

The Problem of Social Income: The Entity View of the Cathedral

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INTRODUCTION

In 1960, Ronald H. Coase famously addressed the problem of externalities—actions of business firms that have harmful effects on others—or, as he renamed it, “the problem of social cost.”¹ This Article seeks to address this problem through a comparative analysis of the alternative institutional solutions of ownership, market, taxation, responsibility, and the accounting system of the joint entity.²

Each prospective solution carries a distinct strategy. The ownership solution involves the allocation, by law, of control rights that individuals can bargain for. The market solution, in contrast, involves the allocation of that right through a competitive auction. Taxation requires the establishment of a public order concerned with the power to fix and raise taxes, whereas the responsibility solution involves the enforcement of a compensation claim or liability for tort damages. Finally, the entity solution consists of a joint system of governance that is characterized by an accounting system of the joint activity under scrutiny.

Coase claims that the delimitation of property rights is, in and of itself, sufficient to achieve social welfare. But Coase bases this claim on an efficiency criterion that looks solely to the sum of individual welfares, without regard to the possibility of inequitable results. His approach confounds notions of social cost, incurred loss, and lost opportunity gain, and faces distinctive accounting problems with individual availability and capacity to pay, along with the incommensurability of values. This

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1. Ronald H. Coase, *The Problem of Social Cost*, 3 J.L. & ECON. 1 (1960).

2. See also ELINOR OSTROM, GOVERNING THE COMMONS: THE EVOLUTION OF INSTITUTIONS FOR COLLECTIVE ACTION (1990); Guido Calabresi & A. Douglas Melamed, *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*, 85 HARV. L. REV. 1089, 1128 (1972).

Article takes a different approach. It introduces a “systemic efficiency” criterion based on welfare ranges for individuals *in addition to* the total sum. Using this criterion, this Article argues that, by requiring explicit income-sharing and joint-decision instrumentalities, the entity solution is the most efficient and equitable solution to the social cost problem.

Part I of this Article discusses the divide between market and property rights, a divide that is often overlooked due to a traditional focus on the divide between market and state solutions. Part II discusses the problem of institutional design generally and the alternative solutions of ownership, market, taxation, and responsibility in particular. To compare these alternative solutions to the problem of social cost, Part III refines the overarching notion of efficiency from a systemic viewpoint. Part IV then introduces the entity solution, based on the coupling of governance and accounting systems of the socioeconomic activity under scrutiny. Part V deals specifically with the problems inherent in Coase’s accounting perspective, while Part VI discusses these problems in the context of the firm. Part VII provides concluding remarks.

I. THE QUARREL BETWEEN MARKET AND OWNERSHIP

The development of an empirically grounded theoretical perspective is arduous. And the theoretical perspective of economics is still in the process of being developed. Compare, for example, theoretical economics with theoretical physics and its use in parachute design. Parachute design is concerned with the theoretical issue of the law of gravity. All objects are expected to fall according to a universal relationship between space and time, which is subsumed by the same constant acceleration or “standard gravity” measure. This means that both a parachute and a feather fall in the same way. But when further specifications are considered, applied physics eventually allows physicists to design viable parachutes that fall decently and usually do not crash. Economic theorists, in relative comparison, are still raising questions about Newton’s apple:³ Why does it descend perpendicular to the ground? Why does it not go sideways or upwards? This can be problematic for designing parachutes, gathering apples, or, in our case, understanding the theoretical economics of property rights.

Yet, concerning the law and economics of property rights, overarching concepts and ideas should not be left unaddressed, as David Kennedy reminds us.⁴ Neglecting them eventually leads us to praise or

3. WILLIAM STUKELEY, MEMOIRS OF SIR ISAAC NEWTON’S LIFE 20 (A. Hastings White ed., 1936) (1752).

4. David Kennedy, *Some Caution about Property Rights as a Recipe for Economic Development*, 1 ACCT. ECON. & L. (2011), available at <http://www.bepress.com/ael/vol1/iss1/3>.

reject regulatory regimes without addressing the fundamental issues of their legal-economic design. At least two theoretical positions on the law and economics of property rights currently face off. On one side, Coase claims that the delimitation of property rights is, in and of itself, sufficient to achieve social welfare whenever “the pricing system works smoothly ([where] the operation of a pricing system is without cost).”⁵ When this happens, “[t]here is clearly room for a mutually satisfactory bargain”⁶

[W]ithout the establishment of this initial delimitation of rights there can be no market transactions to transfer and recombine them. But the ultimate result (which maximizes the value of production) is independent of the legal position if the pricing system is assumed to work without cost.⁷

As Oliver E. Williamson explains:

Upon reformulating the externality problem in contractual terms and pushing the logic of zero transaction cost reasoning to completion, [Coase] realized an astonishing result: “Pigou’s conclusion (and that of most economists of that era) that some kind of government action (usually the imposition of taxes) was required to restrain those whose actions had harmful effects on others (often termed negative externalities)” was *incorrect*. That is because if transaction costs are zero then the parties to tort transactions will *costlessly bargain* to an efficient result whichever way property rights are assigned at the outset.⁸

In fact, Coase explains that in a world in which costs of rearranging the rights initially established by the legal system exist, “the courts . . . are, in effect, making a decision on the economic problem and determining how resources are to be employed.”⁹ This implies that property rights play an important role in generating the best economic solution under a given economic system. Even in the absence of competitors, who act as alternative outside options for each transacting party, the parties can transact bilaterally and reconfigure the initial delimitation of rights in the most efficient way. In the process, property rights modify the allocation of resources through the accomplishment of a bilateral exchange transaction. This further implies that the initial allocation of property rights is no

5. Coase, *supra* note 1, at 2.

6. *Id.* at 4.

