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# The Role of Taxation in the Prevention and Treatment of Land Degradation

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Tax provisions for land care are often justified as corrections for externalities. It is argued in this paper that land care provisions can be justified independently of an externality correction objective, since land care provisions can be viewed as a partial correction of the failure of the depreciation provisions in the *Income Tax Assessment Act 1936* to recognise that items other than plant and articles devalue through use. This argument only applies to depreciation over the effective life of the asset and not to the provision of accelerated depreciation. There may be a role for Pigouvian subsidies in the case of land degradation to address the externality problem, and some degree of accelerated depreciation may be viewed as an approximation of such. It is argued that direct subsidies may be preferred to either the current or redesigned income tax provisions.

## 1. Introduction

The tax system is designed primarily to withdraw consumption and investment from the private sector for use by the public sector. However, taxation infrastructure can also be used to meet other social objectives such as influencing income distribution (through progressive taxation), and correcting market failures such as externalities (through Pigouvian taxes or tax subsidies). The case for using the income tax system to meet land care objectives is examined in this paper.

The two main provisions of the *Income Tax Assessment Act 1936* which directly relate to the prevention and treatment of land degradation are sections 75B and 75D. Section 75B provides for deduction of capital expenditure used primarily and principally for water storage, conservation and conveyance. Examples of items covered include dams, water storage tanks, tank stands, bores, irrigation channels, pumps or windmills (including extensions, alterations and additions to any of these). The deduction is allowed to be taken in equal amounts over three years and is only available to primary producers.

Capital expenditure on measures to prevent or repair land degradation qualifies for outright deduction in the year of expenditure under s75D. Broadly speaking, the expenditures covered are those on pest and weed eradication; prevention or treatment of land degrada-

tion; erection of fences to exclude livestock or vermin from degraded areas or to separate different land classes in accordance with an approved land management plan; construction of land levee banks or similar improvements having like uses; and construction of surface or subsurface drainage works for controlling salinity or assisting in drainage control, excluding drainage of swamps or low-lying land. The deduction is only available to taxpayers carrying on a business of primary production, and taxpayers carrying on a business (other than primary production or mining or quarrying) for the purpose of gaining assessable income from the use of rural land in Australia.

The design principles underlying the Australian taxation system which form the basis for the benchmark tax base are outlined in the first part of this paper. The role of depreciation in the benchmark base is then discussed. Modifications of the design of the Australian income taxation system to meet the commonly accepted design principles of taxation and to further the attainment of land care objectives are considered, followed by the case for specific tax measures to meet land care objectives through deviations from a 'neutral' tax system.

## 2. Design Principles for the Tax System

The traditional and widely accepted criteria for assessing a tax system are equity, efficiency and simplicity. Equity is usually considered to encompass both horizontal equity and vertical equity. Horizontal equity means that people in similar economic circumstances (those with similar ability to pay) should be treated similarly and thus should bear similar tax burdens, while vertical equity means that those people in dif-

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ferent circumstances should be treated differently, with those who are better off bearing relatively higher tax burdens. Efficiency requires that the tax system does not alter the relative rewards for different types of activity or modes of investment except where the specific aim is to correct a market failure such as an externality (Taxation Review Committee). To meet the third criterion, simplicity, the taxation system must be easy to understand and apply, and the administrative burden and costs of compliance should be the minimum required to implement a particular taxation measure in an equitable and efficient manner.

In addition to equity, efficiency and simplicity, the tax system may be required to meet other criteria, such as stabilisation and growth objectives of fiscal policy and income or wealth redistribution goals. Allan refers to the criteria of certainty, which the Government has recently adopted in the Consultative Document on the Taxation of Financial Arrangements (Department of the Treasury 1993).<sup>1</sup> Certainty means that a taxpayer can undertake an activity and know with certainty the tax implications of that activity. The Draft White Paper on *Reform of the Australian Tax System* notes other important considerations such as prevention of tax avoidance and evasion, the impact of inflation on the tax system, the interaction of the tax and social security systems, and harmonisation of federal, state and local tax systems (Commonwealth of Australia).

