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AUSTRALIAN AGRICULTURE AND THE COST-PRICE SQUEEZE*

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I shall attempt to cover three topics in this paper. Firstly, I want to present some of the data available on the current economic position of the Australian farming community, coupled with comparisons for earlier years. This will be followed by a discussion of future prospects and finally I want to examine the possible courses of action which we can take to counter unfavourable export price movements.

The Current Economic Position of Australian Agriculture

An obvious starting point in an examination of the economic position of Australian agriculture is provided by looking at farm incomes over time.

To obtain a picture of historical changes in incomes accruing to farmers, our most complete source of data are the estimates by the National Income and Expenditure Branch of the Commonwealth Statistician. These are published annually in the White Paper. A description of the definitions and methods of estimation used by the Statistician has been provided by Youngman in a paper to ANZAAS in 1952.¹ There are, of course, a considerable number of statistical problems involved in compiling such estimates which I will not be able to discuss here. But two points deserve some explicit mention. The first relates to the accuracy of the overall method of estimation and the second to the definition of depreciation used.

Farm Income—as it is estimated by the Statistician—is a residual value, namely the difference between the gross value of farm production and all costs incurred in the process of production. These two magnitudes are estimated separately. The estimate of the value of farm production is subject to some error, if only because production and price figures for some of the less important products (e.g. fruit, vegetables, eggs) are difficult to check at the point of delivery to market. However, by and large, estimates of the value of production are likely to be reasonably accurate—having a likely margin of error of, say, five per cent. It is doubtful whether this is equally true to total costs. Information on some items of cash costs is based on data collected in one or two States only or on relatively small surveys of certain types of farms. Information on depreciation is perhaps even more difficult to ascertain. Here considerably larger errors would seem possible.

*Based on the Presidential address Sixth Annual Conference of Australian Agricultural Economics Society, Melbourne, February, 1962.

I would like to record my indebtedness to Mrs. A. M. Coutts who has worked out most of the indices used and to Mr. F. Juhasz of the Bureau of Census and Statistics for helpful comments on many points discussed in the paper. Officers of the Bureau of Agricultural Economics have readily supplied me with additional information on their price indices; I am also grateful to the BAE for allowing me to use and quote investment figures from the Sheep Industry Survey prior to their publication in the Bureau's official reports. None of the above share responsibility for any errors of argument—or measurement.

1. "The Estimation of Farm Income" by D. V. Youngman; roneod paper read to Section G of the Australian and New Zealand Association for the Advancement of Science, Sydney, August, 1952.

I can probably best illustrate the shaky nature of our farm income estimates by pointing out that a 5% error in the gross value of farm production, coupled with a 10% error in the opposite direction in gross costs would have led to an error in our farm income estimate for 1960-61—not of 15% but of 33%. This is a piece of simple arithmetic which anyone here can check by means of Table I. I am not saying that our farm income estimates are, in fact, in error to such an extent, but that our method of estimation is such that this is a conceivable margin of error on the basis of not particularly unreasonable assumptions. Furthermore the conceivable margin or error of our farm income estimates has risen. Ten years ago, in 1951-52, similar percentage errors in value of production and costs would have produced an error of only 22%. This is one of the lesser known effects of the cost-price squeeze or more generally of the relative growth of purchased inputs over time.

Having now lived up to the tradition of academic economists of criticizing the Statistician's estimates, let me continue in this tradition by using his figures. Before doing so, however, I would like to use this opportunity to plead for two reforms. Firstly, an attempt should be made to confirm the order of magnitude of the farm income estimate by the incomes received method using, for instance, tax data. Secondly, we should press for a detailed explanation of the sources of the various estimates which go to make up the farm income figure. This might be done at regular intervals, say every 4 to 5 years.

Table I gives the White Paper estimate of farm incomes since 1947-48. Using Mr. Youngman's paper previously referred to and a submission by the Statistician to last year's Basic Wage Enquiry, I have broken down total costs into some of their broad components. As you will see from Table I, the item for depreciation has risen more than sevenfold between 1947-48 and 1960-61. Part of this rise is the result, not of price changes or of increased investment but of changes in income tax legislation; for the depreciation estimate includes the initial depreciation allowances of 1949-50 and 1950-51 and the special 20% depreciation allowance since then. Mr. Youngman discussing this point, ten years ago, made the following comment:

“There are, of course, serious objections to the practice of including initial allowances for national income since they have nothing whatever to do with the actual rate of depreciation of the assets. I am well aware of this difficulty but depreciation is inevitably a very arbitrarily determined element in costs . . . I merely record that the depreciation allowances deducted are as far as possible in line with the Income Tax Assessment Act, and anyone wanting figures without initial allowances or on a replacement basis must allow for this fact in interpreting the figures.”²

Since Mr. Youngman's paper was written the depreciation allowance has arisen from around 10 per cent of his farm income estimate to around 30 per cent. This makes an estimate of actual depreciation either on a historical or replacement cost basis much more necessary.

