

# **ECONOMIC THEORY, APPLICATIONS AND ISSUES**

**Working Paper No. 27**

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Implications for Public Administration and  
Economic Policy**

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# **Transaction Costs and Bounded Rationality – Implications for Public Administration and Economic Policy**

## **ABSTRACT**

Relationships between bounded rationality and transaction cost theories are discussed and their connections with stochastic theories of industrial evolution are considered. While these theories have their limitations, they are useful but have been ignored in many public policy prescriptions, especially those involving markets. For example, as discussed, these theories have failed, on the whole, to influence competition policy and the design of more efficient systems for public administration (contracting out, labour contracts for public employment, adoption of the user-pays principle and use of performance budgeting and accounting), as well as in policies to remove market frictions. The result may be less efficient systems than otherwise achievable and diminished long-term economic performance. It is also pointed out that market transaction costs are sometimes important contributors to improving the performance of market systems by increasing their stability. The presence of frictions and diversity of behaviours can sometimes improve the long-run performance of competitive systems.

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**Keywords:** bounded rationality, competition policy, evolutionary theory, market dynamics, public administration, transaction costs.

# **Transaction Costs and Bounded Rationality – Implications for Public Administration and Economic Policy**

## **1. Introduction**

Described by some of its proponents, such as Oliver E. Williamson, as new institutional economics, transaction cost theory fails to satisfy all institutionalists, such as those following the tradition of Thorstein Veblen (Rutherford, 1994), and is seen by some critics as little more than a refinement of neoclassical economics (Dugger, 1992; Lazonick, 1991). According to Williamson (1979, p. 233), ‘The new institutional economics is preoccupied with the origins, incidence and ramifications of transaction costs. Indeed if transaction costs are negligible, the organization of economic activity is irrelevant... But despite the growing realization that transaction costs are central to the study of economics, sceptics remain’.

Most analyses used in transaction cost economics rely on comparative statics (see, for example, Williamson and Masten, 1999) and assume a degree of precision which probably does not exist. For example, theories of optimal transfer pricing in multidivisional firms are of this nature (cf. Hirshleifer, 1956; Gould, 1964; Naert and Janssen, 1971; Williamson, 1975; Tisdell, 1996, Ch. 11). These comparative static models fail to take account of dynamic processes and do not appeal, therefore, to evolutionary economists. But transaction cost economics can be linked with evolutionary phenomena as has been done, for instance, by Douglass North (1981) in discussing the evolution of property rights (see also Demsetz, 1968).

Evolutionary theories take many different forms (Hodgson, 1993). Some such theories involve deterministic patterns whereas others are based on random-related selection mechanisms with outcomes unfolding in a stochastic fashion. In the latter respect, it can be argued that Nelson’s evolutionary theory (Nelson, 1987) relies on elements of transaction costs. Customs or codes of behaviour in organisations (the culture of organisations) may in fact reflect their responses to the presence of transaction costs. The diversity of business customs and codes of behaviour (diverse business cultures) provide the genetic-like material influencing the evolution of

industrial structures. While Oliver Williamson's approach, and that of most transaction cost theorists, including North and Demsetz, is to explain organisational mechanisms or structures as rational responses to the presence of transaction costs, they may not always arise in this way. Indeed, because of transaction costs, organizations can become locked into forms which are irrational. Furthermore, given bounded rationality, a number of different organisational structures can be equally rational. In circumstances where the initial knowledge of organisational participants differ and variations occur in the cost of gathering, storing and processing information experienced by groups of organisational participants, divergent organisational 'cultures' can appear to be rational to different administrative planners, even though apart from the above, they face the same environment. This is because rationality must be judged relative to the set of information available. This determines principally what it is logical to believe (Carnap, 1950; Keynes, 1921). Thus bounded rationality can result rationally in diversity of administrative methods or cultures.

In this paper, the relationship between bounded rationality and transaction cost theory is briefly considered along with the criticism that transaction cost theory has been essentially static in nature. It is then suggested that market transaction cost theory has been largely overlooked in the formulation of public policy, especially in policies designed to downsize the public sector, and that this has resulted in inappropriate policies. The presumption that avoidable market transaction costs are always welfare-reducing is considered. It is contended that there are circumstances in which such costs are welfare-enhancing because they improve the stability properties of markets. This point is illustrated by a very naive cobweb model and the potential of diversity to favour stability is mentioned.

