moreover, there is no need to compare the two situations (which, I readily admit, would generate an income effect...)

Let us, indeed, as Demsetz (1997, p. 107) several times asks, focus on the last phrase of his quotation from me (Block 1977, p. 71). It reads “because [she] simply does not have the funds available to [her].” To put this into other terminology, this state depicts a stock, not a flow. I am here concentrating on a moment in time, and on a specific assumption: that the impecunious farmer... has just lost a lawsuit. Can [she], or can [she] not bribe the polluter, as is required by Coase if his zero transactions model is to be valid? If he cannot, then Coase’s rendition of the situation is incomplete... The point is, I am not here engaging in a comparative static analysis; in contrast, I am focusing on merely one situation.

It is difficult to be satisfied with Block’s most recent defense of his psychic income case. The Coasian position, at least in terms of the strong and weak versions of the Coase theorem, is irreducibly a comparative static exercise. Block’s line of argument is akin to the position that one can say something about changes to a market price by just focusing on demand or supply independent of the other. And just as statements about price involve an exercise considering the twin blades of the Marshallian scissors, statements about the Coase theorem involve a comparative static exercise where the variable is the definition of property rights. If one were to follow Block and focus on strictly one such scenario then all that one would learn is that if the gardener does not have the pecuniary means to protect her property rights that the garden will wither and die. But that’s not a statement about the Coase theorem in either its strong or weak form. One would still have to ask what would happen to the allocation of resources or its normative content if the property rights were allocated instead to the gardener in order to complete a statement of the Coase theorem.

But there is more at stake here than questions of semantics. If the debate is left at that point, then their contributions have the power to mislead. Recall that Demsetz’s argument (1997) centers on the claim that Coase had in mind the notion of the weak Coase theorem—while final allocations can differ, the final allocation whatever it

⁴Block does not define the *ex ante* income effect, noting that “strictly speaking, the *ex ante* concept involves no income effect at all” (Block 2000, p. 69). Upon reading the exposition it is evident that Block defines an *ex post* income effect as occurring when income rises or falls. An *ex ante* income effect involves an analysis of whether or not an individual with a given endowment can afford to consume a good. It is hard to see how the term *ex ante* income effect, which leaves out the possibility of any change in real income, will be accepted by economists, at least by those with a neoclassical bent who treat the phrase income effect as shorthand for a parallel shift of budget lines or equivalently a change in real income.

might be will be Pareto optimal. The situation where the garden withers and dies is presumably Pareto optimal, at least that is the claim being made by Demsetz. The outcome where the farmer has no garden and income Y_4 and her preference over outcomes is represented by indifference curve I_1 is indeed Pareto optimal. The maximum amount the farmer is willing and able to pay to have the flower garden is less than the cost of the installation of the pollution abatement equipment, that is $Y_4 - Y_3$ is less than $Y_7 - Y_4$. There are no gains to be had from trade and the outcome at Y_4 is a Pareto optimum. On these grounds Demsetz appears to be correct in claiming that Block's result is nothing more than an income effect.

But Block does not accept the terms of the debate where Demsetz's version of the farmer has fungible income. Block's case rests on the farmer's lack of any fungible income to protect his property rights. Although Block admits that he has a number of methodological issues with the indifference curve construct, Block claims that Demsetz's figure should be

altered so as to be consonant with [Block's psychic income case]. It is very straightforward. [Y_4E] should be converted into the x axis. All else on the diagram would simply disappear. My assumption is that the farmer has no money at all and only one flower bed, for which no one else will give anything at all in trade. Therefore, there *is* no budget line. There *are* no terms of trade offered to the farmer. [U_7] remains, only the part of it above E (now the x axis) depicting a "corner" solution at $[E]$: flowers, but no money. (1995, p. 72)

In the modified figure drawn here, I have taken heed of Block's lead that the farmer's income should be zero rather than, say, Y_4 as posited by Demsetz, but I have constructed the flowers-no-money endowment at F_2 , Y_0 rather than reconstructing the horizontal axis.

