

MONITORING CSOs/SSOs:
OPTIMISING BENEFITS FROM THE SUBSIDY DOLLAR.

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ABSTRACT

The paper defines the nature of community service obligations in land transport. It is argued that, although the term "community service obligation" is relatively new, the benefits to the community have received recognition over a very long period of time. Various institutional arrangements have acknowledged these wider benefits in the supply of transport infrastructure.

We argue that there is a clear link between the nature of competition and ownership, and the arrangements necessary for guaranteeing the delivery of non-commercial transport services.

The process of targeting beneficiaries in the past was somewhat crude, being based on simple assumptions about the economic needs of certain classes in the community - workers, widows and orphans. The means for achieving such ends were primarily internal cross-subsidisation, made possible by the monopoly power of the transport suppliers. In some cases, monopolies were conferred for the express purpose of such cross-subsidisation.

The benefits from systems of cross-subsidisation have since shifted away from social classes, to more geographic and activity-based interest groups. Generally, costs exceed benefits by the greatest margin in less densely occupied regions. Even within large urban areas, the gap between costs and revenues in urban passenger transport increases as areas of lower density are serviced.

More recent approaches have attempted to make CSOs explicit, and require payment of the net losses from general taxation. This requires a more operational definition of CSOs, a more efficient targeting of beneficiaries, and a more systematic delivery of CSO services. An equi-marginal approach is discussed and recommended. While this may not be useful for determining the total sum to be devoted to CSO supply, it will ensure that any sum so allocated will be used most efficiently.

INTRODUCTION AND OUTLINE

1. Community service obligations (CSOs), or social service obligations as they are known in New Zealand, have been defined as "a government requirement to provide products or services to community groups at a price less than the cost of supplying them" (BTCE 1989 xiii, 1992 iii). This conflicts with another definition, which refers to CSOs as concerned with goods and services which are not commercially viable. The difference is caused by the narrowness of the BTCE definition, which ignores the effects of jointness in the supply and sale of goods.
2. Thus marketing advantages may be gained by the sale of some products at less than cost, in order to sell associated goods or services at prices sufficiently greater than cost to make the combined activity commercially profitable. One example is the sale of gas water heaters below cost, to induce consumption of gas at more than cost. Other obvious examples are loss-leaders by retailers, naming rights to sports venues (both of Brisbane's major sporting venues now bear the name of banking and financial services sponsors); Happy Hours in pubs.
3. An obvious but frequently missed complementarity is between transport costs and real estate values. A city council which runs buses will recognise the connection, which affects the rate base of city property. The losses on its transport services are, at least in part, recouped via the enlarged values of city real estate.
4. This complementarity is not confined to city real estate. The cost of transport services to suburban dwellers is also an important determinant in the value of that real estate. The political economy also includes the much higher and direct visibility of transport costs and prices, as well as the much more indirect and almost invisible effects on the value of real estate. There is thus some voter support for lower transport prices, even when the losses are funded from rate revenue.
5. Jointness occurs in production and consumption. In transport, obvious examples on the consumption side are in complementary services. In the early years of electric trams, the sale of electricity to properties adjoining tramways was at times sought by private tramway companies as a means to offset farebox shortfalls (see for example Brimson 1983, p.67). Parking at railways stations and bus terminals is frequently provided without charge to induce higher levels of patronage; vertically-integrated-ferry, bus and train services may have very different levels of cost-recovery; air lines may "subsidise" feeder services to increase use of the more profitable trunk routes.
6. On the production side, the most important jointness in freight transport services is the front and back haul, the demand for which is unequal. Attempts to relate the price of any one of these to its costs is economic nonsense.

7. There is a political limit to the process which increases taxes and rates to fund increased transport subsidies. The reverse is to reduce taxes and rates, and to reduce transport subsidies. The political return from reduced taxes and rates eventually becomes greater than the political return from lower public transport prices. This may be one of the reasons for the popularity of corporatisation of transport (and other) businesses.
8. One instruction to corporatised entities is to act commercially. This means mimicking the activities of private firms, which will vary according to the characteristics of the market in which they operate. There are good commercial reasons for loss-leaders in complementarily supplied goods and services. There is then a danger that corporatised businesses will be put at a disadvantage by insisting on a definition of CSOs which does not allow the same freedom to loss-leader strategies which private businesses have.
9. Our preferred definition is therefore:

"A CSO, to be financed by government, must be a good or service which it is in the public interest to supply, but which would not otherwise be supplied for sound commercial reasons."