## **2. Bounded Rationality and Transaction Cost Theories – How are They Related?**

To some extent, bounded rationality theories and transaction cost theories of economic organisations and behaviour have evolved in parallel but seemingly somewhat independently. Modern interest in transaction cost theory stems from the seminal article of Coase (1937), although Klaes (1999) argues on rather technical grounds that this honour should go to Marschak (1950), and owes much to the contributions of Oliver Williamson (e.g. 1975). On the other hand, Herbert Simon

(e.g. 1955, 1957, 1959, 1961), through his main contributions commencing in the 1950s, increasingly make the economics profession aware of the occurrence of bounded rationality and its implications for economic decisions and economic choice.

A division existed between the two approaches because of Simon's rejection of the notion of economic man – the idea the economic agents adopt maximising rational actions. Transaction cost theorists retained the concept of economic man but now required this man to optimise in a more imperfect world than envisaged in earlier economic theory. They envisaged a world in which transaction costs have to be accounted for in decision-making; a world involving, in many cases, asymmetry of information on the part of those involved in transactions. To some economists, transaction cost theory seemed more like modified neoclassical theory than new institutionalism. Transaction cost theory (like the theory of bounded rationality) recognises that it is unlikely to be economically optimal to obtain perfect knowledge even if this is possible, the extra cost of extra information must be weighed against its extra benefits (cf. Baumol and Quandt, 1964). To a large extent, the modelling associated with transaction cost theory has been static and marginalist in nature. Its analysis relies heavily on comparative statics, as in traditional neoclassical theory.

By contrast Simon argued in favour of 'satisficing'/aspirational type models and was highly critical of models based on the concept of economic man. Furthermore, his work tended to give more attention to the *processes* of decision-making than has that of most transaction cost theorists, such as Oliver Williamson. This meant that Simon's approach was more akin to the evolutionary economics whereas transaction-cost theory showed less affinity, in its early stages, with the evolutionary approach.

When an earlier version paper was presented at the 74<sup>th</sup> Western Economics Association conference, Oliver Williamson confirmed his support for use of analysis based upon concepts of economic optimisation rather than 'satisficing', or other types of non-optimising approaches. Partly, it seems that, this is because the former provides greater operational possibilities and has greater predictive power. Furthermore, economic optimisation can be compatible with a wide range of behavioural hypotheses. These include the following:

- (1) Economic entities are actually motivated to maximise (or minimise) the objective function specified.
- (2) They act this way on ‘average’.
- (3) They consistently act ‘as if’ they are maximising (or minimising) such a function.

From some perspectives, however, the division between bounded rationality and transaction theory is artificial. George Stigler for example argued that search models of an optimising type can give rise to similar dynamic process to those described by Herbert Simon involving acceptance/rejection thresholds. Consider also the processes sequential sampling involving stopping rules. In any case, one can accept the importance of bounded rationality without adopting the satisficing-type of modeling of Simon.

Individuals are liable to experience bounded rationality even when they are not involved in any transactions. The capacity of human beings is limited in relation to knowledge – its collection, storage, organisation and use involves costs and time – and this naturally limits the scope for perfect choices by individuals. The possibility for exchange with other individuals extends the range of options available to individuals. While this increased range of options could further limit an individual’s capacity to optimise (places more bounds on perfect rationality), there is also a possibility that it could do the opposite. For example, individuals may specialise in their knowledge-related activities and some social mechanisms, such as the price mechanism, may reduce the need for gathering of information.

Transaction costs can exist in the absence of bounded rationality e.g. public taxes imposed on goods sold in markets. Furthermore, as indicated above, bounded rationality may exist in the absence of transactions or transaction costs. But often bounded rationality and transaction costs are simultaneously important and show a degree of interdependence. Bounded rationality in relation to market purchases may extend search procedures and in the case of contracts, involve greater care in specifying a contract and building in safeguards. Thus, the areas of application of bounded rationality analysis and transaction-cost theory are overlapping rather than mutually exclusive.



As suggested to me by Kyle Bruce, the bounded rationality focus of Herbert Simon might well have initially motivated Oliver Williamson's development of transaction cost theory. Furthermore, Simon could have directly influenced Richard Nelson's development of evolutionary economic theory. Simon supervised Williamson's Ph.D. thesis at Carnegie-Mellon, and during his stay at Carnegie-Mellon, Nelson was in contact with Simon.

### **3. Implications of Bounded Rationality and Transaction Costs for Industrial Evolution, and Blindness in Competition Policy**

It is worth raising the question of what implications bounded rationality and transaction costs have for the type of evolutionary economic theory outlined by Richard Nelson (1987) and also evident in the earlier work of Nelson and Winter (e.g. 1982). Nelson suggests that the operation of forces of industrial selection depends on the constellation of customs and codes of managerial behaviour in business and that these are relatively constant. They perform a similar function to the genetic pool in biological evolution. Both bounded rationality and transaction costs add to the relative permanency of customs and codes used in business (as well as their variety) and to social inertia generally.

