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Comments of the draft report of the Productivity Commission prepared by staff in the Faculty of Natural and Agricultural Sciences at The University of Western Australia.

- Against a background of increasing global concern over food security it is surprising that the draft recommendations of the Productivity Commission seek to hand greater responsibility for addressing these concerns to the private sector with an expectation that they will adequately support investment in R&D that supports agricultural productivity. We see this as a risky strategy.

- The lines between private benefit and public good become seriously blurred when issues such as food security are considered; clearly there are private benefits and significant social benefits in enhancing food production.

- The assumption is that the farmers or others in the private sector will step in to replace government cutbacks in research funding for research that generates private benefits. This judgment seems to be based on a highly simplistic set of assumptions. Although farmers benefit greatly from agricultural research, relatively few have substantial expertise or experience in the conduct of agricultural research. Many are involved in on-farm trials of new technologies or systems, but this provides only a narrow perspective on the R&D process, as such trials usually occur late in the R&D process. The important links between basic or strategic research and applied research are not clear to many farmers. Even where farmers are aware about the evidence of high social returns to investment in agricultural R&D this need not translate into sufficient incentive for enhanced private funding of agricultural R&D.

- Farmers tend to express a preference for highly applied research and extension addressing short-term problems, whereas evidence indicates that basic-strategic research is likely to provide greater rates of return in the long term (Huffman and Evenson 1993). The long time lags involved, the somewhat hit-and-miss nature of individual research projects, and uncertainty about where particular technologies or information come from would all contribute to the difficulty that farmers have in fully appreciating the long-term benefits of agricultural research. Given long time lags between initial investment and final benefits, and noting current farmers' median age is approaching 60, many farmers have less incentive now, compared to a few decades ago, to support research. Even if a farmer's investment in R&D is viewed as a bequest to younger family members remaining in farming, the decline in farm family size means that the probability of a family member remaining in farming to receive that bequest has reduced.

- All of these factors are likely to contribute to under-investment in agricultural research by the farming sector, even for research that will generate benefits rapidly. Thus, the levy system, while it addresses the problem of 'free-riding' well, does not deal with all of the reasons for under-investment. For example, the absence of reference to Lindner (1993) by the PC indicates a limited examination of the issue of the knowledge characteristics of R&D and the related role of the private sector. Lindner shows that in the absence of government intervention, agricultural R&D will be under-produced, principally due to R&D's underpinning

of knowledge that has inherent a public good attributes. Failure to properly investigate this issue and grasp the ramifications of Lindner's findings leads to flawed conclusions and unsound recommendations.

- A basic tenet of the report is that public funds should not be used to support R&D programmes that have "a net benefit to the private entity". We are of the view that a "net benefit" should not necessarily exclude co-investment from public funds. The use of public funds to support pre-competitive R&D is surely something that warrants support. Access to public funding could facilitate shorter lead times, earlier market delivery and ultimately lower costs to consumers. Other public benefits include better leverage of increased private funding. Since this would contribute financially to the public good objectives of the research such co-investment is both desirable and financially prudent. Another exception to this tenet is where research is specifically targeted to generate profitable land-use options in order to generate public benefits. For example, the failure of Australia to manage dryland salinity successfully is largely a result of the absence of land management options that are both (a) effective in combating salinity and (b) profitable for farmers to adopt. Responding to this logic, there has been much investment in trying to generate profitable salinity management options – investment that would not have occurred if the only consideration was private benefits. Consequently, the logic in Figure 1 of the PC report is deficient. The question is not simply whether there are private benefits but whether public investment can generate sufficient public benefits that would not otherwise occur. These are not the same.

- There is a danger of considering all successful productivity-directed research as being a private benefit. However, where demand is sufficiently inelastic, there is a risk that research that could generate substantial benefits to consumers would not be prioritised by RDCs focused on the benefits to growers. RDCs may actually determine through market analysis (eg inelastic demand) that, collectively, producers are better served by not funding productivity research. Overcoming this type of strategic behavior (and potential market failure) requires government funding.

- There is increasing evidence that in Australia, where R&D has played a pivotal role in maintaining and expanding agricultural production, that the productivity of broadacre agriculture is falling. We support the view expressed by Mullen and co-workers that to some extent this is due to a failure to sustain an adequate level of public investment. In fact it appears ironic that a body labelled the **Productivity** Commission has recommended changes such as funding cuts that almost certainly will not re-invigorate the productivity of agriculture, a renewable sector important to the economic and social well-being of Australia.

- The RDCs are regarded by many in the universities as the major route for the delivery of discovery research to industry. Reduced funding to RDCs is likely to result in lost opportunities to convert basic research that is unknown to growers into both private and public benefits.

- The PC's recommendations would tend to separate research that mainly delivers public benefits from research that mainly delivers private benefits. This would be a highly retrograde step. Australia relies on landholders to undertake a variety of important environmental works and actions. The government largely relies on good will and altruism for this to occur. This only works where agencies promoting the environmental actions have high credibility with

landholders, which depends largely on them also understanding, respecting and allowing for their farming businesses. Thus, the success of the public component of this system relies strongly on investments that largely generate private benefits.

- One of the advantages of public investment in agricultural production R&D is that it encourages the RDCs to adopt a national mandate in distributing funds. Whenever an issue of strategic importance is identified it is often possible to address that issue without the need to garner support from special interest or regional groups. Nonetheless, the PC does recognise a need for RDCs to service regional needs. The PC says: "*Rural Research and Development Corporations (RDCs) should continue to recognise and cater for differing regional research needs"* ; yet the PC also adds that: *"RDCs should not be required to more precisely calibrate the expected regional distribution of the benefits of their project portfolios with the regional distribution of levy payment"*.

- Notwithstanding the importance of national strategic R&D we would support the position of the Department of Agriculture and Food (WA) in arguing that those contributing to the RDCs should in fairness expect to see a return of benefits in accordance with their contributions. This would mean that growers in particular regions should expect to see benefits that reflect the amount and share of their inputs. Justification for this position is that, assuming industry pays an increased portion of its R&D funding, then as they become the main funders of research it is not unreasonable to expect that they should have a greater say in how and where that money is spent.

- RDCs are also helping to secure the future of agricultural research and training in Australia by funding a significant number of postgraduate students (mainly PhD but also Masters). Enhancing Australia's research training and increasing the educational qualifications of its people includes strong public-good elements that improve capacity for the industry and for society as a whole.

- Drawing parallels with what occurs in other countries is not seen as particularly relevant. Many of the countries used as benchmarks tend to subsidize agricultural production both directly and indirectly.

- We are generally supportive of the establishment of a public good agency such as the proposed Rural Research Australia but are concerned about its funding. The proposed $50 million seems woefully inadequate given the extended brief, including issues around climate change, energy and the management of natural resources.

References

Huffman, W.E. and Evenson, R.E. 1993, *Science for Agriculture: A Long-Term Perspective*, Iowa State University Press, Ames.

Lindner, R.K. (1993) Privatising the production of knowledge: Promise and pitfalls for agricultural research and extension. *Australian Journal of Agricultural Economics* 37: 205-225