7. *Id.* at 8.

8. Oliver E. Williamson, *Transaction Cost Economics: The Natural Progression*, 100 AM. ECON. REV. 673, 675–76 (2010) (internal citations omitted).

9. Coase, *supra* note 1, at 27.

longer independent from the final result. Therefore, ownership shapes resource allocation even beyond and behind competition.

Quarreling with Coase, Kenneth J. Arrow questions whether property rights alone achieve social welfare under conditions of bounded rationality. Arrow points to the importance of competition in such achievement, the market equilibrium being less a bilateral bargain than a multilateral game:

[U]nder these [limited] knowledge conditions, the superiority of the market over centralized planning disappears. Each individual agent is in effect using as much information as would be required for a central planner. This argument shows the severe limitations in the argument that property rights suffice for social rationality even in the absence of a competitive system.¹⁰

While they may not agree on the role of property rights in achieving social welfare, both Coase and Arrow recognize the role of institutional arrangements in achieving efficient and fair allocation of resources. From this perspective, whenever the price system does not work smoothly, not only property rights, but all norms and rules that constitute the institutional framework can shape the performance of every socioeconomic activity. They constitute an “institutional structure of production” whose design and enforcement matter for economic efficiency and equity.

II. ALTERNATIVE INSTITUTIONAL SOLUTIONS TO THE PROBLEM OF SOCIAL COST

The problem with externalities concerns the formation of a social order that binds individuals together. In particular, it points to interactions between individuals that can affect their individual welfares. This interaction occurs under distinctive institutional designs; Coase fosters a legal-economic analysis of these designs that involve economic (monetary), legal, and political dimensions. Individual interests are then expected to be adjusted (and divergences settled) by the rule of law. The following chart summarizes the available institutional designs and how they are effectuated.

10. Kenneth J. Arrow, *Rationality of Self and Others in an Economic System*, 59 J. BUS. S385, S392 (1986).

<i>Alternative Institutional Designs</i>	Monetary Regime (what counts?)	Legal Regime (what regulates?)	Political Regime (what decides?)
<i>Property Rights</i>	Monetary payments	Ownership	Transferable control right
<i>Market</i>	Monetary bids	Competitive auction	Allowable control right
<i>State Intervention</i>	Tax payments	Public order	Public right to impose and raise taxes
<i>Responsibility</i>	Compensation payments	Liability or tort law	Enforceable claim for liability or tort
<i>Entity</i>	Accounting system	Joint agreement	Joint governance

Traditional economic analysis treats ownership, market competition, and state intervention as alternative regulatory solutions to the problem of social cost. Under this analysis, society is imagined to arise from the freedom of individuals transacting in the open market. When the market fails to establish a suitable order, the state intervenes and substitutes for it. Competition is then replaced by authority and spontaneous order with planning. The above-mentioned quarrel between Coase and Arrow introduces a question grounded in the inherent distinction between market and ownership: Whether the allocation of property rights, even in the absence of competition, is sufficient to establish a suitable order? This in turn raises a broader question: In choosing between alternative institutional solutions to the social cost problem, how should an ideal ordering between ownership, market competition, and state intervention be measured? The classic divide between efficiency and equity leads to two customary answers. On one hand, we have the so-called Pareto efficiency, which requires that one individual fares better while all the others fare at least as well as when they started; on the other, we have the principle introduced by Coase, advocating for the maximization of the social value of production. As we shall see, Coase's social value principle, in focusing entirely on efficiency at the expense of equity, is a less-than-ideal mechanism for choosing between alternative institutional solutions.

A. A Numerical Heuristic

In an effort to analyze the possible alternative institutional solutions to the social cost problem, let us reformulate Coase's social value principle using a numerical heuristic adapted from Svetozar Pejovich's work.¹¹ In our heuristic, two parties, A and B, are confronted with a novelty (some generic activity or production) that has a reciprocal impact on their respective economic welfares. The performance of the novelty depends on a control (or decision) right to be assigned to one or the other parties. Assume for simplicity's sake that A has an initial endowment of 1,200 and B of 1,000. Following Coase, the social value is merely defined as the sum of both welfares, that is, an initial total value of 2,200. Two scenarios are contemplated; both concern a generic activity by someone (B) with negative externalities on someone else (A), who does not benefit directly from that activity.

In the first scenario, the performed novelty would generate a net loss of 200 for A and a net gain of 500 for B. The total social value is thus increased by 300.

First Scenario	A	B	Total Value
Before	1,200	1,000	2,200
Novelty	-200	500	300

In the second scenario, the performed novelty would generate a net loss of 500 for A and a net gain of 200 for B. The total social value is thus decreased by 300.

Second Scenario	A	B	Total Value
Before	1,200	1,000	2,200
Novelty	-500	200	-300

B. The Ownership (Property Rights) Solution

Absent transaction costs, Coase suggests that the social cost problem is efficiently solved whatever the initial assignment of the transferable control right because, ultimately, the total social value in both scenarios will be at least maintained.

In the first scenario, for example, if the control right is allocated to B, A would want to buy the right to keep B from doing the activity and creating the externalities. But A cannot offer enough because his opportunity gain of 200 (his avoided loss) is less than B's opportunity gain of

11. SVETOZAR PEJOVICH, ECONOMIC ANALYSIS OF INSTITUTIONS AND SYSTEMS (1995).

500. Alternatively, if the control right is allocated to A, B is able to buy the right from A because his opportunity gain of 500 is more than A's avoided loss of 200. Thus, in both cases the production is accomplished and the social value is increased.