Baumol and Quandt (1964) were able to show that use of various rules of thumb are 'optimal' in business given bounded rationality. Furthermore, habitual behaviour is often an economical means of avoiding continual decision-making costs and in certain circumstances, can also reduce transaction costs. Up to a point, habit may be rational and such behaviour may only be modified in exceptional circumstances.

In relation to the above context, it is of interest to note that some of the more recent work of Winter (1988) has concentrated on the extension of Coasian transaction cost theory and this further indicates the influence of transaction cost theorists on economic evolutionists. Demsetz has in recent times extended Coasian theory along evolutionary lines (Demsetz, 1990, Ch.9). This further suggests that transaction cost theory tends to propagate evolutionary theories.

A social mechanism, often overlooked in recent literature, for reducing transaction cost is the prescription of roles for individuals or institutions, with attendant relatively

defined responsibilities. Roles assist with group coordination and through their attendant moral dimension, may help to reduce monitoring problems (cf. Tisdell, 1997). Role prescriptions and responsibilities usually do not vary rapidly with time. This may be another factor favouring relative stationarity of business culture, customs and codes of practice in enterprises.

Another matter of interest from an evolutionary point of view is whether the presence of bounded rationality and transaction costs favour greater diversity in the organisation and behaviour of business enterprises. The influence of these factors is difficult to determine *a priori*. However, because growing economic globalisation is largely a consequence of reduced transaction costs, its impact on diversity may provide some general indicator of what might be expected. Particularly due to lower communication costs, globalisation appears to be making for greater social uniformity, including greater uniformity of business culture. If this is so, it may be an unfavourable trend from an industrial evolutionary point of view (cf. Tisdell, 1999). Up to a point increasing industrial conformity confers a net social economic advantage, but beyond a point this increasing uniformity may be disadvantageous for economic growth and involve a net socio-economic disadvantage. Hence, globalisation, if carried to extremes, may not yield the types of advantages claimed by its advocates.

The idea that a degree of industrial diversity is beneficial for economic growth and efficiency (Tisdell, 1996) appears to have been largely ignored in recent competition policy and in industrial policy generally. For instance, industrial mergers are being increasingly allowed on the grounds that they yield economies of scale and scope (relatively static concepts) and that industrial concentration at the national level is now of limited importance because of increasing globalisation of markets. But such policies reduce industrial diversity globally. Some policy-makers believe that economic evolution in a competitive environment selects the 'fittest' firms, the most efficient ones, thereby moving the economic system towards perfection. However, this view, based on social Darwinism, is problematic. The selection of firms and industrial structures emerging under some sets of competitive conditions may be insufficiently diversified to ensure the adequate future evolution of the system

(Tisdell, 1999). Nevertheless, this aspect of evolutionary economics, with its roots in bounded rationality, seems to have fallen on deaf ears.

To further emphasize: Even efficient past selection of the 'fittest' firms can result in industrial structures that are not optimal for future industrial development. This is because competitive selection mechanisms are relatively 'blind' and based on past and present performance. The past can only be a partial guide to the future.

However, other aspects of transaction cost and bounded rationality theory have also failed to influence public administration and policy. This is especially evident in relation to policies for 'right-sizing' of public bodies, contracting out government work, and those for creating or simulating markets in relation to public provision of commodities. It also applies to policies increasing competition and contestability within public organizations, and the increased use of public performance budgeting and accounting. In other words, bounded rationality and transaction costs (and associated evolutionary phenomena) are mostly ignored in pro-market, managerialist policies being currently applied to much public administration. (cf. Earl, 1999) It is worthwhile considering the consequences of this matter in some detail.

However, before doing this, it should be emphasized that it seems extraordinary that so much attention should have been given to market transaction costs in relation to private enterprises, while these have largely been ignored in relation to public policy and administration. But the effect of ignoring these aspects is to indicate that greater market-making in relation to public activities is more efficient than is really the case. Therefore, this blindness in relation to the public sector may stem from political prejudice.

#### **4. Small Government, Out-sourcing of Government Work, User-Pays, and other Aspects of Public Administration**

One of the areas where transaction costs appears to have been largely ignored is in relation to the implementation of structural adjustment policies. These policies, promoted by bodies such as the IMF, World Bank and Asian Development Bank, favour a very small government sector and the maximum use of market mechanisms along with the creation of competitive environments wherever possible.