THE EVOLUTION OF THE CSO CONCEPT IN LAND TRANSPORT.

10. Transport across land, including by canal, unlike sea and air transport, requires not only terminal infrastructure, but investment to facilitate ease of movement between origins and destinations. Sea transport was the first means for long distance transport because no significant infrastructure investment was necessary. Sea routes were relatively cheap means for access to many points of economic activity.
11. The development of horse-drawn wheeled traffic created the need for land routes which facilitated the movement of goods and people by such means. The demand for movement of goods and people arose because some connections between activity centres could not be adequately served by sea transport. In particular, the Romans recognised that speed of movement over land gave an important military advantage, which was essential for the proper administration of their empire. Built initially by soldiers for military purposes, subsequently "...they built public roads to facilitate the peaceful development of the country..." (Jackman, 1962, p.2.)
12. In Britain after the Roman occupation, responsibility for roads shifted to land-owners, religious orders, and towns and parishes. The resources were obtained by a variety of means, including the granting of indulgences for work done, tolls and donations and parish levies. By these means, the social institutions of the time demonstrated their

recognition of the benefits to the community of land transport infrastructure - for commerce, government, and pilgrimage.

13. The same pattern can be found in the transport history of many countries in the West and the East.
14. In India, the Mughal sovereigns planted avenues of trees (Deloche 1993, p.147), established milestones (Deloche 1993, p. 153) and established caravanserais (roadside shelters) along the great trunk roads which became "... vital organs in the system of land communications and transport" (Deloche 1993, pp. 169). However, India's road transport infrastructure eventually deteriorated; first, during the 18th century, when the demise of the Mughal sovereigns mean they could no longer afford its upkeep, nor police the obligations of provincial nobles, landowners and religious orders thereto, and second, primarily in the second half of the 19th century, with the advent of the railway system (Deloche p.177, p. 183).
15. Over the period to the beginning of the 18th century, in England and much of Europe, the parish system of road responsibility broke down progressively due to difficulties in enforcement of parish authority and the conflict between the interests of local and regional road traffic (see Williams 1995).
16. Beginning in the 17th century, canals in Britain began to flourish because they provided the first means for the cheap, long distance movement of volume traffics. They were built for purely commercial purposes, that is for the carriage of own goods or for hire-and-reward. Public company canals were accessible to all on payment of a stipulated toll, but private canals were under no such obligation. The concept of community benefit did not figure strongly in the regulation of canals.
17. In the 19th century, the rapid development of Britain's private railways progressively reduced the highways to a feeder role. Previous concern with the communal benefits from highways was forgotten (just as Deloche 1993, p. 177 suggests occurred in India). Eventually, roads, except in some unusual circumstances, only performed access and railway feeder functions. The technological superiority of railways over all then existing land transport modes was so great - it was cheaper, faster, more reliable - that its impacts on communities were quickly recognised by government. Regulation developed which restrained monopoly behaviour, and which required the performance of certain services for the community's benefit.
18. Some of the benefits of monopoly were utilised to cross-subsidise services thought to be of benefit to particular sections of the community. A classical example were the workers' trains, the so-called "Parliamentary Trains" immortalised by W.S. Gilbert in *The Mikado*, which were the subject of the Cheap Trains Act 1883 (see Butterworth 1889,

19. In the railways of the Colonial Government of New South Wales, during the 19th Century:

"Unfortunately for railway finances, many passengers paid no fare. To [the Commissioner of Railways] Rae's desperation, Governments were generous in giving free passes to important visitors and to the poor. As early as 1871 some 338 free passes were issued, about half each in first and second class. The firsts went to people such as visiting premiers, the French and Dutch consuls, officers on visiting warships, advertisers and journalists; while seconds went to the unemployed and the destitute, including one 'P. Mann and Organ deserving poor', who travelled to Goulbourn [from Sydney] on 18 February 1871. As a government enterprise, the railway served the colony's political and social ends in some surprising ways" Lee 1988, p.161