Tradeoffs between these design criteria must inevitably be struck. For example, measures which might make the tax system more equitable may cause economic distortions (reducing efficiency) and may require complex legislative provisions (reducing simplicity).

### 3. The Theoretical Basis for Depreciation in an Ideal Income Taxation System

There has been extensive debate on the appropriate base for taxation to meet the objectives of the taxation system. For income taxation, the Australian Commonwealth has accepted the Schanz-Haig-Simons concept of income as a starting point for the measurement of ability to pay (Department of the Treasury 1994). The Schanz-Haig-Simons concept defines income as consumption plus net accretion to wealth. This concept implies taxation on an accruals basis, so that true economic depreciation and depletion and capital gains and losses are captured in changes in net wealth. Departures from an ideal benchmark are a

practical necessity for the operation of any tax system, and the Australian Treasury's benchmark tax base departs from the Schanz-Haig-Simons concept in a number of important respects.<sup>2</sup> In particular, income is recognised on a realisation rather than accruals basis and the fiscal year is defined as the assessment period.<sup>3</sup>

Due to assessment over an arbitrary assessment period, the timing of income flows and expense outlays becomes an issue. Ideally, allocation of outgoings to different tax periods would be related to whether the outgoing has been 'used up' in the assessment period: outgoings which fully expire in the period should be immediately expensed, while outgoings of a more lasting nature should be deducted in future periods when the taxpayer actually suffers an economic loss (Cooper, Krever and Vann).

A capital expense is one whose benefit lasts considerably longer than the year of income in which it is incurred. Tax policy distinguishes between two types of capital assets: 'wasting' and 'non-wasting' assets. Wasting assets depreciate in value as they are used. To accord with the benchmark tax base, outgoings for wasting assets such as farm machinery should be deducted over the life of the asset as they are consumed. By contrast, non-wasting assets retain their value indefinitely or change their value only as a result of changes in market forces external to the asset itself. Non-wasting assets should not be deducted from taxable income since in purchasing the asset the taxpayer has simply converted wealth from one to another. Land has traditionally been considered to be a non-wasting asset.<sup>4</sup>

<sup>1</sup> Certainty was considered by Adam Smith in 1776 in his discussion of the 'maxims' of taxation in his treatise *The Wealth of Nations*.

<sup>2</sup> Musgrave and Musgrave (p. 250) note: 'Since the economy is itself complex and the tax law must be tailored thereto, no single concept of tax base can be implemented to perfection ... Tax policy, therefore, is an art no less than a science; and equity is sought as a matter of degree, rather than as an absolute norm.'

<sup>3</sup> Taxation of 'income according to ordinary concepts' in Australia is based on the taxation of nominal rather than inflation adjusted or real income. By contrast, capital gains are taxed on inflation adjusted bases. This will give rise to a number of undesirable effects, some of which are discussed in the Draft White Paper on the *Reform of the Australian Tax System*, Commonwealth of Australia (1985).

<sup>4</sup> In common law, that which is affixed to the land so that it becomes a fixture of the land becomes part of the land. For example, in (1959) 8 CTBR (NS) Case 108, a company sought to depreciate a parking area which was a tarmac surface over a layer of decomposed granite on a clay bed. It was held that the car park was no more than an integral part of the land and was not 'plant' under s54 and hence not depreciable. The basic tests of when an item is likely to be considered a fixture are discussed in Draft Taxation Ruling TR 94/D26.

## 4. Black Hole Expenditures

Although in theory all expenditures which are not consumption outlays should be recognised for tax purposes (Cooper *et al.*), the general provision for depreciation of capital items, S54 of the Income Tax Assessment Act 1936, only permits deductions for the costs of depreciation for a narrow class of property called 'plant and articles'. Under S54, a deduction for depreciation is allowable for items qualifying as plant or articles owned by the taxpayer and which are used during the income year for producing assessable income. Various sections of the Act allow depreciation of some specific items which are neither plant nor article. For example, the scope of 'plant' in s54 has been extended by s54(2) to include (*inter alia*) fences, dams and other structural improvements on land used for agricultural or pastoral pursuits as well as for structural improvements on land for forest operations and structural improvements used wholly and exclusively for pearling operations. Without such statutory extensions, expenditure on capital items that are neither plant nor articles could not be depreciated, and hence income assessed as taxable would be larger than net economic gain.