The following appear to be some of the policies followed to achieve these aims in the public sector:

- Increased out-sourcing of government work and supplies wherever possible by the use of market mechanisms (e.g. by competitive bidding) or simulated market mechanisms.
- Increased lack of permanency of employment in public sector positions with greater use of fixed-term employment contracts and the periodic opening up of positions to enable these to be refilled in a new round of competition.
- Greater adoption of user-pays by public bodies to recover costs.
- Use of performance budgeting and accounting.

The Asian Development Bank (ADB) in reviewing the economic performance of four least developed Pacific Island nations (Kiribati, Solomon Islands, Tuvalu and Vanuatu) recommended that they make greater use of the above-mentioned policies (ADB 1997, 1998a, 1998b, 1998c). They have also been increasingly used in public administration in Australia.

In implementing these policies, very little attention has been given to the possibility that they may be economically inefficient because of the presence of transaction costs.

#### ***4.1 Contracting out***

For the same reasons as given by Coase (1937) in relation to private firms, transaction cost theory suggests that the optimal size of public bodies will be influenced by market transaction costs. In the absence of market transaction costs, all the business of government could be efficiently contracted out and the only public body required would be one needed to clear financial transactions. However, there are limits to the economic efficiency of using outside markets and this needs to be specifically studied in relation to the optimal size of public bodies.

Costs of contracting out public works vary according to the type of item contracted out for supply. These costs can include

- costs of searching for suitable suppliers and choosing between them;

- problems with lack of performance due to incomplete specification of contracts;
- failure of contractors to perform a contract, that is a clear breach of its specification;
- monitoring costs;
- loss of knowledge obtained from learning by doing by public bodies which may reduce their competence in monitoring and contract specification;
- increased scope for corruption in public administration e.g. ‘kickbacks’ to public servants from private companies for favouritism in the award of public contracts; and
- lack of timely or speedy supply of public commodities because of due process needed to contract this supply out.

When non-performance of contract occurs, the costs of legal action may exceed the benefits. So the lesser loss is often borne by the public body involved. Furthermore, whether or not to take legal action by the public sector is not a private decision and politicians are liable to interfere in this decision, depending upon their perceived interest. When a supplier has beneficial political contacts, this may further undermine the efficiency of the system.

In addition, in smaller economies e.g. Pacific islands, and for specialist supplies, there is sometimes only one possible supplier or a few. So prices tendered may reflect market power and the cost of outside supply can easily be higher than if the job were completed in house.

While various studies have been done in Australia to show that contracting out of public supplies and services results in considerable cost savings (e.g. Industry Commission, 1996), the implications of such studies is far from clear. Caution is needed on the following grounds

- transaction costs of public bodies are not taken into account or are only partially accounted for;
- only the short-run position may be captured with lack of account taken of loss of long-run ‘competence’ by public bodies e.g. as a result of loss of learning-by-doing possibilities, loss of quasi-rents in employees;

- loss of economies of scope and scale by the public body, and
- problems involved in ‘bundling’ , that is including in a bundle some commodities for which cost savings occur along with others for which this is not so, so that the net result is a net cost saving.

Of course, the presence of X-efficiency in the public sector strengthens the case for contracting out publicly financed supplies. In itself, however, this does not constitute a sufficient reason.

Although cost savings of around 20% (Domberger et al., 1986), and even more, have been reported for contracting out garbage ‘collection’, more modest gains seem to be usual. This is so even ignoring many of the costs of contracting out mentioned above. Hodge (1999, p.112) suggests on the basis of meta-analysis and a review of international data that cost savings of the order of 6% seem to be more usual. In fact, surveys by the PA Consulting Group (1997) and by the Deloitte and Touche Consulting Group (1997) reviewing Australian and overseas evidence came to the conclusion that average cost savings were likely to be modest (at around 2% to 10%), to the extent they exist at all. Furthermore, Hodge (1999, p.13) notes from studies that “most organizations [in the UK and US outsourcing contracts for IT] were reported to have underestimated the cost of outsourcing and the number of people and capabilities needed to oversee the project”.

This is not to say that contracting out cannot yield economic gains. It all depends. Nevertheless, the presumption that contracting out by public bodies inevitably leads to economic gains is seriously flawed. Even in cases where economic gains occur, they appear in most cases to be modest for outsourcing and vary considerably with the nature of supply outsourced. While simple activities like refuse collection when outsourced might reduce costs by around 20% (Domberger et al., 1986), outsourcing of more complex activities may not. Complexity adds to costs of selection, monitoring and enforcement costs and may be associated with loss of competence by the public body doing the outsourcing.