First Scenario: Property Rights Solution	A	B	Total Value
Right to B	1,000	1,500	2,500
Right to A	1,200	1,300	2,500

But the ex post allocation of welfare—defined through cumulated incomes or wealth dynamics—is not equivalent for both parties. If the right is allocated to A, he will maintain his welfare while B appropriates the whole increase in social value. Alternatively, if the right is allocated to B, he will have an even larger welfare increase at the expense of A, whose individual welfare decreases. In this way, the solution does not appear to comply with Pareto efficiency, requiring that all parties be at least as well-off as when they started, with at least one party being strictly better.¹²

In the second scenario, if the control right is allocated to B, A will buy it from B because his opportunity loss of 500 is more than B's opportunity gain of 200. Alternatively, if the control right is allocated to A, B would not be able to pay for acquiring the right from A because his opportunity gain of 200 is less than A's avoided loss of 500. In both situations then, the activity or production is not accomplished, any social loss is avoided, and the original social value is maintained.

Second Scenario: Property Rights Solution	A	B	Total Value
Right to B	1,000	1,200	2,200
Right to A	1,200	1,000	2,200

Yet once again, the ex post allocation of welfare (incomes or wealth) is no longer equivalent for both parties. If the right is allocated to A, both A and B will maintain their welfare and the total social value does not change, even though B would lose his opportunity gain. If the right is allocated to B, he will increase his welfare at the expense of A, who is not as well-off as when he started. Again, this solution does not seem to comply with Pareto efficiency.

Furthermore, the ownership solution involves potential transactions requiring reciprocal payments. This means that the opportunity gains are

12. This might fit the Kaldor-Hicks definition of efficiency that implies a cardinal notion of utility.

monetary in nature and that the losing party needs to access available funding (including costly bank credit) to perform the payment. Thus, the financial endowment of the losing party will ultimately determine whether losses in total social value can be prevented.

The transaction could be even more problematic if we consider certain epistemic and strategic conditions. For example, what happens if one party seeks to appropriate the other party's gain? In the first scenario, A could try to bargain for the control right to acquire more than his opportunity loss as compensation. And in the second scenario, B could try to extort a higher compensation than his opportunity gain of 200, since A could be expected to pay up to his anticipated loss of 500. In both scenarios, a bargaining solution is thus possible between 200 and 500, absent an outside option that helps one party negotiate his power struggle with the other. In the first scenario, the ownership solution exposes A to a new welfare level between 1,000 and 1,700 (1,200 being the initial level), while B's range is between 1,000 and 1,500 (1,000 being the initial level). In the second scenario, the ownership solution exposes A to a reduced welfare level between 700 and 1,200 (1,200 being the initial level), while B's range is between 1,000 and 1,500 (1,000 being the initial level). These transaction and bargaining problems create uncertainties that could undermine the effectiveness of the ownership solution.

C. The Market Solution

To respond to the bargaining problems raised by the ownership solution, institutional designers have suggested having the bargaining "price" fixed by the market or the state. Following Arrow, a public authority (Authority) could institute an auction procedure whereby both parties would bid for the control right according to their respective opportunity gains and avoided losses, using all the information at their disposal. The Authority would then share the welfare change according to the competitive structure of the auction. In the first scenario, the novelty would be implemented and the Authority would acquire a share of the increased total value (2,500) between 200 and 500. In the second scenario, the novelty would not be implemented and the Authority would again acquire a share of the total social value between 200 and 500, even though the total social value has not changed. In both scenarios, the outcome still has distributive effects and reshapes individual welfares. For example, in the first scenario, A experiences a reduced welfare level to 1,000, while B shares a welfare gain of up to 500, to be shared with the Authority. In the second scenario, A experiences a welfare loss between 200 and 500 with that welfare being transferred to the Authority, while B remains as well-off as when he started. Thus, while the market solution

may address the bargaining problem inherent in the ownership solution, like the ownership solution it does not appear to comply with Pareto efficiency since at least one outcome results in A being in a worse position than when he started.

D. The Taxation Solution

The taxation solution suggested by Arthur Cecil Pigou¹³ entails the intervention of a public authority (Authority) capable of discovering and taxing the activity as a share of its added total social value. B can then decide whether to perform the novelty or not by integrating the tax amount into his calculation. In the first scenario, a lump-sum tax of up to 500 will result in B performing the novelty, with the benefits being shared between B and the Authority. In the second scenario, this result will be achieved by a lump-sum tax up to 200. We should note, however, that the taxation solution does not necessarily produce efficiency in total social value, since the lump-sum tax does not always prevent the novelty from being performed in the second scenario where a loss in social value is expected. To prevent the novelty from being performed in the second scenario, the lump-sum tax would have to be more than 200. Moreover, the individual welfares are also reshaped. In the first scenario, for example, A experiences a net loss, bringing his welfare level down to 1,000, while B may have a welfare gain of up to 500 to be shared with the Authority according to the institutional structure of the tax. In the second scenario, if the tax discourages B from performing the activity, the welfare of both is maintained. Otherwise, A experiences a loss of 500 down to a welfare level of 700, while B and the Authority share a welfare gain of 200.

In his criticism of Pigouvian taxation, Coase discusses two possible tax bases—either on the damage done or on the fall in total value resulting from the novelty being performed.¹⁴ In our heuristic, both scenarios fix the tax on the basis of A's loss.¹⁵ This implies that the novelty will be performed in the first scenario, where A incurs a loss of 200 while the added income (500) is shared between B (300) and the Authority (200). In the second scenario, the tax level of 500 prevents the novelty from being performed, and both A and B maintain their previous welfares (with B merely losing an opportunity gain).

13. ARTHUR CECIL PIGOU, *THE ECONOMICS OF WELFARE* (4th ed. 1932); ARTHUR CECIL PIGOU, *WEALTH AND WELFARE* (1912).

14. Coase, *supra* note 1, at 41–42.

15. The argument for computing social cost after reorganization is incorrect because the reorganization itself is a consequence of the novelty, and the related choice and cost should be included in the social cost calculation.