Capital expenditures on wasting assets used to produce income for which no revenue or capital deductions are allowed are known as black hole expenditures. Black holes can be viewed as distortions inherent in the tax system having economic costs, since investment in those items qualifying for deductions is favoured compared with those investments which do not so qualify, thus breaching the efficiency criteria. As noted in the Draft White Paper on tax reform, any tax will tend to discourage the activity on which it is imposed, hence efficiency is enhanced by adoption of a comprehensive tax base (Commonwealth of Australia).

## 5. The Role of Special Land Care Tax Provisions

Sections 75B and 75D extend the deduction for capital expenses beyond those items eligible for the depreciation deduction in S54. In the absence of s75B, many of the items covered by s75B could be claimed under S54 and particularly s54(2), albeit over a longer period of time. However, items involving improvements to land for the purposes of water storage, conservation or conveyancing such as laser levelling of land would not be deductible. In the absence of s75D, fencing could be depreciated by primary producers under S54, but over a longer time period. Expenditure on structural

improvements to land for the prevention and treatment of land degradation such as filling erosion gullies could not be depreciated without s75D. Likewise without s75D plantings of trees and shrubs which are primarily and principally to prevent or control land degradation could not be depreciated.

To the extent that s75B and s75D allow economic life depreciation and remove what would otherwise have been a black hole in the taxation system, these provisions should not be viewed as concessional since the benchmark tax base requires that all capital expenditure on depreciating items should be able to be depreciated. In this regard the Treasury tax expenditure statements are probably overstated, since they do not take into account that some expenditures are in fact not concessions.

Some of the expenses incurred in making black hole expenditures to improve land may be used to offset capital gains tax liabilities if and when the land is sold.<sup>5</sup> However, if the investment is in a 'wasting' black hole expenditure, and the improvement to land had ceased to exist by the time the land is sold, a deduction is not available with respect to the wasting black hole expenditure for capital use on the revenue account, nor is the cost base of the asset for capital gains purposes adjusted to reflect that capital use (s160ZH).<sup>6</sup>

A case can be mounted on economic efficiency grounds to extend the provisions of s75B and s75D to all taxpayers carrying on a business and to degradation of non-rural land. For example, costs of prevention or repair of land degradation in a real estate development on the urban fringe should be depreciable. Removing a black hole expenditure for some taxpayers and not

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<sup>5</sup> This benefit will accrue only to landholders who are liable to capital gains tax (in particular, those who purchased their land after 19 September 1985).

<sup>6</sup> Capital expenditure incurred to enhance the value of an asset is included in the cost base only to the extent to which it is reflected in the state or nature of the asset at the time of its disposal or is a composite asset (S160P). A composite asset is defined to be an improvement to land which is treated as a separate asset for capital gains tax purposes — for example, a building subject to capital gains tax (erected after 19 September 1985) on land exempt from capital gains tax (acquired prior to 19 September 1985) is deemed to be a composite asset. By contrast, a building built and land purchased before 19 September 1985 would not be considered a composite asset.

others leads to a distortion of relative returns to investment. As a result, resources can be drawn into (or discouraged from moving away from) those areas receiving concessional treatment and there may be adverse effects on key economic variable such as interest rates, prices and exchange rates (Preston).