In the light of the discussion in this section, it might be noted that the view that developing countries (such as the least developed Pacific island nations) can

compensate for reduced foreign aid to a significant extent by adopting the public sector reforms discussed here may be too optimistic. While careful targeting of public sector administrative reforms can bring economic gains, the aggregate cost savings may be small (Tisdell, 2000). Dogmatic implementation of market-making and subjugation of the public sector to extreme competitive pressures may, on the other hand, turn out to be counterproductive and create a net national economic burden in the long run.

#### **4.2 *Insecure employment contracts***

While frequent recontracting of employment and employment conditions may appear to be a method of obtaining increased efficiency, it may after all not be so. Transaction costs are involved in such procedures. Furthermore, the uncertainty engendered may make employees reluctant to invest in training specific to their organization, reduce their morale, productivity and loyalty; loyalty being displayed by a contribution by individuals to the organisation beyond the call of duty. The latter may be regarded as a sunk asset as a result of the recontracting process. Loyalty has its economic value (cf. Tisdell, 1996, Ch. 13) and this should not be overlooked.

In considering this matter, it should be recognized that public employees accumulate knowledge specific to their job and that the accumulation of this knowledge may take some time. Rapid staff turnover can impair this 'collective' knowledge of the public body and reduce the efficiency of its operations. Thus a balance needs to be struck in increasing contestability of jobs and frequency of recontracting.

Furthermore, in certain circumstances employer and employee can both gain from an employment arrangement that pays the employee less than his/her economic value in the most productive stages of his/her life and employment but more during the less productive stage. Thus this implicit (rarely explicit) contract involves a time-dimension and its performance requires job security.

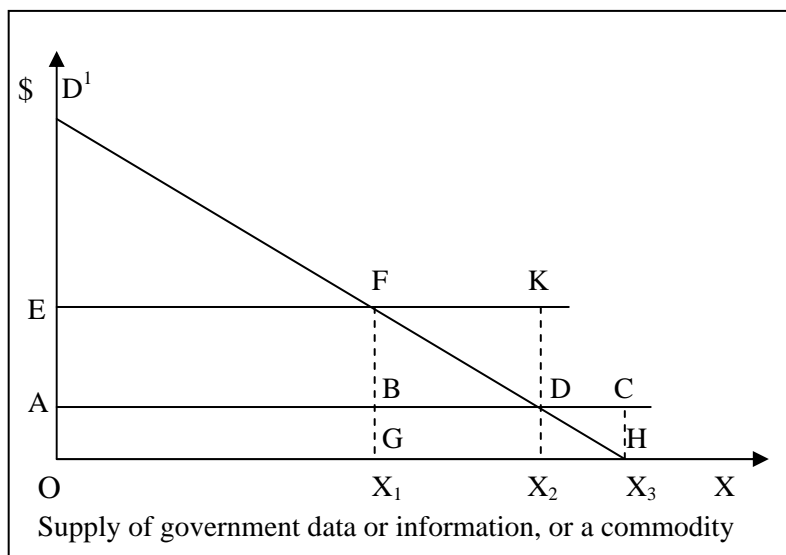
Account needs to be taken of the fact that some labour involves quasi-fixed factors due to asset specificity. It can, therefore, sometimes be economic to try to reduce labour turnover (or the risk of this) in order to preserve rent streams from human

capital investment specific to an organization, a point made by some ‘old’ institutionalists.

Contracting out through tendering and other processes, insecure employment contracts and associated contestability of positions in the public sector are all intended to expose this sector to highly competitive forces. But this strategy is problematic, not only for the reasons mentioned above but also in view of Schumpeterian consideration (Schumpeter, 1954). A system which lacks some surplus, slack or reserves may not perform efficiently because it involves a very high degree of competition (cf. Tisdell, 1996, Ch.9) and may develop in an inferior manner. Limited competition is likely to promote superior long-term economic performance. Rarely is the optimal degree of competition from an economic point of view, the highest attainable. It is usually of some lesser degree even though there are no clear rules as yet for determining the optimal balance.

### 4.3 *User-pays*

Application of the user-pays principle can also be counterproductive in some cases. The deadweight social loss from the cost of enforcing collection of charges may exceed the cost otherwise incurred when the items subject to exchange are made freely available by a public body. This is illustrated in Figure 1.



