

## **The accounting-economics interface: where the market fails**

by

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In a 1995 article Clem Tisdell openly rejected the approach of the ‘Chicago School’ to the marketplace. Tisdell characterized this view as ‘favouring deregulation, improvements in and extension of conditions for market operation and for voluntary exchange’ (p. 136). The Chicago-school ‘approach takes the optimistic view that if institutional conditions for the operation of markets are sufficiently improved either market failures may disappear or be reduced to such an extent that no direct public intervention can be justified on economic grounds’ (Tisdell 1995, p. 136).

In this paper we will address the more general concerns about ‘blind’ application of microeconomics that spills over into real-life measurement activities and the effects this has on the decisions being made by managers, investors and creditors. The measurement activity that will be the focus of this paper is accounting because of the important role prices play. In particular prices are presumed to represent the primary means of calculating costs as reported in accounting reports.

As Tisdell observes, ‘Some Chicago economists put great faith in the ability of private property creation to create perfect or near perfect markets or ideal conditions for voluntary exchange’ (1995, p. 137). Transaction costs would seem to be the obvious impediment to the perfect market or in some cases to the existence of the market. Since every market is supposed to be a venue for competition between decision makers, the paradigm of this concern is the view expressed by Ronald Coase concerning the allocation of necessary transaction costs. Specifically, Coase in his 1960 article makes the following comments about the inflicting of harm by one party on a second party:

It is necessary to know whether the damaging business is liable or not for damage caused since without the establishment of ... initial delimitation of rights there can be no market transactions to transfer and recombine them. But the ultimate result (which maximises the value of production) is independent of the legal position if the pricing system is assumed to *work without cost*. (p. 8, italics added)

If we are to attain an optimum allocation of resources, it is therefore desirable that both parties should take the harmful effect (the nuisance) into account in deciding on their course of action. It is one of the beauties of a smoothly operating pricing system that ... the fall in the value of production due to the harmful effect *would be a cost for both parties* (p. 13, italics added).

After discussing how the market would function in a world without transaction costs, Coase also notes:

This is, of course, a very unrealistic assumption. In order to carry out a market transaction it is necessary to discover who it is that one wishes to deal with, to inform people that one wishes to deal and on what terms, to conduct negotiations leading up to a bargain, to draw up the contract, to undertake the inspection needed to make sure that the terms of the contract are being observed, and so on. These operations are often extremely costly, *sufficiently costly at any rate to prevent many transactions that would be carried out in a world in which the pricing system worked without cost* (p. 15, italics added).

While Coase does not wholeheartedly embrace government or regulation as the means to solve problems where transaction costs occur in the real world, he does state:

An alternative solution is direct Government regulation. Instead of instituting a legal system of rights which can be modified by transactions on the market, the government may impose regulations which state what people must or must not do and which have to be obeyed...

The government ... is able to influence the use of factors of production by administrative decision...

It is clear that the government has powers which might enable it to get some things done at a lower cost than could a private organisation (or at any rate one without special governmental powers) (pp. 17-18).

Since the Chicago School seems so preoccupied by a world of individuals busily maximizing their utility or profit by merely making sure that at the margin, marginal benefits must equal marginal costs, Tisdell adds the important observation that ‘transaction costs are likely to involve large economic welfare loss because they are incurred on all transactions; not just at the margin’ (p. 140). We will argue that the decision makers dependence on the market to provide them with needed information is, in Tisdell’s sense, particularly compromised by the consideration of transaction costs. Dependence on the market is problematic even in an ideal world.

### **Adam smith's market-based economy**

Before we examine the problems with market-based decision making, let us consider some of the views of Adam Smith whose image is embroidered on the neckties of many Canadian and American proponents of a small and impotent government.

At the end of Book IV, Chapter 9 *Wealth of Nations*, Volume 2, Adam Smith identifies three roles that he thinks are appropriate for the sovereign or government. First is the duty of providing for national defense. Second is the duty of establishing a system to administrate justice. And third,

the duty of erecting and maintaining certain public works and certain public institutions, which it can never be for the interest of any individual, or small number of individuals, to erect and maintain; because the profit could never repay the expence to any individual or small number of individuals, though it may frequently do much more than repay it to a great society (p. 213).