In situations involving payments to the Authority then, the question remains whether the Authority would use its revenues to compensate A. In some situations, this compensation could restore Pareto efficiency and make A at least as well-off as when he started. Thus, the taxation solution could protect against the loss of social value and comply with Pareto efficiency, but only if established and used to compensate the losing party.

E. The Responsibility Solution

To respond to the problems associated with the ownership, market, and taxation solutions, institutional designers could allow B to perform the novelty under a responsibility or tort rule, whereby B would be required to compensate A's injuries. Under the responsibility solution, B must be able to calculate the compensation due to A in order to decide whether to perform the novelty and pay A damages (200) in the first scenario or not perform the novelty because the encountered payment for damages (500) exceeds the expected private benefit (200) in the second scenario. In both scenarios, the responsibility solution creates the same results as would allocation of the control right to A, provided A can show legal proof of the liability amount to some enforcing third party.

III. THE QUEST FOR EFFICIENCY

As stated above, Coase claims that, in the absence of transaction costs, the delimitation of property rights is, in and of itself, sufficient to achieve social welfare.¹⁶ He bases this claim on an efficiency criterion that measures efficiency solely as a function of the total social value achieved. But as we have seen, while allocation under the property rights solution may result in optimizing total social value, it also results in redistributing individual welfare. In particular, allocation of the control rights to B results in either an unfair *privilege* in the first scenario or *extortion by law* in the second. In both scenarios, A experiences a net loss at the individual level and is forced to pay a ransom to B to avoid an even greater loss in the second scenario.

Following the work of Guido Calabresi and A. Douglas Melamed, this implies that when considering the socioeconomic efficiency of alternative institutional designs, the allocative (efficiency) and distributive (equity) dimensions of such designs cannot be separated.¹⁷ Furthermore, Coase's efficiency criterion leads him to argue against state regulation

16. Coase, *supra* note 1, at 2.

17. See Calabresi & Melamed, *supra* note 2.

and in favor of the ownership solution mediated by exchangeable property rights, preferring private over public powers:

It is my belief that economists, and policy-makers generally, have tended to over-estimate the advantages which come from governmental regulation. But this belief, even if justified, does not do more than suggest that government regulation should be curtailed. It does not tell us where the boundary line should be drawn. This, it seems to me, has to come from a detailed investigation of the actual results of handling the problem in different ways. But it would be unfortunate if this investigation were undertaken with the aid of a faulty economic analysis. The aim of this article is to indicate what the economic approach to the problem should be.¹⁸

It seems to me preferable to use the opportunity cost concept and to approach these problems by comparing the value of the product yielded by factors in alternative uses or by alternative arrangements. The main advantage of a pricing system is that it leads to the employment of factors in places where the value of the product yielded is greatest and does so at less cost than alternative systems (I leave aside that a pricing system also eases the problem of the redistribution of income). But if through some God-given natural harmony factors flowed to the places where the value of the product yielded was greatest without any use of the pricing system and consequently there was no compensation, I would find it a source of surprise rather than a cause for dismay.¹⁹

But in fact, as our heuristic demonstrates, all of the institutional solutions discussed above are efficient according to Coase's criterion. How then are we to choose among the alternative designs? We can begin by adopting a systemic notion of efficiency that compares the welfare ranges for individuals *and* the collectivity (defined as their sum) to measure the economic *fairness* of each institutional design. In contrast to Coase's criterion, this notion of fairness considers efficiency and equity from an economic viewpoint. From this perspective, only the responsibility solution is always Pareto efficient; that is, it is the only design that is expected to always maintain initial individual welfares. Since the only consistently Pareto efficient system seems to be the one that seeks to protect A, we can conclude that an institutionally imposed level playing field and protection for the weakest party when externalities are involved are desirable attributes of an institutional system.

18. Coase, *supra* note 1, at 18–19.

19. *Id.* at 40.

Comparative results of economic fairness as measured by individual and collective welfare ranges²⁰

	A (min)	A (MAX)	B (min)	B (MAX)	PA (min)	PA (MAX)	Total Value (min)	Total Value (MAX)
Ownership	-500	+500	0	+500	0	0	0	+300
Market	-500	-200	0	+500	+200	+500	0	+300
Taxation	-500	0	0	+500	0	+500	0	+300
Responsibility	0	0	0	+300	0	0	0	+300

In addition, according to this economic fairness analysis, the market solution (through an auction) appears to be the least efficient and least equitable form of regulation since, in the absence of some sort of compensation mechanism, the weakest party always loses and the strongest party always wins (absent outside constraining options). Accordingly, the market does not appear to be the appropriate solution when parties are locked into a situation with reciprocal externalities. And if the market solution is implemented, regulators should intervene to compensate the losing party.

The taxation and ownership solutions, respectively based on public and private power, are also inconsistently efficient and equitable. Both may involve severe reductions in individual welfares and can produce the largest potential welfare asymmetry. Nevertheless, both taxation and ownership can be effective if their microstructure fits the situation. Specifically, under the ownership solution, the control right must be allocated to the weakest party, while under the taxation solution, taxes should be based on the social value added or lost by the activity under scrutiny and be used to compensate the losing party.

Whichever institutional solution is chosen, both discovery and disclosure of information about payoffs are critical. While the ownership solution, based on bilateral bargaining, and the market solution, based on auction, add to this criticality concerning each party's capacity to pay,²¹ an environment of enforceable disclosure of information and measurement—that is, an accounting system—is required for *every* institutional solution. A traditional focus on solutions driven by ownership, market, and the state²² has prevented legal-economic scholars from considering

20. In this figure, PA stands for Public Administration. The PA column calculates the benefits shared by the Public Administration and the performing party under the auction (Market) and tax (Taxation) alternatives.