Douglas (pp. 32–5) points out the lack of ‘recapture’ or balancing provisions (similar to S59) for the capital items eligible for deduction under s75B and s75D. For example, if an item which qualifies for a deduction under s75B is resold and the sale price exceeds its written down value, there is no income tax liability as there is no recapture of deductions. Further, Douglas notes that should the expenditure be considered ‘affixed’ (part of) the land, it is possible to receive deductions of greater than 100 per cent of the cost of the item since the improvement is valued separately to the land.<sup>7</sup> Thus the removing a black hole in the absence of recapture provisions introduces a distortion into the tax base. Douglas suggests that either depreciation of items currently covered by s75B and s75D be only allowed under a suitably amended S54, or that recapture provisions similar to S59 be inserted into s75B and s75D.

However, while the depreciation over the effective life of the asset can be justified on the principles of the benchmark tax system, this argument does not extend to accelerated depreciation. If the income tax system is to tax income based on ability to pay measured by the Schanz-Haig-Simons concept of income then depreciation for assets, whether currently depreciable or currently black holes, should be determined by the effective life of the asset: faster rates of depreciation cause income to be mismeasured.

When, for example there are constraints on the option of removing accelerated depreciation generally, a weak case might be made on efficiency grounds to allow acceleration of capital expenditure related to land degradation to the same degree as is allowed in the generalised depreciation provisions of the *Income Tax Assessment Act*.<sup>8</sup> If this is not done there will be distortions within the asset allocation process towards those items which qualify for accelerated depreciation. Nonetheless, it should be recognised that this is a constrained optimisation argument and depends critically on the assumption of a constraint against removing accelerated depreciation provisions generally.<sup>9</sup>

To the extent that s75B and s75D provide for depreciation faster than even the generalised acceleration of depreciation currently in the Act, taxpayers availing themselves of deductions under these provisions may be receiving a subsidy through the taxation system. In the remainder of this paper the justification for the concessional element of s75B and s75D is considered, and, assuming the concession is justified, considers some alternative ways in which the subsidy might be delivered.

## 6. Pigouvian Taxes or Tax Subsidies?

The usual efficiency argument for government intervention is the existence of market failure, where high transaction costs or ill-defined property rights pose a barrier to effective collective action and where the benefits from government intervention outweigh the costs. Various forms of market failure associated with land degradation have been suggested by numerous authors, including informational deficiencies and the existence of offsite effects (externalities) (see, for example, Kirby and Blyth; Chisholm 1992). Many of

<sup>7</sup> As an example (provided by Douglas), suppose a primary producer purchases farmland after 15 September 1985 for \$100 000 and makes structural improvements costing \$10 000. Suppose that the \$10 000 improvements qualify for an immediate write-off under s75D. The land is sold a few years later for \$150 000. Ignoring inflation, indexation and the time value of money for simplicity, if the improvements were valued at \$5000, the capital gains will be calculated as the sale price attributable to the land (\$145 000) less the cost base of the land (\$100 000), or \$45 000. In effect the taxpayer has received a 150 per cent deduction for the expenditure on structural improvements, since in addition to the 100 per cent write-off, the value of the land for capital gains tax purposes was reduced by \$5000.

<sup>8</sup> As an example of the accelerated depreciation provisions currently applying to plant and equipment, if a depreciable asset is acquired post February 1992 and has an effective life of less than three years, the asset may be written off immediately. If the asset's effective life is 13 to fewer than 30 years, the asset may be written off over eight years (that is, at a rate of 13 per cent a year by the prime cost method).

<sup>9</sup> The theory of second best suggests that fixing distortions in a piecemeal manner may not be optimal. Limited rules for piecemeal policy prescriptions have been developed (see for example Hatta), but general guidance is scarce. Ng has developed ‘a theory of the third best’ and argues that lacking information needed for optimal second best policy, a reasonable third best is to follow the first best policy where possible (Ng).

the externalities associated with major forms of land degradation are situations where a large number of sites are identified as the problem source and a large area is affected by the problem. Consequently collective action is difficult or impossible. The size of the offsite costs can be large relative to onsite costs for some forms of land degradation. For example, Wilson in a study of the Kyeamba Valley estimates that 96 per cent of the costs associated with dryland salinity are borne by the general community, while only 4 per cent of the costs are borne directly by individuals generating income from saline land (Wilson).

