



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
<http://ageconsearch.umn.edu>
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

A CASE STUDY OF SPATIAL DIVERSIFICATION OF PASTORAL SHEEP HOLDINGS

J. R. Anderson*

Those familiar with the extensive wool growing industry of Australia generally recognize the importance of spatial diversification of pastoral sheep holdings but to this time, data have not been assembled to quantify this importance. This case study based on the sheep and wool industry of central western Queensland goes some way towards filling this gap in knowledge by detailing the extent and nature of spatial diversification of multiple holdings in a survey of 145 sheep holdings.

1 INTRODUCTION

In a recent study of size-cost relationships in the pastoral zone sheep industry, the quantitative significance of spatial diversification became apparent. The phenomenon of spatial diversification, that is where holdings or chains of holdings consist of non-contiguous parcels of land, has not previously been documented in Australia. In fact, spatial diversification does not appear to have received any close attention of economists, from either a descriptive or an analytical point of view. Some of the more dramatic instances of spatial diversification, such as of Kidman and McCaughey during the nineteenth century, have been recorded in a broadly descriptive way.¹ However, if spatial diversification—even on a less grand scale—is an important aspect of the economics of pastoral industries today, its importance has not been reflected in recent research, although Campbell² has suggested it as being a possibly fertile field for study.

The procedure in this case study has been to take a “snapshot” of spatial diversification at a particular point in time in a particular segment of the pastoral zone sheep industry of eastern Australia. The empirical material presented relates to the northern part of the zone, and centres attention on an area around Longreach, Queensland. Ownership of land and livestock within this study area was determined and an attempt made to

* Department of Economic Statistics, University of New England.

¹ Idriess, I. L., *The Cattle King: The Story of Sir Sidney Kidman* (Sydney: Angus and Robertson, 1938) and McCaughey, Patricia, *Samuel McCaughey: A Biography* (Sydney: Ure Smith, 1955).

² Campbell, K. O., “Problems of Adaptation of Pastoral Businesses in the Arid Zone”, *Australian Journal of Agricultural Economics*, Vol. 10, No. 1 (June, 1966), pp. 14–26.

“track-down” parts of multiple holdings run in conjunction with their counterparts in the study area. This procedure obviously becomes less imperfect as the study area approaches the universe of interest. However, with the restricted resources available, attention had to be confined to a small segment of the pastoral zone.

2 SOME PROBLEMS IN OBTAINING DATA

No simple way became apparent of discovering the effective ownership and control of parcels of land and flocks of sheep by reference to readily available documents. Typical of the difficulties in using official records such as held by the Lands Department is the often vague relationship between the name of the title-holder of a lease of land, the declared owner(s) of stock run on the land and the managerial control of the farm firm.

A complication for multiple holdings recorded as separate units is that different “owners” names may be used for the different units, e.g. a family name for one, a grazing company name for another and so on. This aspect raises the question of what really constitutes a multiple holding. While the complexity of ownership often makes precise definition difficult or impossible, we must try to be unambiguous about what is regarded as a genuine multiple holding. Generally, two major criteria must be met, namely (a) ownership of all component units is essentially the same, e.g. shared by several members of a family and (b) most importantly, the units comprising a multiple holding should be worked as a single unit from the point of view of high level managerial decisions. That is, while each spatially separated unit may have a manager responsible for day-to-day affairs, there is somebody who makes key decisions concerning all units, e.g. decisions on sale of stock and movement of stock from one unit to another according to available food supplies.

3 SURVEY METHODS USED

Some of the difficulties inherent in investigating spatial diversification using records of government departments have been noted. After considering such difficulties it was decided that the best way of obtaining a quantitative assessment of spatial distribution would be to take a specified locality in the pastoral zone, to determine the effective ownership (i.e. control) of all stock in the area, and finally to ascertain where and how many stock are owned by the same effective owner(s) elsewhere.

The area selected comprises the Ilfracombe Shire and a large proportion of the contiguous Longreach Shire.³ The western portion of the latter shire was not included because it is predominantly used for production of

³ I am indebted to the several residents of the Longreach district who materially assisted in furnishing information pertinent to this case study. Needless to say, they share no responsibility for any errors of interpretation.

beef cattle. The area of rural holdings in the study area is 9,596 square miles which run about 1.2 million sheep and four thousand cattle producing an annual gross value of about \$7m.

A composite map of the study area was constructed from Lands Department four-mile series maps. The map was marked systematically with the boundaries of individual holdings and identifications of spatially diversified holdings. In this way a list of all holdings in the study area was developed, areas of holdings were accurately recorded, and instances of spatial diversification within the area detailed. The effective number of sheep equivalents which each holding would normally carry on average through the year was then assessed. This rating was based largely on evidence of carrying capacity recently presented in appeals heard in the Land Court on land valuations determined by the Valuer-General of Queensland. Where necessary, this source was supplemented by subjective assessments by appropriate local informants.