21. Capacity to pay implies the party's capacity to raise credit, employ available funds, or sell entitlements to future (expected) gains.

22. See OSTRUM, *supra* note 2.

an alternative systemic solution—that of the joint entity—that will be outlined below. This solution reshapes the same basic elements of information, measurement, and decision in an alternative institutional framework based on the introduction of a social accounting framework.

IV. THE ENTITY VIEW OF THE CATHEDRAL

As Coase recognized, the problem of social cost has a reciprocal nature in that it implies interdependency between welfares of involved parties. One party's welfare critically depends on the welfare and decision-making process of the other. Thus, a collective dimension exists that must be considered. Specifically, a collective social income is at stake, either positive or negative, depending on the institutional design.

With this understanding, and drawing upon the work of Adolf A. Berle,²³ another institutional solution can be established through the creation of a joint entity—for instance a partnership or joint venture agreement—involving both parties as stakeholders. The control right is then allocated to the joint entity rather than to only one of the parties. Both parties commit their previous welfares as personal entries to the entity, and an accounting system of the entity can then be designed to represent the joint welfare. A balance sheet statement will report on personal entries and their changes, while a social income statement will report on the joint income added and lost by the joint activity.

Returning to our heuristic, in the first scenario, the novelty is accomplished according to its expected positive income. Both parties carry the impact of the activity in their personal final balances, while they share the joint result together. At least 200 units should be allocated to A in order to obtain Pareto efficiency, as accounted for by the personal account of A. Of course, A would refuse to agree to the performance of the novelty if such a condition were not accepted.

First Scenario: Entity Solution	Initial Balance	Final Balance	Social Income Statement
Personal Account of A	1,200	1,000	-200
Personal Account of B	1,000	1,500	500
Total	2,200	2,500	300

23. Adolf A. Berle Jr., *The Theory of Enterprise Entity*, in *THE FIRM AS AN ENTITY: IMPLICATIONS FOR ECONOMICS, ACCOUNTING, AND THE LAW* 186–200 (Yuri Biondi et al. eds., 2007) [hereinafter *THE FIRM AS AN ENTITY*].

In the second scenario, the novelty will not be accomplished because of its expected negative income. Both parties will remain as well-off as they started, before the novelty was contemplated.

Second Scenario: Entity Solution	Initial Balance	Final Balance	Social Income Statement
Personal Account of A	1,200	700	-500
Personal Account of B	1,000	1,200	+200
Total	2,200	1,900	-300

Under the entity solution, neither property rights nor competitive markets are involved; rather a system of joint decision-making (or governance) concerning activity under scrutiny is established. A simple personal veto rule—replacing the exit option in bilateral bargaining—will allow the parties to obtain efficient and equitable results in both scenarios.

Fairness as measured by individual and collective welfare ranges

	A (min)	A (MAX)	B (min)	B (MAX)	PA (min)	PA (MAX)	Total Value (min)	Total Value (MAX)
Social Accounting System	0	300	0	300	0	0	0	300

In the absence of transaction and information costs, the entity solution thus appears to be the most satisfying regulatory solution since it allows for the maximization of total value according to Coase's criterion; for the maintenance, at a minimum, of individual welfares according to Pareto efficiency; and for the possibility of increasing all individual welfares through the sharing of social income. Both efficiency and equity are enhanced, and a kind of *systemic efficiency* is realized. It is this systemic efficiency that is lacking in the alternative solutions. In particular, the allocation of property rights facilitates a system of private powers but does not exclude the abuse of them. And taxation raises problems concerning allocation of tax revenues, revenues that are not equivalent to compensation. Instead, an accounting system involves the liberty of choosing the allocation of social income.²⁴ And, importantly, an account-

24. The entity solution appears to be suitable even from a dynamic perspective. While the dynamic game of interacting power and counter-power established by ownership, market, and state

ing approach, as envisioned by the joint entity solution, recognizes the importance of choice as a distinct dimension of value irreducible to monetary payments, something Coase's approach overlooks. This oversight by Coase, and its attendant problems, will be discussed in more detail below.

V. THE ACCOUNTING PROBLEM IN COASE'S APPROACH

Coase focuses on the (change of) *value* added and lost by our hypothetical novelty. In doing so, he uses an efficiency criterion based solely on the total value added, without regard to the disparate impact the novelty may have on individual welfares: "The economic problem in all cases of harmful effects is how to maximize the value of production."²⁵ But value is a complex notion, consisting of two distinctive dimensions: a *monetary* dimension based on payoffs and reciprocal payments, and a *choice* dimension related to the decision to perform the novelty under scrutiny. In particular, Coase argues for switchable boots by establishing an alleged symmetry between costs of incurred loss and lost opportunity gain.²⁶

Whether the \$3 is a payment which the cattle-raiser [B in our heuristic] has to make if he adds the third steer to his herd . . . [generated by the novelty under scrutiny] or whether it is a sum of money which he would have received if he did not keep a third steer . . . [paid by A] does not affect the final result. In both cases \$3 is part of the cost of adding a third steer, to be included along with the other costs.

. . . [A] receipt foregone of a given amount is the equivalent of a payment of the same amount.²⁷

It is one of the beauties of a smoothly operating pricing system that, as has already been explained, the fall in the value of production due to the harmful effect would be a cost for both parties.²⁸

If the factory owner is to be made to pay a tax equal to the damage caused, it would clearly be desirable to institute a double tax system and to make residents of the district pay an amount equal

intervention may be expensive and hazardous, the entity solution enables an ex-ante comprehensive framework of analysis and decision-making.