In Book V, Chapter 1 Smith spells out why these costs should be borne by society in general:

The expence of defending the society, and that of supporting the dignity of the chief magistrate, are both laid out for the general benefit of the whole society. It is reasonable, therefore, that they should be defrayed by the general contribution of the whole society, all the different members contributing, as nearly as possible, in proportion to their respective abilities ...

The expence of the administration of justice, too, may no doubt, be considered as laid out for the benefit of the whole society. There is no impropriety, therefore, in its being defrayed by the general contribution of the whole society...

The expence of maintaining good roads and communications is, no doubt, beneficial to the whole society, and may, therefore, without any injustice, be defrayed by the general contribution of the whole society...

The expence of the institutions for education...is likewise, no doubt, beneficial to the whole society, and may, therefore, without injustice, be defrayed by the general contribution of the whole society (pp. 312-13).

Smith notes that, with the exception of defense, some or all of these social expenses could be passed along to those who most directly benefit from the services. However, after making this point he states:

When the institutions or public works which are beneficial to the whole society, either cannot be maintained altogether, or are not maintained altogether by the contribution of such particular members of the society as are most immediately benefited by them, the deficiency must in most cases be made up by the general contribution of the whole society. The general revenue of the society, over and above defraying the expence by defending the society, and of supporting the dignity of the chief magistrate, must make up the deficiency of many particular branches of revenue (p. 313).

From these quotations two points emerge. First, Adam Smith clearly acknowledges that there is a necessary social role for government. Second, in his own language and terminology, he recognizes that some economic activities have external spillover effects where the market alone will not always lead to the best social outcomes. That is, in more modern terms, market failures exist.

### **Where the market fails accounting**

There are three different manifestations of market failures that generate problematic accounting information. The most obvious problem with transaction costs occurs whenever we consider externalities. The problems surrounding any accounting for externalities are well known and it is not clear that the marketplace can ever overcome these problems (Tinker 1985). In addition to the problems of accounting for externalities, there are two other types of problems in accounting where the marketplace fails the users of financial statements. These problems involve efficiency versus effectiveness measures and short-run versus long-term tradeoffs. We will discuss all three types of problems in the remainder of this paper.

For the purposes of this paper, the users of accounting information are defined as investors, creditors and managers. Investors and creditors rely primarily on published financial statements and other reports for information about firms that interest them. Managers rely on internally generated information that subsequently forms the basis of the published reports that other users receive. These three groups make decisions that affect a larger public and group of stakeholders. Thus the effect of ill-informed decisions will have ramifications beyond the investors, creditors and managers.

### **Externalities**

As noted, economic externalities have been a source of discussion since the time of Adam Smith. In Smith's case (1776/1963) the externalities concentrated on issues such as who, and how, should the 'common people' be educated. However, the more recent externalities debates are usually traced to Pigou (1920/1962) and to disciples of the 'Chicago School' tradition (e.g. Stigler 1952; for discussion see Tisdell 1995). As indicated externalities may be both positive (e.g. education of the citizens) and negative (e.g. pollution). Because we are dealing with accounting and the market,

our attention will center on the negative externality of pollution and its measurement by firms in accounting for their production activities. In this context negative economic externalities result from activities undertaken by a firm where the production inputs are not all priced in the market. The existence of non-priced production inputs leads to the cost of the final products being lower than they would be if all inputs, including externalities, had prices. Wherever there is an input without a price, the output's price will be too low to cover all production costs.

In a Coase-type ideal world, where markets do not exist for the measurement of all production inputs, a market would be established for these factors. For example, where a firm pollutes a stream in its ore mining operations, a market would be created so that the firm could buy the right to pollute the stream. The price paid for this right to pollute would result in higher production costs and higher output prices (Coase 1960, p. 44). However, our economic world and its markets are less than ideal and much less adaptable than this. Moreover, given the need to incur transaction costs in the creation of any social interaction, one can obviously ask whether it would ever be possible to create a market to generate such prices in an ideal world.

Transaction costs are unavoidable even in an ideal world so long as we are talking about the social world of interacting individuals. The question is: 'who pays?' Before that question can be answered, we need to be sure that all transaction costs have been identified so they can be included in the accounting.