One approach to correcting market failure due to externalities through the tax system is through Pigouvian taxes or subsidies. A Pigouvian tax (subsidy) is a tax levied on (subsidy given to) the producer of a negative (positive) externality so that their private costs are equal to the social costs of the activity. The basis for a Pigouvian tax is the external damage caused by land degradation, while the basis for a similarly correcting Pigouvian subsidy would be the cost of abatement of external damages caused by land degradation. If it were possible to identify and value the external damages attributable to land degradation and levy appropriate taxes on (or provide appropriate subsidies to) those causing the degradation, a Pareto efficient aggregate level of land degradation could be attained at the least cost to society.

In theory, choice between a Pigouvian tax or subsidy mainly relates to the underlying assumption of ownership of the asset. For example, it might be argued that subsidising someone not to pollute a river implies that the polluter owns the river. Likewise, it might be argued that taxing someone for polluting the river implies that taxpayers (or society in general) own the river. Neoclassical economics has little to say about the appropriate way to initially allocate the resources of society (for example, how to allocate the ownership rights to a river): when property rights are well defined and transferable and transactions costs are low, differences in ownership of natural resources (and hence the differences between optimal taxes and subsidies) are lump sum distributional differences, and thus the subject of political rather than economic analysis (Coase).

As indicated by Coase and others (see, for example, Arrow), in practice some externalities have properties which hinder the development of free exchange for property rights. Government intervention can foster the development of property rights for polluters and other externality producers, and some progress has

been made in this direction — for example, the introduction of tradable salinity quotas in the Murray–Darling Basin.<sup>10</sup> If rights are able to be traded, land users facing high costs of abatement could purchase rights from those with low abatement costs. To be well defined, such property right allocations need to be enforceable. Where the dispersed nature of the problem makes adequate monitoring systems impossible there are limits to the success that policy based on property right development can have.

There are a number of factors that need to be considered when choosing between a tax penalty and a subsidy in practice. Subsidies to reduce land degradation may have the unintended effect of raising the overall level of land degradation. Chisholm argues that ‘... many forms of subsidy, if expected to be permanent, provide incentives for farmers to alter farm management procedures towards those which have the potential to cause higher levels of soil degradation, but which are now more profitable because the subsidy has lowered the private costs of repairing, or containing, the damage’ (Chisholm 1978, pp. 6–7). Subsidies also alter the entry and exit conditions for firms in the market, so that even though individual firms may lower the level of pollution, industry expansion may lead to an overall higher level of pollution in the long run (Pearce and Turner). By increasing profitability of the industry as a whole, subsidies may preserve or even increase areas of marginal lands in uses which are profitable to land users but uneconomic from the viewpoint of the rest of society (Chisholm 1987).

Preventing and controlling land degradation can involve a combination of changes in land management practises such as retaining stubble in cereal cropping or contour ploughing instead of up-and-down-hill pl-

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<sup>10</sup> There may be capital gains consequences upon sale of these quotas. Currently, as no explicit payments are made to acquire such assets, their initial costs are deemed to be zero, and the full amount of any payment received is taxable as a capital gain. This makes no provision for the decline in value of the original asset (land) associated with the creation of the assets to be taxed. This means that more than the real capital gain is taxed. This issue is currently under consideration. If draft ruling 94/D35 is finalised in its current form, the asset being sold reduces the cost base of the asset (at time of purchase) from which it is created (in this case, land), and so affects the capital gain/loss at the time the land is sold deferring the tax liability. The cost base is reduced depending on the proportion of the asset deemed to reduce the value of the land, while the rest of the asset is seen as a capital gain and subject to capital gains tax.

oughing, along with agronomic and physical controls such as dams to control runoff or the sowing of perennial species. Subsidies to encourage capital investment in soil conservation works rather than alternative land management techniques not based on capital works may reduce incentives to develop and apply new conservation technologies (Morris, Wilkes and Wonder). Tax penalties, on the other hand will tend to encourage people to develop innovative solutions to the problem until the marginal costs of new technology equal the marginal benefits of forgone taxes (Weimer and Vining).