A potential problem with Block's suggested amendment to the diagram is that if everything else below the horizontal axis truly disappears, then the absence of indifference curves there means there is no information on willingness to pay which in turn means there is no way of assessing the welfare significance of Block's psychic income case.⁵ Block's preoccupation with the strong version of the Coase theorem—with whether the final allocation is invariant to changes to property rights, leaves a number of important questions unsettled over the status of Demsetz's intent which is to focus on the weak Coase theorem. If the property rights are allocated to

⁵ Another problem with the construction is that if the decision is taken to model the farmer at the origin denoting zero income, then this step implies the land on which the flower garden stands has no value on the market either. Equally, there could not be any return from the crop/herds on that land. Just how such a poor farmer meets her land taxes or buys any inputs in the market is something of a mystery. Consequently, though the garden may not have any explicit value on the market, it is hard to imagine a farmer who cannot muster any market income from her other assets. And therein lies a trace of an answer why Demsetz chose to discuss the farmer's market-valueless garden in a setting which the farmer's income was otherwise positive. Block's suggestion that the farmer has no fungible income is followed in order to strictly conform with the strictures of his case. One could relax the assumption that the farmer has no fungible income and still maintain Block's position that the farmer cannot afford to compensate the factory owner for the installation of the pollution equipment by allowing the farmer's market income to be anything less than $Y_3 - Y_0$. Accordingly, Block's argument does not stand or fall on the notion that the farmer's income is strictly zero.

the factory owner and the farmer has no pecuniary income to protect the garden, then is it efficient for the garden to wither and die? And relatedly, is it true that we should go along with Demsetz and accept his position that when income effects are explicitly taken on board the final allocation, whatever it might be, will be socially efficient? I turn to these issues in the next section.

A Clarification of Block and Demsetz's Positions

Although it is possible to assess the strong version of the Coase theorem by ignoring all of the geometry under the horizontal axis, it is simply not possible to do so when it comes to assessing the weak version of the theorem.⁶ Suppose the farmer's indifference curve associated with the origin of the figure is I_0 . Assume the property rights have been allocated to the factory owner and the flower garden has withered and died. As I wish to focus the discussion, at least for the moment on the implications of Demsetz's discussion, I sidestep Block's argument and assume the factory owner will accept as payment the farmer's psychic income.

Judged from the standpoint of the *status quo*, are there any potential gains from trade? The maximum amount of "income"—here psychic income the farmer would be willing to give up for a flower bed of F_2 is less than the cost of the pollution abatement equipment, that is $Y_0 - Y_{-1}$ is less than $Y_0 - Y_{-2}$. Viewed from the vantage point of the *status quo*, the outcome where the farmer ekes out a bleak existence with no income and no flower garden is therefore socially efficient. If the starting pointing is instead F_2, Y_0 ,—that the farmer has the flower bed—then assigning the property rights to the farmer results in the protection of the flower bed at F_2 . The farmer is better off to consume her garden than to accept the compensation offered by the factory owner, that is, satisfaction level U_5 is greater than U_3 . Cast in these terms Demsetz appears to be correct in claiming that Block's argument is nothing more than a playing through of the income effects: Although the final allocations differ across the two scenarios, the two different social outcomes are socially efficient. And psychic income effects can be easily incorporated into the analysis and appear as the difference between the budget constraints B_2 and B_1 .

But upon reflection it is apparent that Demsetz's stance on whether it is efficient for the flower bed to survive is not as clear cut as is suggested by the debate so far. Suppose the *status quo* is that the farmer has the garden at F_2 but the property rights are assigned to the factory owner. Continue to assume, at least for the moment, that the farmer's relevant indifference curve is I_0 . The maximum amount of psychic income that the farmer is willing to pay to avoid the loss in utility from the destruction of the flower garden, as measured by the vertical difference between the budget constraint B_2 and B_1 , is identical to the cost of the pollution abatement