Today the economics we teach continues to be primarily concerned with individual economic decision makers. It must surely be recognized that the quality of any decision made will always be limited to some extent by the quality of the information needed to make the decision. As economists have been noting for several decades, this would seem to be an important issue that might call into question any ideal model that ignores the informational basis of decision making (Hayek 1937, Arrow 1959, Clower 1959, Richardson 1959). Nevertheless, students are taught to begin by considering an ideal world of buyers and sellers of produced commodities. In this ideal world the only information needed is about the prices generated by free markets, both those markets that supply the factors used in the production process and those where the final product will be sold. The ideal world envisioned by mainstream economists (including those usually identified with the 'Chicago School') is comprehensively market-based. That is, ideally there would be no government to regulate or otherwise constrain the decisions made by individuals. The ideal world contains only individuals interacting in the market. The Chicago School economists are always eager to teach us about the ideal world so as to focus their strong advocacy of deregulation and smaller governments. Most other mainstream economists do not go so far and feel justified in merely teaching students about the ideal world because it is thought to be a reasonable starting place for developing a clear understanding of the real world.<1>

The idealized market solution stands in strong contrast to our present situation. Even in the richest countries, negative externalities are affecting the quality of life (Brundtland 1987; IISD 1992). Generally, unless firms are fined for polluting activities or possibly pay for insurance against accidents, the financial statements do not include these costs in the offending firms' expenses or net income measurements (Tinker 1985, 181-183; Arrington 1990, 8).<2> Even after accidents, it remains unclear as to the effects of pollution and who are the real winners and losers (Keeble 1991).

One recent and costly pollution disaster involved an oil tanker, the Exxon Valdez, which spilled approximately 11 million gallons of crude oil fouling more than 1100 kilometres of shorelines (Loughlin 1994). This disaster represents a situation which has been examined by environmentalists (Keeble 1991), scientists (Loughlin 1994) and economists (Owen *et al.* 1995) alike. In all cases the after-disaster costs paid by Exxon are mentioned. These costs include Exxon's 1989 costs to the principal cleanup contractor of \$800 million; \$41 million for wildlife rescue and rehabilitation efforts (Keeble 1991, pp. 261 and 264); court awarded settlements to fishers in 1994 in the amount of \$287 million (Owen *et al.* 1995, p. 4) and \$1 billion in criminal restitution and civil damages to both state and federal governments in 1991. The \$1 billion settlement was to be spread over ten years beginning in December, 1991 and ending in September, 2001 (Morris and Loughlin, 1994, pp. 19-20).

The costs, both voluntarily undertaken by Exxon and imposed by the courts after the disaster, represent sums that will be included in the company's financial reports. However, these after-disaster costs may not relate to the longer term effects of the pollution. Exxon continues to have many oil tankers plying the oceans including the Exxon Valdez which has now been repaired and renamed the Exxon Mediterranean (Keeble 1991, p. 260). The occurrence of one disaster does not mean that other future disasters will be avoided unless specific actions are taken by the firm in question.

The point of using the Exxon example is that the costs reflected in accounting reports fail users in three ways. First, only costs that are paid become expenses to the company and are included in the price of the output. Second, these costs may be seriously underestimated by courts where long-term effects may not be known for several generations. Such liability costs are based on estimates at a point in time and often with limited or flawed information (St. Aubin and Geraci, 1994, pp. 371-372). The third problem lies in the fact that the costs of production in situations such as the Exxon Valdez are only captured after the pollution occurs. Thus it is not reflected in the output prices of

those consuming the goods but is passed on to later consumers. In this example, consumers of one generation enjoyed lower oil prices than will later generations who pay increased prices for oil due to the increased expenses reflected in Exxon's 1989 and subsequent financial statements. Additionally, the future consumers may pay even higher prices if Exxon incurs increased costs to prevent further disasters.

Suggestions have been advanced in the accounting literature for incorporating various pollution measures in firms' financial statements. These suggestions include comparisons of 'planned pollution output to actual' (IISD 1992) or the creation of a 'natural resource trust account' where a company would decrease this value as it engaged in polluting activities (Rubenstein 1992, p. 507). While in the first instance pollution may be measured in either money terms (i.e., dollars or yen) or physical terms (i.e., tonnes), the second suggestion focuses on 'value' which is usually measured in terms of money.

