ECONOMIC ASPECTS OF SPATIAL DIVERSIFICATION
OF SHEEP ENTERPRISES IN THE PASTORAL ZONE

Spatial diversification refers to the running of a chain of two or more spatially separated establishments in the one enterprise. A study of spatial arrangements of holdings in part of the eastern pastoral zone has indicated that about two thirds of the total stock capacity was on non-contiguous multiple holdings.¹

There are invariably costs associated with diversification in addition to those incurred for non-diversified enterprises of the same size. Apart from greater use of transport and telephones, there may be substantial costs and difficulties in arranging for the management of widely diversified establishments and maintenance of minimal plant. As managerial organisation becomes increasingly heirarchical and spatially diversified there are increasing opportunity costs (‘control-loss’ phenomena) incurred through losses in information passing up to management and through imperfections in implementing decisions passing down. The main items of direct variable costs are those associated with transferring factors of production between establishments. Transferred factors include labour and plant on the one hand and livestock and fodder on the other.

Benefits of spatial diversification are more difficult to quantity than the costs against which they are assessed. They are generally attributed to the facility for moving livestock and fodder between establishments, and these will obviously depend on the extent of diversification—with such movements ranging from normal when properties are very close together through abnormal (perhaps drought-induced) over larger distances, to infeasibly expensive movements when properties are separated by several hundred miles.

Evaluation of benefits of diversification as a strategic hedge against drought must account for the risky within-drought decision environment faced by diversifiers. Such a grazier must decide through time whether to feed, sell, shift or agist his sheep or possibly to allow them to die. Conventional analytic algorithms are unable to capture the essence of such a stochastic and dynamic decision environment, and analysis seemingly must resort to a simulation approach.

A simulation model was developed to represent spatially diversified wool production based on dry sheep in the pastoral zone of Queensland.\textsuperscript{2} The model generated appropriately correlated monthly rainfalls on diversified establishments and, in simulated droughts, the best tactics for the disposition of sheep were selected within the model. The relationships between rainfall correlations and distance came from a study showing that correlation decreases at a diminishing rate with distance between stations and that the rate of decrease of correlations in the pastoral zone is greatest in a general east-west direction.\textsuperscript{3}

In specific cases of drought, spatial diversification can unquestionably be demonstrated to be of considerable financial benefit. However, the simulation study revealed that as a general strategy spatial diversification within the Queensland pastoral zone is not superior to running single properties. Other factors such as size and location are probably more important to success than is spatial diversification.

J. R. Anderson

University of New England, Armidale.