⁶To explain the strong version of the Coase theorem, the analyst needs to set out the outcomes under the various property rights. The exercise is a purely positive exercise, at least in some versions of the strong Coase theorem: namely that the allocation of resources is unresponsive to property rights. Whether the individual chooses to consume at the corner solution or is forced by the lack of fungible wealth to eke an existence at the corner is beside the point. As such it is not necessary to know anything about the farmer's preferences in the fourth quadrant.

equipment, that is $Y_3 - Y_0$ equals $Y_7 - Y_4$. Over this range of outcomes, the absolute slope of the collectivity's income possibilities curve would be 1. If the social indifference curve is defined over incomes and is Benthamite, then it is a matter of social indifference whether or not there is a flower garden. In such a setting, the analysis does not provide an unambiguous answer on what the efficient Coasian solution should entail.

Now reintroduce Block's case that the factory owner will not accept the farmer's psychic income or alternatively that the farmer lacks the pecuniary income to protect her flower garden. And suppose in keeping with Demsetz that we explicitly take into account whether or not there are any income effects. I simplify by assuming initially there is a zero income effect for the flower garden. If the starting point is F_2, Y_0 and the property rights are allocated to the farmer, then the garden survives. The garden is valued more than the maximum amount that the factory owner would be willing to pay the farmer to relinquish her property right. The outcome at F_2, Y_0 is socially efficient.

But before one grants the entire debate to Demsetz consider the following setting. Suppose now the garden is presently in full bloom, there is a conflict over property rights and the property rights are allocated instead to the factory owner. In addition, suppose the farmer's relevant indifference curve associated with the origin is U_1 . The most the farmer is willing to pay to avoid the destruction of the garden is greater than the cost of the pollution abatement equipment, that is, F_2L [equals $Y_3 - B_0$] is greater than $Y_3 - Y_0$. Or equivalently, the loss in the farmer's garden, as measured in terms of income equivalents, exceeds the cost of installing the pollution abatement equipment. The socially efficient outcome is for the garden to continue to flower. But this is not the outcome that will emerge from the private bargaining between the factory owner and the farmer. In the absence of cold hard cash the factory owner will not install the equipment and the garden will wither and die.⁷

Where does this discussion leave the central points of the debate between Block and Demsetz over psychic income and externalities? Block errs in claiming the weak Coase theorem holds when *ex post* income effects are taken on board. While it is undoubtedly true that the garden will wither and die if the property rights are granted to the factory owner and the farmer's wealth is only in the form of psychic income, it is simply not true that such an outcome is necessarily socially efficient. If the farmer's indifference curve is U_1 rather than I_0 , then the outcome where the garden withers and dies is not socially efficient. And what is of crucial significance against Demsetz's argument is that the inefficiency result does not stand or fall on the assumption of zero income effects. If the indifference curve that passes through the origin F_0, Y_0 is tangent to B_0 either to the left or the right of point L , then the income effect will be positive or negative. But even in those events, the amount of loss from the destruction of the garden, as measured in terms of income equivalents would

⁷ In order to claim that the factory owner will continue to pollute the environment once the problem has been drawn to his attention one must also assume that the forces of altruism or social esteem do not come into play and thereby provide an incentive for the factory owner to internalize the externality. To pinpoint the final outcome under different property rights there is more at stake than the lack of fungible income and transaction costs as potential explanators.

remain at F_2L [equals $(Y_3 - B_0)$]. And as that amount of loss exceeds the cost of the pollution abatement equipment, the final allocation would not be efficient. For that reason, Demsetz errs in claiming that as long as income effects are included in the analysis, the final allocation will be efficient in a world of zero transactions costs. Block is entirely correct in mounting his claim that Coase's argument falters when the lack of wealth intrudes on the ability to bargain in the market for property rights.