**Figure 1:** The users-pays principle need not result in a social economic optimum.



In Figure 1, the per-unit cost to the government in supplying certain data, information or a commodity is for simplicity assumed to be indicated by curve ABC. The demand for commodity is indicated by line D<sup>1</sup>D. If the commodity is made available free, the deadweight loss resulting from its public supply is equal to the area of triangle DCH. Now suppose the full cost recovery is attempted and that transaction costs amount to AE per item sold. The transaction costs (since they have no value in themselves) can be regarded as a deadweight loss. Therefore, an amount equal to the area of rectangle ABFE is lost, at least. To this sum, one should add possibly the loss in consumers' surplus equal to triangle BDF. In this case, economic welfare is clearly reduced by introducing the user-pays principle. Given that there are only two alternatives, it would be socially preferable to provide the commodity and make it available free of charge. However, one would have to offset against this any economic drawback of increases in taxes needed to cover the loss on providing a free good.

The main point is that in such a case, the desirability of employing user-pays is not an open and closed matter. It is even less so if the price charged to a purchaser is only that required to cover costs of supply ex transaction costs. In that case, X<sub>2</sub> of the item would be exchanged in the market, but a loss equivalent to the area of ADKE would be incurred and need to be met by taxpayers. This financial loss is even greater than if the commodity is freely available. In this case, application of the user-pays doctrine leads to an extremely poor economic outcome.

In Australia, the user-pays principle is now applied to most government publications and to the provision of a wide range of data by the Australian Bureau of Statistics. It seems that no account has been taken of factors such as the above in devising this policy. Apart from the above, it is also possible that favourable externalities could be generated by such information, but little attention is paid to this aspect. In many cases, economic doctrine appears to have become an obstacle to 'economic sense', namely the doctrine that market systems will ensure the most efficient and best possible world. 'Political correctness' may to have become a substitute for economic commonsense.

None of the above should be taken to imply that use-pays should not be pursued in the public sector. When private goods are supplied by the public sector, this policy is

appropriate provided the cost of collection of charges is low enough in relation to benefits, as will frequently be the case. However, in determining prices, public institutions should take account of market failure. For example, if the supply of the commodity involves a substantial positive externality, this would call for a lower price than otherwise, and the public institution involved may need a subsidy to remain economically viable. Also monopoly-pricing ought normally to be avoided. The problem is that some advocates of user-pays have overlooked the main reason why several public bodies were established in the first place, namely to perform functions unable to be performed economically by private enterprise.

#### ***4.4 Performance budgeting and accounting***

Performance budgeting and accounting have been widely adopted in the public service in Australia and are recommended by aid agencies for use by Pacific island nations. Along with the adoption of other measures mentioned above, performance budgeting and accounting are suggested as a means to increase the efficiency of the public sector. With reduced availability of funds for the public sector, application of methods to increase the economic efficiency (productivity) of the public sector are seen as being essential if the public supply of commodities is to be maintained, or to be reduced by less than otherwise. Reduced foreign aid to Pacific island nations is seen as making it politically imperative for these nations to increase the economic efficiency of their public sector. No doubt other nations are subject to similar pressures as structural adjustment policies are applied.

Performance budgeting is seen as a rational means of public administration, and performance accounting provides for feedback for accountability of public organizations. Combined with short-term renewable contracts for senior administrators of public bodies, it provides an enforcement mechanism. The penalty for 'non-performance' of performance objectives is non-renewal of employment contracts of the managers of relevant public organizations. It involves a more formal and adversarial method of management than has been usual in the past and, for reasons outlined by Earl (1999) and those considered below, could reduce long run productivity. It also increases the power of relevant ministers over senior public appointments and over the continuance of such appointments in the public service. This can have attendant political dangers.

The proponents of performance budgeting and accounting often seem to have unbounded faith in the scope for exercising rationality and in doing so, ignore transaction costs and other factors (such as limited human capacities) which make bounded rationality inevitable. It is desirable that performance budgeting and accounting be designed taking into consideration these costs and limits.

The following possible problems can arise from the use of this method in public administration:

- Objectives may be over-specified from an operational viewpoint (e.g. too detailed to be operational, too prescriptive to allow for dynamics and flexibility) or under-specified so that objective is stated vaguely and so performance cannot easily be judged.
- Administrators may prefer to concentrate on short-term gains at the expense of long-term benefits 'to show' they are performing well, and so have their employment contracts renewed or other benefits conferred. Consequently, political myopia in the public sector is reinforced by administrative myopia.
- This method may encourage attention to form (conformance with specified goals) rather than foster innovative or entrepreneurial behaviour. Experimentation may be reduced with negative evolutionary impact. Much effort and cost may go into proving how well the public administrator (public institution) has performed and into communications designed to convey the message that high performance is being registered. This, of course, uses public resources that could be used for other purposes. In some cases, it constitutes wasteful advertising.
- The method may encourage top-down administration. This is fraught with difficulties as far as the efficient use of institutional information is concerned and may have a negative impacts on the motivation of lower-level employees.