When the activity creating the pollution (or other negative externality) is readily identifiable, practical considerations allow the use of a Pigouvian tax. For example, in Sweden taxes have been applied to emissions of  $\text{NO}_x$ . This resulted in a reduction of emissions of between 30 and 40 per cent in 1992 (OECD). However, where the source of pollution is diverse and only the abatement procedures can be observed (or if only the inputs to the abatement procedures can be identified), practical considerations dictate subsidies for undertaking abatement procedures rather than taxes (penalties) for failure to undertake these procedures (Chisholm 1978). This argument might suggest Pigouvian subsidies for tree planting rather than Pigouvian tax penalties for failure to plant trees, as tree planting is relatively easily observable while the environmental need to plant trees and the subsequent failure to do so is not easily observed.

## 7. Use of Taxation Subsidies

Although there may be a role for Pigouvian subsidies in prevention and treatment of land degradation, it is far from established that a tax concession is the most appropriate way to deliver this subsidy. Treasury states the view that 'there should be a general presumption against using tax broad based revenue raising taxes to provide inducements or concessions to meet environmental objectives unless there is an overwhelming case for their use' (Department of the Treasury 1990). In a similar vein, the Draft White Paper on *Reform of the Australian Tax System* notes that 'while tax concessions may sometimes be the most appropriate instrument they should be used sparingly' (Commonwealth of Australia, p. 16).

One disadvantage of the income tax system is the difficulty with respect to targeting of expenditure. If the tax concession is structured as a deduction, the

greatest benefit will accrue to those with high marginal tax rates. The external benefits of land care are not likely to be dependent on the marginal tax rate of the person undertaking the activity. Likewise they are independent of any purpose for which the activity is undertaken. If planting trees on a farm has benefits in terms of reducing salinity, whether the trees were planted for ornamental reasons or as an aid to producing assessable income, it should receive the same subsidy. However, deductions provide the greatest tax savings to those in the highest marginal tax bracket irrespective of the amount of the external benefit.

A rebate may be preferred to a deduction to meet externality correction objectives on the basis that, for those paying tax, a rebate provides the same dollar value of reduction in tax regardless of the marginal tax bracket. However, a rebate still provides no benefit to those with taxable incomes below the tax free threshold. Furthermore, neither deductions nor rebates overcome the problem that if a person undertaking an activity is not doing so for the purposes of producing income, or if they are not paying tax, no subsidy is received even though their activity produces the same external benefit as if it were undertaken by high marginal tax rate. This provides a strong case that, to the extent that externalities justify land care measures, the subsidy would be better targeted if provided directly rather than through the tax system.

Another constraint on the use of the tax system to target externalities is that the Australian constitution does not permit tax concessions to be explicitly targeted to areas with specific problems: the Commonwealth cannot make tax laws which explicitly vary by states or areas within states.<sup>11</sup> This means that the Commonwealth cannot use the tax system to target salinity say, in the Murray-Darling Basin, but can target salinity generally.

Tax concessions are less visible than direct outlays, and may therefore be less accountable. The problem of respondent burden for the revenue authorities means that they are unable to collect specific data on the use of each of the myriad concessions in the *Income Tax Assessment Act 1936*. Although the Treasury has

<sup>11</sup> S51(II) of the *Commonwealth of Australian Constitution Act 1990* gives the Commonwealth power to make laws with regard to taxation; but so as not to discriminate between states or parts of states.

published the Tax Expenditures Statement since 1986, no detailed reporting is provided and there is no statutory requirement for this publication. Similarly, although the Australian Tax Office publishes a limited range of statistics on specific items, the coverage is far from complete. For example, some information is available on claims made under s75D, but no information is collected on claims under s75B.

Since tax concessions are necessarily open ended, the government has no direct means of controlling the year to year amount of public funds spent through these concessions (Commonwealth of Australia), resulting in unanticipated costs to revenue. For example, in 1991-92 \$38 million was claimed under s75D, with a cost to revenue in 1992-93 estimated at \$10 million. In 1992-93 around \$15 million was claimed under s75D, with an estimated revenue cost of \$4 million in 1993-94 (Department of the Treasury). The level of incentive can be varied from year to year, but only in a 'trial and error' approach.