The final phase of gathering data was to estimate the extent and location of stock held on segments of multiple holdings located outside the study area. This was the least satisfactory phase of the investigation since in some cases it did not prove possible to be very precise where, for instance, owners could not be contacted or information was not forthcoming from companies. Thus inaccuracy of stock estimates tends to increase with size of the largest chains of properties. However, it would seem that the overall picture which emerges is essentially true, and is certainly much more representative than any derivable from sources such as the records of the Commonwealth Bureau of Census and Statistics (C.B.C.S.).

4 RESULTS AND DISCUSSION

In the study area, 145 holdings were identified. These included single unit holdings, multiple holdings and segments of multiple holdings extending beyond the area. By way of comparison, the C.B.C.S. has recently recorded 192 rural holdings in the two shires comprising the area⁴. Of these, probably 13 holdings (according to C.B.C.S. definition) were included in the area excluded from the study. The reduction in apparent number of holdings results from aggregating units run in conjunction with other units in one or other of the shires. Table 1 classifies the 145 holdings by size (measured by total sheep-equivalent carrying capacity) and degree of spatial diversification. As spatial diversification exists in many diverse forms, any simple classification necessarily involves the loss of considerable information. The diversity of forms stems from several influences, including the history of pioneering and closer settlement policies, availability and proximity of land during expansion of a holding, and considerations of environmental characteristics of different localities.

⁴ Commonwealth Bureau of Census and Statistics, *Statistical Summary, Local Authority Areas, Queensland* (Brisbane: C.B.C.S., 1968), p. 63.

TABLE 1

Study Holdings Classified by Size of Flock and Degree of Spatial Diversification

Size of flock (sheep equivalents)*	Single units†	Multiple units distance separating units‡ (miles)					Very large chains§	Totals
		0-9	10-29	30-69	70-149	150-299		
0- 2,499	3	0	0	0	0	0	0	3
2,500- 4,999	21	2	0	0	0	0	0	23
5,000- 7,499	45	3	2	0	0	0	0	50
7,500- 9,999	16	1	3	0	0	0	0	20
10,000- 12,499	8	3	2	3	1	0	0	17
12,500- 14,999	2	0	1	0	1	1	0	5
15,000- 19,999	3	0	0	3	2	0	0	8
20,000- 24,999	1	0	0	2	2	2	0	7
25,000- 29,999	0	0	0	0	0	0	0	0
30,000- 39,999	0	0	0	3	0	0	0	3
40,000- 59,999	1	0	0	1	0	1	0	3
60,000- 79,999	0	0	0	0	0	2	0	2
80,000-199,999	0	0	0	0	0	0	4	4
Totals	100	9	8	12	6	6	4	145

* Estimated as the number of sheep equivalents which can be carried in a normal year.

† Includes "multiple holdings" with all units contiguous or classified as not spatially diversified according to the following footnote.

‡ Holdings are regarded as spatially diversified when at least one-tenth of the total livestock rating is separated from the balance by the specified distance. At least one part of a multiple holding is in the study area.

§ Includes holdings which are part of extensive chains owned by pastoral houses and large investment companies.

The classification of table 1 indicates the numerical importance of spatial diversification of holdings in the area, where 31 per cent of holdings are composed of non-contiguous units. However, because of the positive correlation between degree of diversification and size apparent from table 1, the overall importance of diversification is clearly understated by considering only the numbers of holdings. The extent of spatial diversification is better gauged by determining the aggregate carrying capacity associated with each class. Table 2 lists these as proportions of the total sheep equivalents in respective classes.

This second table reveals that spatial diversification is certainly a marked characteristic of land use in the region. The three categories of holdings, namely single units, large national chains and various intermediate forms of spatial diversification, each account for about one-third of the total sheep carrying capacity. However, it must be emphasized that the sampling procedure does not give an unbiased estimate of the extent of spatial diversification in the whole pastoral zone. Refinement of the present indication of this extent must come from a comparable study which encompasses a much larger proportion of the zone. It is unfortunate that difficulties and costs involved in such a study increase more than proportionally to the size of study area.

TABLE 2

Proportion of Total Sheep Equivalents by Degree of Spatial Diversification

Degree of spatial diversification					Proportion of total sheep equivalents on all classified holdings
					Per cent
Single unit holdings					30.4
Distance separating extreme parts of multiple units (miles)—					
0- 9					2.8
10- 29					3.2
30- 69					11.7
70-149					4.5
150-300					10.7
Very large chains					36.7
Total					100.0

5 CONCLUSION

This note has sketched the extent of spatial diversification of sheep holdings in a sector of the Queensland pastoral zone. The data presented confirm that this phenomenon is an important feature of the extensive wool growing industry. This feature has relevance to both economic and statistical research in the industry. On the one hand, costs and returns associated with spatial diversification may be important in studying the economics of size and, on the other hand, sources of statistics which count components of spatially diversified holdings as individual holdings will understate the importance of large (spatially diversified) farms.