These suggested cost estimations of present polluting activities are not yet included in market prices and therefore are not captured in accounting measurements. Such activities are undertaken by managers who may be underestimating these costs in their decisions. Given that these costs are excluded from the firms' performance measurements such as net operating income and net income used by investors and creditors in their decision making, then the costs of negative externalities remain outside the market system.

### *Efficiency versus effectiveness issues*

As we discussed earlier, not even Adam Smith relied solely on the ideal world -- instead, he recognized the need for some publicly owned enterprises (e.g. schools, roads and communications). In Smith's world, the question must still persist: how do we evaluate such needed publicly owned enterprises? Should it be 'efficiency' such as that achieved in the economists' ideal world? Or, should some other notion apply such as effectiveness toward the achievement of the social objectives for creating such publicly owned enterprises?

In economics we discuss and focus on the measurement of efficiency. Efficiency indicators present the ratio of outputs achieved to the inputs employed. These performance indicators are generally quantitative and provide internal standards for the firm (Pfeffer and Salancik 1978, p. 11). Quantitative accounting measures that incorporate profit maximization, or cost minimization, are used by managers, investors and creditors in making their decisions. Net income or net operating income provide examples of measures where outputs (measured in terms of revenues) are compared to inputs (measured in terms of expenses).

However, efficiency is only one side of the complete production picture. The other side is effectiveness, the concept of whether the objectives of an organization or society are actually achieved. Effectiveness measures relate to whether an organization has selected measures of 'outcomes and actions' that would be acceptable to those external (i.e., society) to the firm (Pfeffer and Salancik 1978, p. 11) and whether those outcomes have been met (Barnard 1938).

Many studies have made comparisons between privately owned firms and publicly owned (viz government-owned) corporations. The large majority of these studies report that the privately owned firms outperformed their government-owned counterparts (see Vining and Boardman 1992). The types of measures used in these studies are those that deal with 'efficiency' or 'productivity' while generally ignoring the effectiveness dimension. Without a measure of effectiveness, one might expect publicly owned companies to fare less well than their private counterparts when using efficiency measures alone. Publicly owned enterprises may be required by their governments to meet objectives other than those that are captured in efficiency or productivity measures (e.g. social welfare or employment targets). Because of the potential difference in objectives for publicly owned enterprises, Trivedi (1987) maintains that they must be evaluated but that those evaluations should not be based on the same criteria as applied to privately owned firms. Trivedi's argument is that the measurement must be related to the social welfare outcomes that are established by the government for its enterprises.

Beyond whether publicly owned enterprises should be measured solely on the basis of efficiency measures, is the idea that all enterprises should be held accountable to society for some types of effectiveness. As indicated under the externalities heading many firms use non-priced resources such as air and water when producing goods and services. Effectiveness measures serve the purpose of allowing decision makers to determine if a firm increased or decreased its socially responsible activities. Such measures involve an accounting for resource use presently included in motherhood statements published in companies' annual reports (Owen 1992).

While effectiveness issues are beginning to be examined in the not-for-profit sector of accounting (GASB 1994, IFAC 1996), these issues are not yet being included in discussions about accounting for profit-oriented enterprises. This is despite the relevance of effectiveness measures for the evaluation of all enterprises.

### *Short-run versus long-run tradeoffs*

In the 1980's and 1990s there has been a concentrated effort to turn the clock back to the good-old-days (read 'ideal world') where governments and government activities were insignificant -- that is, to an era when the government was certainly no more significant than that allowed by Adam Smith. In countries such as Canada where various levels of government actually own enterprises (in Canada they are called Crown corporations), there have been several cases where those enterprises were sold off to the private sector, that is, 'privatized'. For those working in these newly privatized enterprises, the planning horizon appears to have changed from a long-run to a short-run perspective. This has led to some serious complaints about the economic consequences of privatization.

A common type of complaint lodged against private firms has been their myopic time horizons (Johnson and Kaplan 1987; Laverty 1996). The problem may be characterized as firms (or individuals) trading off higher profits in the short term against lower profits in the longer term. In a perfectly competitive world time is assumed away. We see this in the assumption that all buyers and sellers in the market have the same time horizons. While in the fantasy world of perfect competition time does not matter, in the real world of business time matters very much. Indeed the urge is for managers, firms and even governments to focus on the short run to ensure that compensation bonuses, profits or reelection bids are won.

