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PUBLIC POLICY ON CATTLE TICK CONTROL IN NEW SOUTH WALES: REPLY

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I am indebted to Dr Kennedy for revealing the inadequacies of that section of my paper concerned with financing arrangements for cattle tick control. I find his observations largely correct and the following comments modify and build on them. Dr Kennedy in fact makes two claims—

(i) that since the marginal cost of providing tick control benefits to an additional cattle producer (any cattle producer) is zero then the marginal cost to all cattle owners should be zero and the deficit should be covered from a lump sum tax or an approximation to it; and

(ii) that a marginal increase in consolidated revenue, presumably from historically exploited tax sources (income taxes, excise taxes, etc.) would be less distortionary to resource allocation and therefore a better approximation to a lump sum tax than a special lump sum tax earmarked for the purpose.

On the first point, I did suggest the implementation of a "marginal tax" which would depend upon cattle numbers and geographic location in the area of potential tick distribution (A P T D). Such a tax would be inefficient as Dr Kennedy has pointed out. Dr Kennedy's comment has prompted me to examine more closely the nature of tick control as a public good.

Tick control efforts may be usefully divided into those made by individual cattle-owners within a tick infested area (either by choice or regulatory action or both) and quarantine measures taken by government to contain the spread of ticks (of course the two are complementary). Both types of control are public goods. They are both joint (or non-depletable) in supply in that consumption by one person does not reduce availability to another, and non-excludable in that an individual could not be excluded from benefiting from any amount of control undertaken or forced to consume any particular amount. But they are not "pure" public goods in the sense originally defined by Samuelson [4] as made equally available to all. Both are goods intermediate between public and private goods. That is tick control activities by individual A provide a much lower level of control of ticks on B's property than on A's and the private benefits of tick control relative to the cost are such that A could well find it economic to undertake a certain amount of control—albeit a socially non-optimal level. This could not occur in a situation approximating Samuelson's polar case—say purchase of a nuclear attack deterrent. The marginal conditions determining the

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optimal supply of an intermediate private/public good have been developed by Oaklands [3] and Evans [1]. Government quarantine measures are closer to Samuelson's polar case.

The conclusions as to pricing of tick control activities remain the same as for the pure public good.

Efficient pricing of a public good (or its social benefits) is only possible where full exclusion is possible and the preference of all potential users for the good are known. Although an approximation to the marginal value of tick control could be possible using some sort of tick ecology model—exclusion is not possible.

It is interesting also that receipt of the benefits of Government quarantine measures is dependant upon the ownership or lease of cattle and land within the APTD outside the Tick Quarantine Area (TQA). The benefits will therefore be partly capitalized into the value of land—the extent dependant upon the elasticities of the supply of factors.

The second claim by Dr Kennedy may not have been an intentional one, but may be inferred nevertheless by some readers. There is no general agreement that says income taxes are any less distortionary and therefore more desirable on efficiency grounds than other forms of tax on say economic rents. For example a tax might be imposed as a rural land tax on all properties in New South Wales. If there is an equity argument for a tax on the beneficiaries of tick control and no argument against such a tax on efficiency grounds (a lump sum tax anyway) then perhaps there is an argument for such a tax. Inevitably second best considerations do intervene at this point when all taxes are recognized as distortionary and separation of equity and efficiency arguments is not completely possible.

What does this leave of the conclusions of my paper? As Dr Kennedy suggests some mixed policy of subsidies on tick control imports and regulations would probably be best to achieve the socially desirable level of tick control. At such a level, after payment of the subsidy by Government, cattle owners within the TQA would be left to bear the balance as a private cost—equivalent to their private marginal benefit.

Now at a guess private marginal benefits from tick control would be greater than the external marginal benefits generated. Yet as the cost benefit study by Johnston and Mason [2] showed Government bears by far the largest proportion of the total cost even for policy dipping operations. This could mean that either the private marginal benefits received by farmers within the TQA are significantly greater than their marginal costs or greater than optimal level of control is undertaken by Government, or both.[1] Whatever the case, simultaneous examination of the optimum level of control and subsidy/tax levels in an empirical study would seem desirable.

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[1] If the level of control were significantly greater than optimal it would also be possible for the current private marginal costs of control to be greater than the private marginal benefits. In this case assuming farmers have knowledge of these costs and benefits they could be expected to pressure the government to reduce levels of control. There is evidence however that farmers would like present control levels maintained or increased.

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