CSO DELIVERY

OLD STYLE

20. The process of targeting beneficiaries in the past was somewhat crude, apparently being based on simple assumptions about the economic needs of certain classes in the community - workers, widows and orphans. In actual fact, the people who actually were the largest beneficiaries of CSOs were those living in less densely populated areas, requiring access to transport networks. The means for achieving such ends were primarily internal cross-subsidisation, made possible by the monopoly power of the transport suppliers.
21. In some cases, monopolies were conferred for the express purpose of such cross-subsidisation. Postal services were (and are) a prime example, as were (and are) some telephone services, electricity, water, and other publicly-supplied goods and services. Regulation of some privately-owned industries, for example passenger air transport in the US, were also required to provide some services below cost. The Kelly Act 1925, subsidised private air transport contractors "by making payments based on the space available in the aircraft for mail ... [making it] economic for the operating companies to buy bigger planes, carrying both passengers and mail" (Hudson and Pettifer 1979, p.28). The beneficiaries usually were (and are) people living in less densely populated areas (Peltzman, 1979), regardless of income or wealth.
22. There are many similar cases in the transport sector. The re-organisation of London public transport in the inter-war period had as one of its primary objectives the below-cost provision of some services, financed by higher prices

elsewhere. Charges for air mail in the US were designed to subsidise air travel; tapering freight rates subsidised long distance goods transport; franchised transport services had obligations to supply loss-making services and/or schedules as payment for the privilege of monopoly.

23. The common elements in these cross-subsidies to achieve perceived CSOs were not only equity in the sense of income distribution nor efficiency, but equity in the sense of access to a transport network. Community concerns evolved at a time when transport technology did not include efficient alternative means of transport. Access to a publicly or monopolistically supplied network was seen as a right, with little reference to the cost of ensuring access in any part of the system.
24. Of course, as urban road congestion increased after World War 2, subsidies for urban public transport services (bus and train) were also justified on the external benefit grounds because they would reduce arterial road congestion, and as a consequence noise, air pollution, accidents and additional road space costs, (e.g. ARRDO 1981, p.95).

NEW STYLE

25. The corporatisation of many government-owned businesses (GOBs) now requires conditions to be met before a good or service can be accepted as a CSO. The problem is that the complexity of public utilities makes implementation very difficult, especially in the light of currently used definitions. The apparently simple requirement of "user pays" except for CSOs, compels corporatised GOBs to define, measure and attribute costs to user classes, under conditions of jointness in production and consumption.
26. The "user pays" and CSO requirements come from economic theory couched largely in terms of single-product, single market output entities. However, GOBs typically are multi-product, multi-market firms. The definition of a class of homogeneous products or services is all-too-readily forgotten. It is a class of homogeneous products/services consisting of perfect substitutes. This is frequently confused with technical definitions, such as one kilowatt hour of electricity is the same as any other, or, worse still, that one passenger or freight tonne kilometre is the same as any other. Prices in a competitive market show that this is not the case.
27. If corporatised businesses are to mimic private markets, one question is whether the relevant market is a competitive one, or a monopolistic one. A monopolist may be required to practice cross-subsidisation, whereas this is not possible if the mimicked market is the highly competitive one. If it is to be the latter, CSOs will have to be paid explicitly from government sources.
28. It appears that current approaches to corporatisation reverse previous objectives of government monopolies with

respect to the funding of CSOs. Earlier policy (e.g. London Transport) was concerned with creating a monopoly, to enable social objectives to be pursued without external payment. Thus some services were explicitly provided at prices less than costs, and others at prices greater than costs, where it was judged, on income distribution grounds, to be appropriate.

29. However, such arrangements tended to become inflexible. As changes in demography and income distribution continued, the original objectives were lost. Unintended consequences followed, which included cross-subsidisation which effectively cross-subsidised services used predominantly by the rich, with the poor providing the funds. The end result was, in almost all cases, a system of cross-subsidisation which had no discernible objective.
31. In Australia, as elsewhere, to address budgetary demands from the welfare sector, cuts in direct taxation and internal inefficiencies, Commonwealth and State governments began to pay particular attention to their more significant "flexible" expenditure items including railway deficits which ultimately lead to the current programs of corporatisation and privatisation (see ARRDO, 1981, pp. 34,38).
32. In the case of corporatisation, it implies a re-defining of objectives and re-targeting client groups. Where CSOs are justified, the new system of cross-subsidy will be between some user classes and taxpayers, instead of the old system between one class of user and another(s).
33. Under pressure to maintain CSOs, governments have looked beyond GOBs to "for profit" and "not for profit" operators. "For profit" operators are typically private bus and taxi operators who receive subsidies for the delivery of designated services after competitive bidding outcomes (see for example Queensland Transport 1994). This strategy is clearly not new given our earlier remarks about "Parliamentary Trains". "Not for profit" operators, termed community transport by some, meet specialised local needs for transport particularly for disabled persons and aged persons (e.g. Industry Commission 1994, p.409). These operators comprise local councils, voluntary groups and other non-profit groups. Their rationale is to fill the gaps left in the existing public transport network which tends to be CBD-directed and more commercially-driven. The success of these two types of delivery depend on the extent of: transactions costs associated with the bidding and monitoring process of "for profit" operators; and the supply of voluntary labour in "not for profit" operations. Both factors, significantly understated by advocates of these delivery mechanisms, are said to arise from excessive regulation, poor coordination and lack of funding (e.g. Industry Commission 1994, pp.414-421).