One prominent example where the outcome of a short-run focus has become clear is the Canadian East Coast fishery. For a period extending over more than twenty years a fisheries economist, Parzival Copes (1973, 1972), studied and discussed the problems with sustainability of fish harvests. In a series of papers Copes noted that disaster would result unless immediate steps were taken to protect this renewable resource:

In the competitive scramble for 'free' fish, excessive amounts of labour and capital are attracted to the fishery, raising over-all costs relative to over-all revenues and reducing the net benefits that could be extracted from the resource. Not infrequently open access also leads to overfishing in a biological sense. An intensive fishing effort may yield a large initial catch but may drive down the fish stocks to a level where the size of the long-term ('sustainable') annual yield is diminished despite the expanded total effort (1972 p. 311).

It is true that the fishery, while qualifying as a renewable resource, is not necessarily an inexhaustible one. In the course of time high intensities of effort have caused the extinction, or near extinction, of a number of fish stocks (Copes 1973, pp. 1-2).

First of all, to permit the recovery of depleted fish resources, foreign effort should be phased out and domestic effort temporarily restrained for all stocks that are commercially attractive to the local fishing industry (1980, p. 106).

[The] size (catching capacity) of the Canadian fleet will have to be strictly controlled (1980, p. 107).

While individual economists such as Copes called for a longer term focus for the fishery, the fishers, fish processing firms, the Newfoundland provincial government and Canadian federal government continued to look at short-term goals. These goals included income for the fishers and fish processors, while the provincial and federal governments wanted continued employment of workers in an economically depressed region.

National Sea Products Limited provides an example of a Canadian company's actions during the same period as Copes' calls for greater regulation and protection of the fisheries. For the period 1965 to 1982 National Sea Products fish landings ranged from 212,000,000 to 352,000,000 pounds. The lowest catch for a full twelve month period occurred in 1975 at 178,000,000 pounds. Net sales increased steadily from \$48,509,000 in 1965 to \$386,231,000 in 1982. Net income ranged from \$1,217,000 to \$1,030,000 between 1965 and 1982 with the highest net income recorded in 1978 (\$10,623,000) and the lowest twelve month net loss (\$1,298,000) reported in 1975, which the company attributed to poor landings throughout the year (National Sea Products *Annual Reports*, 1968 to 1982). In each of the company's annual reports management's primary concerns focus on the company's financial performance and the return to shareholders as captured in the accounting measurements. But the accounting measurements are based on market prices that obviously failed to include the longer-term view expressed by Copes. As a result the primacy of the short-term view led to the collapse in the early 1990s of a once lucrative fishery.

### **Concluding remarks**

In this paper we have discussed three key types of market failure with respect to market-based decision making. In an ideal world where markets for all goods and services exist (or can be costlessly created), these failures may be assumed away. However, people in the real world surely would not want to rely on a conception of an ideal world where all markets are in equilibrium and all prices tell us how goods and services should be evaluated. As Alfred Marshall noted a hundred years ago, in such an ideal world there would be no need for economics. There would be no mistakes and possibly no need for accountants. Nevertheless, this is the predominant school of thought that is taught in the

universities, espoused by policy makers and the media and followed by decision makers. Failure to recognize the informational problems caused by market failures or even market disequilibria can too easily cause decision makers to dismiss the difficulties confronting anyone who wishes to take into account such things as transaction costs or externalities.

The ideal world of the academic economist offers no help in evaluating the effectiveness of Adam Smith's recommended government undertakings nor guides us to adopt an appropriate long-run view of social policy. Market determined prices can provide useful information but it is unlikely that prices alone could ever provide a basis for sound social policies, particularly when those policies are concerned with whether we should deregulate, privatize or down-size the government.

### Footnotes

- <sup>1</sup> That is, students are taught to recognize that the real world is an understandable distortion from the ideal. Presumably this is the economist's way of imitating how physicists explain the real world -- start with a frictionless world and then use coefficients of friction to explain the real world behavior of say sliding objects.
- <sup>2</sup> There has been a move in one U.S. jurisdiction to establish a market to buy and sell pollution rights (Vancouver Sun March 7, 1992, p. A10).

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