25. Coase, *supra* note 1, at 15.

26. *Id.* at 9.

27. *Id.* at 7.

28. *Id.* at 13.

to the additional cost incurred by the factory owner (or the consumers of his products) in order to avoid the damage.²⁹

But when current facts (and realities), and an accounting for those facts, are considered, what we see is that the “boots” are asymmetrical. In fact, Coase’s approach mistakenly mingles three different notions: cost, incurred loss, and opportunity gain lost. This misunderstanding leads to distinctive accounting problems with availability to pay, capacity to pay, and incommensurability of values. As we shall see, availability to pay by one party does not imply improvement of its welfare; the need of some capacity to pay by one party makes enforcement dependent on the wealth at its disposal; and incommensurability of values reduces choice to its monetary equivalent, making money almighty.

First, availability to pay by one party does not necessarily translate as welfare improvement for that party. In both of our scenarios, A incurs an actual loss of welfare from the performance of the novelty. A may have the capacity to pay B to avoid that loss, but avoiding the loss does not amount to a gain for A, as he experiences no increase in overall welfare. Conversely, B expects a potential gain from the performance of the novelty. But this does not mean that B loses anything if the novelty is not performed, since his existing welfare is not reduced by the loss of his opportunity gain. A distinction between expectations and facts (reality) has to be established for the accounting system to work effectively in reporting the relationship between A and B. This distinction emphasizes the difference between *future time*—represented by individual guesses, intentions, and hopes and fears—and *past time*—represented by an accounting history that, in principle, may be partly public, consistent, and conventionally agreed upon.³⁰ From an accounting perspective, the availability to pay to avoid an even greater loss is different from giving up some expected gain. The potential gain is merely an expected income that has to be compared to the total expected cost (including losses) generated by the parties’ joint decision.

More generally, by coupling efficiency with measurement, Coase’s approach converts individual values to monetary payments (prices) and, in the process, further reduces the choice dimension to a monetary measurement. This reduction causes the accounting problems concerning individual capacity to pay and incommensurability of values. As Pareto argued:

29. *Id.* at 41.

30. G.L.S. SHACKLE, *THE YEARS OF HIGH THEORY: INVENTION AND TRADITION IN ECONOMIC THOUGHT 1926–1939*, at 257–58 (1967).

In a volume on economics recently published we find that “the price is a concrete manifestation of value.” We are already familiar with the incarnations of Buddha. To them we are now asked to add the incarnations of *Value*.³¹

The problem with such an incarnation, especially when externalities are involved, is that (as stated above) the availability to pay does not necessarily correspond to an increase of a party’s initial welfare. It is true that no regulatory system can avoid establishing some agreed upon or conventional criterion of monetary translation. For example, the taxation solution makes this criterion publicly established since the tax base is expected to translate the social loss resulting from the externality. The ownership and market solutions delegate this measurement to bilateral bargaining and the auction procedure respectively. The responsibility solution entrusts the legal process to establish the incurred damage through tort law and further allows for punitive damages as incentive regulation (with revenues being appropriated by the public authority). That said, some systems can avoid imposing the capacity to pay as a (plutocratic) condition precedent to the protection of individual welfares, as in the case of the responsibility and entity solutions, neither of which require A to have the capacity to pay to avoid his loss in welfare.

It is important to note that under an accounting approach, cost does not imply that pricing is a measure of value.³² Accounting numbers are instrumentalities to facilitate choice, but they do not purport, by themselves, to replace choice with monetary equivalences. The distinction between choices, values, and prices implies, then, an additional criticism of Coase’s notion of efficiency. It reduces the underlying choice to a monetary incarnation of values. Coase clearly stated that “[t]he aim of such regulation should not be to eliminate smoke pollution but rather to secure the optimum amount of smoke pollution, this being the amount which will maximize the value of production.”³³ His perspective ultimately entails the management of negative externalities, not social prevention and accommodation. This raises the problem of incommensurability of values, values that are critical in the case of externalities. Certain individual and collective values—such as environmental sustainability or

31. VILFREDO PARETO, *THE MIND AND SOCIETY* 30 n.1, § 62 (Andrew Bongiorno & Arthur Livingston trans., Arthur Livingston ed., 1935) (1906).

32. See Yuri Biondi, *Money without Value, Accounting without Measure: How Economic Theory Can Better Fit the Economic and Monetary System We Live in*, in *MONEY AND CALCULATION: ECONOMIC AND SOCIOLOGICAL PERSPECTIVES* (Massimo Amato, Luigi Doria & Luca Fantacci eds., 2010) (stating that the confusion between price and value appears to survive from the classical economic English tradition, which dominated the nineteenth century and the birth of the political economy).

33. Coase, *supra* note 1, at 42.

the qualities of human life—are hardly measurable and theoretically cannot be translated into monetary amounts.³⁴ In particular, these values may still raise critical concerns even when all stakeholders agree with the regulatory solution and the social income is increased monetarily. Coase's criterion may therefore imply paradoxical strategies and results over time and across contexts. In contrast, the prevention of negative externalities is a fundamental policy goal for public and private policy-makers aiming to achieve sustainability and welfare. And, ultimately, this prevention is a matter of choice, not a monetary translation.