It is perhaps instructive to ask how the opponents in the debate may have been misled in their handling of the analysis of figure 1. There is a long and valid tradition in demand and supply analysis that, in the absence of any marginal external effects, it is not efficient to allocate resources to those individuals whose demand lies to the right of the market equilibrium quantity. Over such quantities the amount individuals would pay for the goods at the margin is less than what it would cost the collectivity to produce and provide them. It is worth reminding ourselves that a demand curve is, of course, an instantiation of willingness to pay that is backed by purchasing power. The marrying of willingness and ability to pay is so ingrained in the language of economics that one often hears statements just about willingness to pay—it being understood that that expression of desire is synonymous with how much the individual is able to pay. In doing so economics is the discipline that marries the passions and preferences of individuals—the world of philosophy—with the limits of just what is feasible—the stuff of engineering and science. Seen in this light it is perhaps not surprising that Demsetz would respond that Block's psychic income case was nothing more than an income effect and did not represent a new challenge to the Coasian position at least in its weak guise. If the farmer did not have enough effective purchasing power to convince the factory owner to install the pollution equipment, then just as individuals with demand to the right of the equilibrium quantity should not receive goods, the farmer should not receive the right to acquire a garden.

But the important policy lesson underlying Block's argument is that it can be a meaningful exercise to decouple willingness to pay from ability to pay when handling some questions of public policy. It is not being suggested that measures of willingness to pay should become totally divorced from reality. It would be meaningless, for example, to suggest that the use of the value of the garden F_2 as measured along the along indifference curve U_8 is represented by $Y_9 - Y_6$ because the farmer's income is not Y_6 under any of the scenarios considered here. The farmer's willingness to pay cannot be divorced from the reality of the constraints she actually faces.

Accordingly, starting from the reality in which there is no flower garden, even though the farmer is willing to pay more to have a garden than it costs to install the pollution abatement equipment, she has no income, psychic or otherwise, to support that preference. And since she has no garden to begin with, she bears no loss when the factory pollutes the environment. In that setting, there is some merit in Demsetz's position as one plank of the weak version of the Coase theorem holds after all. When the farmer has no income, psychic or general, and the property rights are assigned to the factory owner, the final allocation is socially optimal.

It might be argued that if the factory pollutes the environment, then the gardener will never be able to grow the garden and therefore forgoes the *potential* use value of the garden. But if one were to accept the implication of that argument then each and every individual who would experience a potential gain were they to be given a good

they could not afford, should be allocated the good. The economist's nexus between the philosopher's world of imagination and desire and the engineer's world of constraints would be severed.

Demsetz errs in claiming that even when Block's psychic income effects are taken into account that *all* the final allocations will be socially optimal. The reality is that when the farmer *has* a garden but no pecuniary income to protect that garden then the actual use value of the garden will be destroyed when the property rights are assigned to the factory owner. Willingness to pay as represented in the relevant indifference curve analysis provides a tool for evaluating the extent of her loss. The fact that the individual does not have any fungible income to protect the garden does not make the psychic loss any less real. In that specific setting, the assignment of the property rights to the factory owner does not prevent the appropriately avoided loss to the farmer and the Pareto optimal outcome is not secured.

Policy analysts err when they claim that a lack of an expression to pay to avoid a loss implies the individuals concerned will not actually experience a loss. As is well-known from the orthodox literature on the Coase theorem, the lack of a willingness to pay does not mean that the property rights have been allocated properly as the participants may be involved in an information failure, free-rider problem, or strategic bargaining. Block's psychic income case suggests that an additional reason may be at play: The individuals may lack the financial resources to give voice to the desire to avoid the loss.

Conclusion

The full implications of the debate between Block and Demsetz do not appear to be appreciated by either of the protagonists. Block grants too much ground to Demsetz's interpretation of the weak version of the Coase theorem. Even when income effects are taken into account, it is not necessarily the case that all the final allocations will be Pareto optimal. Block fails to see that he could have established his argument that psychic income can impact on the ability of private bargaining to internalize externalities using conventional economic tools without recourse to the notion of *ex ante* and *ex post* income effects. And on Demsetz's part, he appears to have overlooked the importance of Block's case by failing to appropriately decouple *willingness* to pay from *ability* to pay in those circumstances where the assignment of property rights leads to actual losses.

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