It is not being claimed that performance budgeting and accounting can be of no value. Rather they should be designed and evaluated taking into account bounded rationality, transaction costs, uncertainty and evolutionary factors. Furthermore, attention should be brought to such qualifications when recommending such techniques to developing nations. For policy advisors not to do this is to fail to exercise a duty of care.

## **5. Economic Welfare, Market Dynamics, Equilibrium and Transaction Costs**

There is a further way in which transaction costs have not been given sufficient attention in public policy. There has been a general belief that reducing frictions in market systems will improve the dynamics of their operations and increase economic welfare. Therefore, much public policy has been directed to reducing market frictions and transaction costs. Not all this policy has been misdirected but as suggested by James Tobin in his proposal for a financial transaction tax, market frictions can sometimes promote market stability. The position is complex but ought not to be ignored in policy.

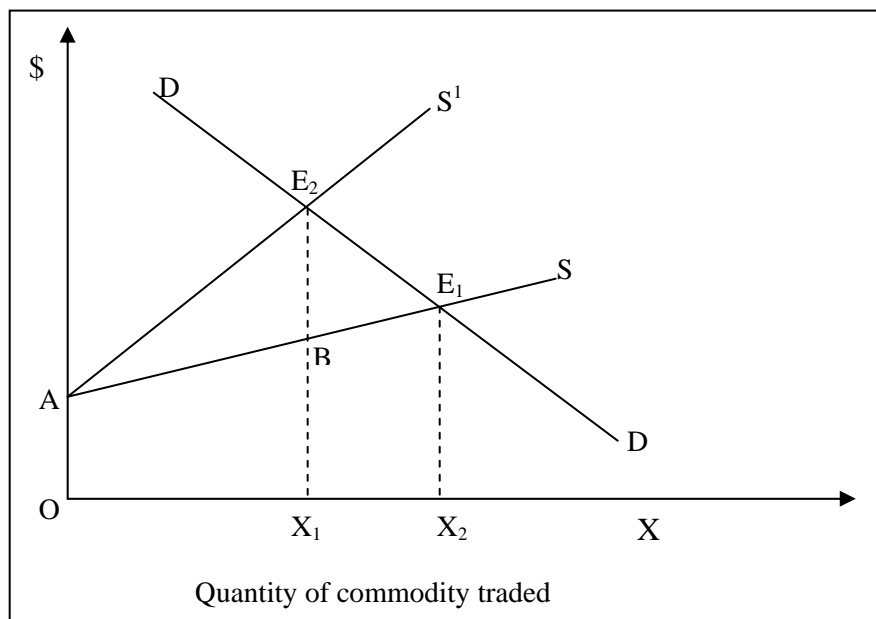
Using comparative static analysis, market transaction costs can be shown to reduce economic welfare when a market is in equilibrium compared to market equilibrium with transaction costs absent (cf. Tisdell, 1996, Ch. 16). But in dynamic situations transaction costs and market frictions can raise economic welfare by helping to promote stability of market equilibrium. While neoclassical economists have emphasised that increased knowledge and reduced market frictions can be expected to improve the performance of markets, this may not be so and some market friction could improve the stability of markets (Tisdell, 1972, pp. 80-82). Furthermore, game theory makes it apparent that in certain circumstances, perfect knowledge is inconsistent with the achievement of a social equilibrium – at least mixed strategies involving appropriate degrees of randomisation are needed in certain cases to achieve an equilibrium (von Neumann and Morgenstern, 1949).

The possibility of market transaction costs playing a useful market stabilising role has come to the fore in recent times via the suggestion that a tax might be imposed on international financial transactions to help promote stability of international financial markets in the light of increasing globalisation (cf. Buch *et al.*, 1998).

While market transaction costs can promote market stability, their mere presence does not. Furthermore, a tax on market transactions (an addition to market transaction costs) designed to promote market stability will not increase market stability unless it is appropriately designed. This is easily seen using the simplest market cobweb model.