OPTIMISATION.

34. While governments will determine which user classes should benefit from a CSO, and the extent to which this will be mandated, transport suppliers will be required to ensure that the maximum value of benefits is produced. The criteria by which benefits are measured will have to be effective in the transport context. Thus there are choices between alternative measures of the value of benefit which can be applied.
35. In principle, optimisation requires that the value of the benefit from a service, relative to its costs, be equal for all members of a class of users. For any particular budget allocation for CSOs, the value of the benefits should be maximised. This requires an allocation of the CSO budget such that no other allocation will produce larger benefits.
36. This suggests the application of the equi-marginal principle widely used in other areas of economics. This means that the benefit value of the marginal dollar spent on CSOs be the same for all recipients of CSO beneficiaries in a designated class of users. A simple example can be given, assuming initially that there are only two services to be provided, and that user benefits (assumed equal for the members of each designated CSO class) are a function of service frequency.
37. With a CSO budget of \$ 2000, suppose initially \$ 1000 is allocated to each service. If service A costs \$ 1000 to provide and produces benefits for 500 users of a designated CSO class, while service B also costs \$ 1000 to provide but produces benefits for only 100 users of the same CSO class, a re-allocation of resources is required to maximise total benefits. Service A's frequency is increased, raising costs to \$ 1500; service B's frequency is reduced, lowering costs to \$ 500.
38. The loss of benefits to the 100 users of service B is exceeded by the gain in benefits to the 500 users of service A, since the value of the benefit is assumed to be the same for each member of the CSO class. The sum of the per capita reduction in utility (inconvenience) from reduced frequency of service B is outweighed by the sum of per capita gain in utility (convenience) by a factor of 5, resulting a net increase in the value of total benefits derived from the \$ 2000 budget.
39. The re-allocation process ceases to yield increased total benefit values when the ratio of user numbers to costs in service A equals that ratio in service B. This occurs when approximately when \$ 1666 is allocated to service A, and \$ 334 to service B ($500/\$ 1666 = 100/\$ 334 = 0.3$).
40. The example, though grossly oversimplified, indicates that a principal measure of values of benefits is some measure of the relationship between patronage and costs. This is intuitively obvious, since the cost per capita rises as

patronage, *ceteris paribus*, falls. Using a *reductio ad absurdum* approach, if the cost of a bus to service one person in a given user class, on a given route, is the same as the cost of the bus fully loaded with passengers of the same user class, assigned to another route, then the bus should be directed to the route which more fully utilises its capacity.

41. The simplistic model provides a basis for more sophisticated approaches. However, departures from the equi-marginal principle would have to be explicitly justified. Variations might be required to cope with the desirability of offering a complete network of services over particular periods of time. There might also, in practice, be different CSO values of benefits applied to different classes of users. A relaxation of the assumption about the user valuation of frequency and other service attributes may also be appropriate in some circumstances.

SUMMARY AND CONCLUSION.

42. The history of transport in countries of the eastern and western hemisphere demonstrates recognition of the communal benefits of transport facilities. Community service obligations in transport have been performed for reasons of efficiency, equity and religious pilgrimage by various levels of government and private providers.
43. In the present fiscal climate of public utilities, our principal concern is with a more efficient allocation of scarce resources devoted to the provision of CSOs. Governments will continue to be faced with the demand for intervention on behalf of sections of the community - sometimes referred to as the transport-disadvantaged - when market forces would otherwise dictate reduction or termination of passenger transport services.
44. We have attempted to show that simple economic principles of resource allocation can be applied to achieve efficiency in matters pertaining to equity in the transport sector. We have no illusions about the need for much further refinement. But we believe that these simple prescriptions will provide basic guidance to prevent wastage of transport resources devoted to the delivery of CSOs.

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