VI. FURTHER IMPLICATIONS: ACCOUNTING AND THE THEORY OF THE FIRM

In the last part of his article, Coase takes both the cost of market transactions and the cost of information into account.³⁵ This recognition introduces a dynamic dimension into his legal-economic analysis, making the final social outcome dependent on backward incentives and costly enforcement of institutional rules. These costs alter the playing field of the social game both at the individual and collective level. In particular, individual and social incomes are now dependent on the inter-individual behaviors under alternative institutional designs. In this context, Coase fostered a comprehensive approach based on realistic premises and comparative institutional analysis: "Satisfactory views on policy can only come from a patient study of how, in practice, the market, firms, and governments handle the problem of harmful effects."³⁶ But he implicitly considers all organizational forms to be based on ownership. Both the firm and the government are considered as super-owners, that is, authoritarian solutions (hierarchies) that substitute bargaining with administrative decisions.³⁷ Concerning the formation of the social order and the rule of law, Coase's ownership perspective mediates Locke, who attributes social order (i.e., the resolution of conflicts and the balance of powers) to the connection between individual freedom and ownership, and Hobbes,

34. In 1729, Jonathon Swift satirically criticized the reductionist view in his *A Modest Proposal*, arguing against emergent "political Arithmetic" that precedes "political Economy" and "economics." In this essay, Swift mocked the British officials and all gentlemen of fortune by appearing to suggest that the poor Irish might solve their economic problems by selling their children as food. JONATHAN SWIFT, *A MODEST PROPOSAL* (1729), available at www.readaclassic.com. This satire develops a full-length argument suggesting possible recipes for the children and the economical calculations for doing this with the goal to "find out a fair, cheap, and easy method of making these children sound and useful members of the common-wealth." *Id.* at 13. By the way, does it not astonish that we use the same word for financial and human "values" as if they would be of the same order?

35. Coase, *supra* note 1, at 15–19.

36. *Id.* at 18.

37. *Id.* at 16–17.

who bases the establishment of that order upon the intervention of a benevolent Leviathan.

Drawing on Berle and his institutional perspective, the entity solution approaches the formation of the social order by building on constitutional principles, which should drive institutional design and enforcement. Under an economic republic, these principles are called upon to enable and protect individual liberty and inter-individual solidarity in a field of immanent conflict and overwhelming power. The entity here is not a Leviathan or a super-owner, but an intermediate collective body that is an object of the law, not a legal subject or person. The entity's institutional framework governs it and the individuals involved, with a view toward achieving a better social order, both on a systemic and individual level. This leads to a system of reciprocal rights and obligations, rather than a system of private or public powers. According to Berle, this approach

resolves the conflict between the property notion that an owner can do what he likes with his own and the governmental concept that a public agency is obliged to serve all alike within strict constitutional limitations, evenhandedly, up to the limit of its capacity. Instead of nationalizing [or privatizing] the enterprise, this doctrine "constitutionalizes" the operation.³⁸

The entity corresponds, then, to the social (inter-individual) activity that has to be regulated through an institutional mode of organization and coordination. Every mode raises specific problems and controlling costs that must be considered and comparatively assessed in specific situations. The notion of "transaction costs" should, therefore, be generalized to that of "regulatory costs," that is, the functioning costs for each specific institutional regime.³⁹ Specifically, the regulatory costs of the ownership and responsibility solutions are legal costs, whereas accounting and auditing costs are the regulatory costs of the entity solution. The regulatory costs of the market solution are trading gains and losses, whereas capital gains and losses from arbitrage can be considered the social cost of using the market to fix prices and perform market-based transactions as, according to Coase, the cost of writing and enforcing contracts is the social cost for bilateral transactions. To some extent, then, every institutional solution implies a specific mode of accounting, just as every accounting system needs an institutional structure. In choosing an institu-

38. Adolf A. Berle, Jr., *Constitutional Limitations on Corporate Activity: Protection of Personal Rights from Invasion through Economic Power*, 100 U. PA. L. REV. 933, 943 (1952).

39. These costs relate to both private and public regimes that are interconnected. Governing costs, regulatory costs, and controlling costs are then conceptually analogous.

tional design, however, we should not focus solely on minimizing regulatory costs, as such costs are merely one dimension of that choice, while problems of institutions must ultimately dissolve into a study of history and philosophy. Instead, choosing an institutional design necessarily entails making distinctive decisions that are logically ordered and based on purpose and cost.⁴⁰

Our legal-economic analysis of externalities and social cost has fundamental implications for the theory of the firm. In the case of the firm, both individual and collective outcomes result from the situated dynamic between the institutional structure and inter-individual behaviors whose payoffs depend on the social income to the firm, and vice-versa. François Perroux defined the firm as a socioeconomic entity located in some specific economic time and space that systematically generates and exploits externalities.⁴¹ From this perspective, the entity solution relates to the place and role of the firm as a specific mode of coordination. The very existence of the firm (and its essence) depends on the working of its accounting system. The nature of the firm, therefore, relates to the nature of the accounting system, rather than to ownership or the market (the pricing system).

The importance of accounting systems in the legal-economic definition of the firm has been recognized by leading scholars, including Berle and Fisher,⁴² and Coase.⁴³ The proper functioning of a firm's accounting system is made critical because of the changing number and kinds of transactions, and because of operations and events that are involved in the firm's activity over time. This may explain the emergence of standardized forms of business and nonbusiness accounting. These forms contribute to the coordination and regulation of complex and dynamic organizations. From an epistemic viewpoint, they reduce the complexity and stabilize the dynamics of those organizations over hazard, ignorance, and interaction. They are indeed fundamental modes of economic coordination that frame and shape the creation and allocation of resources. For example, financial accounting rules on dividend distribution and share-

40. Decision-making, not decision-makers, is hierarchically ordered, as was emphasized by C. Menger's lexicographic criterion or Pareto's ordinal utility criterion of choice. While accounting numbers deal with the horizontal dimension of institutional design, constitutional principles are the republican order's response to its vertical dimension and accounting principles provide such a response for accounting regulation. See Yuri Biondi, *The Pure Logic of Accounting: A Critique of the Fair Value Revolution*, ACCT. ECON. & L., Article 7 (2011), available at <http://www.bepress.com/acl/vol1/iss/1/7>.