Suppose that a situation has developed where the supply curve of a commodity, X, is more responsive than the demand curve to a variation in the price of a commodity. Given that suppliers assume that the price of the commodity will be the same in the current period as in the previous one and that the market clears supplies in each period, the market equilibrium is unstable. If a constant rate of tax is imposed on each trade in this market in order to increase market stability, it is ineffective because the slope of the supply curve after transaction costs will be the same as before the tax. To create stability, the tax must be on a rising scale sufficient to cause the responsiveness of the supply after tax to be less than the responsiveness of demand. The rate of increase of the supply curve after the tax must be greater than the absolute rate of decline of the demand curve for the commodity.

In Figure 2, if DD represents the demand curve for the commodity and if AS indicates the supply curve, the market equilibrium,  $E_1$ , is unstable. But if a transaction tax is introduced which alters the market supply curve to  $AS^1$ , the market now has a stable equilibrium at  $E_2$ . Nevertheless, a deadweight economic loss occurs in the equilibrium at  $E_2$  compared to that at  $E_1$ . This loss accounts to an area equivalent to the area of  $ABE_1E_2$ . The area of triangle  $ABE_2$  represents a transfer to the government. In addition to the loss represented by the area  $ABE_1E_2$ , the costs of administering the taxation scheme should also be added. The question then has to be answered of whether these costs are less than the costs associated with greater market instability that would arise in the absence of a transaction tax.



**Figure 2** Market transaction costs promote market stability in this case.

The more progressive is the market transaction tax in the above case, the speedier is likely to be the return to the market equilibrium but the greater will be the economic welfare loss in this equilibrium. A further complication from a policy point of view, is that in some volatile markets, market demand and supply curves may be highly variable. It may be because of such uncertainties that policy-makers have been reluctant to impose extra transaction costs on financial markets with a view to promoting market stability.

As a side-issue, note that diversity of behaviour by market participants can sometimes be a stabilising force in markets (Laselle et al. 2001). Such diversity can take the form of mixed expectations as well as varied behavioural patterns. For example, in share-markets, ‘chartists’ and ‘fundamentalists’ follow different behavioural patterns. The stability of the market may depend on the mix of these participants and their proportions can vary with the passage of time. Furthermore, circumstances can cause the system to ‘flip’ at times. Piling-up effects both in behaviour and in expectations can make for market instability (Aoki, 1996). An important subject for economic study can be to determine how this mixture, this diversity, alters and why. Both neoclassical models and the models of transaction costs theorists tend to assume uniformity of economic behaviour. In doing so, they overlook important aspects of

the operations of economic systems. If economic theory is to reach its full potential, it needs to embrace the diversity of human behaviour (see also Tisdell, 1963, 1996, 1998). Just as transaction costs and bounded rationality matter in the assessment of performance of economic systems, so too does the diversity of human behaviour..

## **6. Concluding Comments**

Transaction costs and bounded rationality undoubtedly play important roles in industrial organisation and in the operation of markets. To date, most transaction cost theory appears to be based on comparative statics and optimising (economic) behaviour. Bounded rationality theory has been less prescriptive. However, not until recently (Nelson and Winter, 2002) have these theories been clearly and specifically linked with evolutionary theories of the stochastic type developed by Nelson and Winter (1982) and Nelson (1987).

It is surprising that in the wake of the rapid global adoption of structural adjustment policies, little attention has been given to transaction cost theory (and bounded rationality) in the design of optimal public organisations and appropriate forms of public administration. Hence, there is a possibility of excessive contracting out by public bodies, a greater use than optimal of competitive mechanisms by the public sector, inefficient adoption of the user-pays principle and inappropriate use of performance budgeting and accounting, possibilities illustrated in this paper. Many of those who have warmly embraced the property-rights approach of Ronald Coase seem to ignore his observations about market transaction costs when it comes to the operation of public bodies, ignore wider categories of transaction costs identified by Oliver Williamson, and fail to take account of bounded rationality in designing systems of public administration. This may be for ideological reasons. In addition, public policy in relation to market competition seems to have been little influenced by stochastic industrial evolutionary theory (with its roots in theories of bounded rationality) and the significance of frictions in stabilizing markets has been largely ignored in public policy.

The further point is that while market transaction costs normally entail an economic welfare cost compared to a situation of no such costs, there may be circumstances in which they are beneficial on balance because of their ability to promote market

stability. Nevertheless, the mere presence of transaction costs is not necessarily stabilising. Indeed, in some cases destabilisation can occur e.g. in the simple cobweb model discussed, if the transaction tax is on a declining marginal scale which sufficiently increases responsiveness of supply relative to demand. It was also observed that diversity of behaviour can be important in relation to the stability of markets and for the evolution of industrial organization. However, as in neoclassical theory, there has been little discussion of diversity of economic behaviour in transaction cost theories, and for that matter, in bounded rationality analysis.

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