Finally, it has been noted that tax expenditures can add complexity to the tax system and 'can contribute to the belief that the system is unfair' (Commonwealth of Australia, p. 17).

The main argument in favour of using tax concessions is that the infrastructure for administering the tax system is already there, and by using this infrastructure the concession can be delivered relatively cheaply. By comparison, direct grants require setting up a system of administration, with application procedures, assessment mechanisms and reporting requirements. There is a direct tradeoff between ability to target, control and account for expenditures and the costs of administration. It has yet to be demonstrated that the balance of costs and benefits lies in favour of using the tax system. However, if the tax system is chosen as a means of providing concessions to make up for the deficiencies of the tax system with respect the control and accountability, it is important that regular reviews are held to determine whether or not special tax provisions are still justified, that they are effective, that the level of assistance is appropriate, and that there is no better way to provide the same level of assistance. However, it has yet to be demonstrated that the balance of costs and benefits lies in the favour of use of the taxation system.

## 8. Conclusions

Without the provisions in sections 75B and 75D the *Income Tax Assessment Act* would not allow a deduction on either capital or revenue account for a land care expenditure of a capital nature and of finite economic life (that is, assets which wear out). Capital expenditures on wasting assets used to produce income for which no revenue or capital deductions are allowed are known as black hole expenditures. Black holes may reduce economic efficiency since investment in those items qualifying for deductions is favoured compared with those investments which do not so qualify.

In the first part of this paper a case was developed for land care expenditure of a capital nature not currently captured by S54 of the *Income Tax Assessment Act* to be treated in the same way as other wasting assets. In addition, it was argued that such a provision should be extended to all taxpayers carrying on a business and to degradation of non-rural land.

As noted by Douglas, there are no recapture provisions akin to the depreciation balancing charge provided for items currently covered by sections 75B and 75D. Removing a black hole in the absence of recapture provisions introduces a distortion into the tax base, breaching the tax design criterion of efficiency. Douglas suggests that either the items covered by sections 75B and 75D could be allowed under a suitably amended S54, or that recapture provisions similar to S59 could be inserted into sections 75B and 75D.

The black hole argument only goes so far as to allow depreciation over the effective life of assets, and does not extend to providing accelerated depreciation of assets. In the second part of the paper a case for the subsidies provided by significant acceleration of depreciation associated with sections 75B and 75D is presented based on the existence of large offsite effects and the role for Pigouvian taxes or subsidies. As the source of land degradation problems is often diverse and only abatement procedures can be observed, a subsidy encouraging abatement rather than a tax for 'polluting' may be the only practical alternative.

It was argued that the current provisions do not distinguish between land care expenditures with high external benefits and land care expenditures with low external benefits. Instead the current provisions distinguish between the taxable income levels of taxpay-



ers who make land care expenditures and are thus not well targeted.

Finally the case for direct subsidies versus other tax measures to correct an externality was examined. Although there may be administrative efficiencies, it has not been demonstrated that the tax system with its relative disadvantage at targeting expenditure and its lack of control and accountability over spending is the best way to approach the task of meeting land care objectives.

This paper has focused on the market failure due to offsite effects of land degradation. Other probable sources of market failure such as informational deficiencies are discussed in Kirby and Blyth, and Chisholm (1978, 1992). Given a range of potential sources of the market failure, it is likely that a range of solutions should be needed. Other possible policy instruments to address the problems of land degradation include grants, concessional loans, and direct regulation: tax policy is only one option among many. The instrument chosen should ideally relate as closely as possible to the source of market failure. For example, if information is limited, programs to enhance the research base and to effectively disseminate information to key decision makers would seem an appropriate solution. The specific form of action chosen should be the one which provides the highest net social benefit. The combination of instruments should be complementary and consistent with the thrust of other government policy.

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