41. FRANÇOIS PERROUX, *L'ECONOMIE DU XX^e SIECLE* (3d ed. 1969).

42. Adolf A. Berle Jr. & Frederick S. Fisher, Jr., *Elements of the Law of Business Accounting*, 32 COLUM. L. REV. 573 (1932).

43. THE FIRM AS AN ENTITY, *supra* note 23, at 82-91; Ronald H. Coase, *Accounting and the Theory of the Firm*, 12 J. ACCT. & ECON. 3 (1990).

holders' equity maintenance, fiscal accounting systems, prudential reserves calculation and requirement systems, and accounting standards are important features of accounting systems.

The accounting system overcomes "ownership" within the firm. From the ownership perspective, which still influences current theories of the firm, the asset side comprises wealth accumulated on behalf of the owner who provides equity and has to pay for the firm's debts.⁴⁴ The focus is on the residual rent that accrues to his equity after all payments,⁴⁵ and the separation between ownership, management, and control is undermined. But according to Schmalenbach:

The economic function of business-making is not to be or become wealthy [reich]; and whoever goes on counting [zählen] his worth [Vormögen] makes unproductive work [unproduktive Arbeit].

Nonetheless, income [Erfolg] should be accounted for and kept being accounted [messen]. For the economic function of business-making is to produce, transport, store and sell goods [Güter] until the last man, and to do all this economically so that the means [Stoff] of such endeavor do not wear out in the process.⁴⁶

In fact, the accounting system of the business firm operates in order to make the activity of the firm accountable to various stakeholders, including shareholders, and introduces an inter-individual (and inter-temporal) dimension. According to A. Charles Littleton, firms are expected to deliver a specific enterprise service that leads to the following accounting principle: "Business enterprises are accepted and used because they perform effective economic functions in supplying goods (for living) and employment (for earning)."⁴⁷ Personification of either the owner or the firm does not help us understand this institutional dimension of accounting.⁴⁸ Assets are better understood as immobilizations required by the firm activity, while both liabilities and equities have financed those investments and wait for remuneration and recovery over time. The focus is on income comprising all revenues and expenses that together generate all the remunerations provided to stakeholders having commitments and

44. THE FIRM AS AN ENTITY, *supra* note 23; see also Yuri Biondi, *The Governance and Disclosure of the Firm as an Enterprise Entity*, 5 COMP. RES. L. & POL. ECON. 3 (2009), available at <http://ssrn.com/abstract=1440871>.

45. Fair value accounting introduces a peculiar accounting purpose, focusing on the change in net worth between two arbitrary moments of time. The theoretical distinction between historical cost (flow method) and fair value (stock method) accounting correspond to that between entity and proprietary accounting perspectives that characterizes American accounting thought.

46. EUGEN SCHMALENBACH, DYNAMISCHE BILANZ 1–60, 65–101 (4th ed. 1926). *Cf. also* English edition (1959), at 30–31; last German edition (1962), at 49.

47. A. CHARLES LITTLETON, STRUCTURE OF ACCOUNTING THEORY 24 (1953).

48. THE FIRM AS AN ENTITY, *supra* note 23; Biondi, *supra* note 44, at 3.

expectations regarding the economic performance and position of the firm. On this basis, the accounting system represents the firm as an object of collective enterprise over time, not as an individual (or joint) property. As a matter of law, no one owns the firm; shareholders own nothing but their shares.⁴⁹

Both corporate accounting and government systems⁵⁰ address “other people’s interests,” including other people’s money and the public interest. In this inter-individual context, accounting systems should be, and have been historically, designed to facilitate the smooth functioning of accountability relationships among interested parties, in order to assist fiduciary bodies that govern the collective activity on behalf of those parties for settling divergent interests and protecting the continuity of their joint activity over time. Accordingly, the accounting system can include the *cost* of shareholders’ equity, and distinguish it from the enterprise entity equity that is available for enterprise financing and distributions to other constituencies.⁵¹

VII. CONCLUSION

This Article has dealt with the problem of social cost raised by Coase.⁵² The Article has compared ownership, market, taxation, responsibility (or tort law), and the accounting system of the joint entity as alternative modes of economic organization under the specific conditions of efficiency, information, and control that belong to each institutional design. By requiring explicit agreement on income-sharing and joint-decision instrumentalities, the entity solution provides the most satisfying results in absence of transaction and information costs, so long as the accounting system works smoothly.

Notwithstanding his insightful advances on institutional comparative analysis of alternative forms of economic organization, Coase⁵³ has misunderstood the accounting system of social income by confounding social cost, incurred loss, and lost opportunity gain. His approach raises distinctive accounting problems with individual availability and capacity to pay, and the incommensurability of values. In contrast, the entity view has been developed here to suggest a comprehensive definition of effi-

49. See, e.g., THE FIRM AS AN ENTITY, *supra* note 23; Jean-Philippe Robé, *The Legal Structure of the Firm*, ACCT. ECON. & L. (2011), available at <http://www.bepress.com/acl/vol1/iss1/5>.

50. The “government” concept replaces the “governance” concept that refers to the mythical sovereignty of the proprietary entrepreneur. See Biondi, *supra* note 44.

51. Biondi, *supra* note 40. Yuri Biondi, *Governing the Business Enterprise: Ownership, Institutions, Society*, 5 COMP. RES. IN L. & POL. ECON. 3 (2009), available at <http://ssrn.com/abstract=1440889>.

52. Coase, *supra* note 1.

53. *Id.*

ciency that takes both individual and collective welfares into account. This approach provides further advances to understand the place of accounting systems in business and nonbusiness organizations.