In the absence of such information we have two alternatives open to us—we can use the Statistician's concept, bearing in mind that it is not farm income in any normal accounting sense, but rather farm income with depreciation calculated for tax purposes. Alternatively we can ignore depreciation entirely and arrive at a figure which gives us the annual gross spending power available to the Australian farming community for consumption and gross capital accumulation. The second procedure does—in some respects—provide us with a more realistic picture of the national farm finances. For instance if we want to ascertain the amount of money—apart from borrowing—which is available to the Australian

2. Youngman, *op. cit.*, pp. 20-21.

TABLE I.
Estimate of Australian Farm Income
(in £ million)

Line No.	Item	1947-8	1948-9	1949-50	1950-1	1951-2	1952-3	1953-4	1954-5	1955-6	1956-7	1957-8	1958-9	1959-60	1960-1
1.	Gross Value of Production	602.8	608.6	789.3	1182.6	961.7	1165.4	1151	1104	1158	1275	1129	1262	1330	(1346)
2.	Gross Costs	254.1	278.7	334.9	401.2	491.0	565.4	624	637	696	727	774	796	840	(863)
3.	Marketing	53.5	54.3	63.7	79.6	90.9	110.8	114	106	117	116	110	142	138	152
4.	Wages	40.3	48.7	57.6	71.8	91.3	98.6	108	112	113	120	126	122	126	130
5.	Depreciation	19.0	22.7	37.5	48.3	44.0	64.0	84	101	124	123	135	137	140	144
6.	All Other Costs	118.4	133.8	147.3	169.1	202.5	292.0	318	318	342	368	403	395	436	437
7.	Company Income	16.5	23.0	25.0	46.0	30.0	28	28	20	19	28	8	11	18	(16)
8.	Farm Income	343	321	448	756	441	572	499	447	443	520	347	455	472	(467)
9.	Gross Spending Power	362.0	343.7	485.5	804.3	485.0	636	583	548	567	643	482	592	612	611
10.	<i>Index of:</i> Real per capita Farm Income, 1952-3/53-4 = 100	120	103	129	195	94	108	92	82	77	87	58	76	76	73
11.	<i>Index of:</i> Real per capita Gross Spending Power, 1952-3/53-4 = 100	111	97	123	182	91	106	94	88	87	94	71	86	87	83

Figures in brackets preliminary estimates. For sources of Data see Appendix.

farming community for consumption and gross capital expenditure, the gross spending power series is obviously more relevant than a farm income series dependent on changing levels of taxation concessions.³ In this case a further adjustment to the figures seems desirable. Information from the annual Reports of the Commissioner for Taxation gives us a reasonably reliable estimate of the changing amounts of income tax (and social service contributions) collected from primary producers (excluding those engaged in mining). We can therefore arrive at an estimate of the gross spending power of the Australian farming community after deducting tax payments. The relevant figures are given in Table II.

Before discussing some of the implications of the estimate on gross spending power, let us look at the Statistician's farm income series. Firstly, it is impossible to know how current net farm income—after allowing for a more realistic depreciation estimate—compares with current farm income as estimated in the White Paper.⁴ Secondly, what about changes over time in real farm incomes? Real income per farmer (i.e. using the Statistician's income concept) has fallen by approximately 27% since 1953. It seems very likely that average real income—after allowing for depreciation on a replacement cost basis—would show an even greater percentage drop. This follows from the supposition that the volume of farm investment was probably at its peak between 1952 and 1956 whilst replacement costs have continued to rise. In contrast to this decline of over one-quarter one might mention that real average weekly earnings of wage earners (urban and rural) have risen by about one-fifth since 1953 although the real basic wage has remained constant. In other words there has been a substantial change in the distribution of income in favour of urban groups and probably particularly in favour of the higher paid urban wage earners and higher income groups in urban areas generally.

An argument that current levels of farm income are too low can be based on two grounds—namely equity and economic efficiency. On grounds of equity I think one can make out a strong case against this form of income redistribution which has hit rich and poor farmers alike. In fact it is possible that it has affected poorer farmers (and those more recently established) particularly adversely since such farmers have presumably been less able to raise their scale of operations by the investment of surplus income in farm development.

Again incomes in the unprotected sector of the farm economy have been hit particularly severely. Judging from the BAE sheep survey, average real incomes in the wool industry (after depreciation on the basis of historical costs) are now probably around 60 per cent of the 1953 level. In this industry, of course, declining export prices have been a major contributor to the drop in incomes. Here again small farmers may have been hit more severely but no definite evidence on the changes in income distribution over time is available.

3. Again, as pointed out by an FAO Report on European Agriculture: "While there can be no doubt that the growing sum of annual capital consumption is part of the real production costs of the national farm, depreciation remains a rather theoretical concept for the majority of farmers. They are inclined to consider their income equal to their receipts minus their cash expenditure and to make good the annual erosion of capital stock by intermittent lump sum outlays". Towards a Capital Intensive Agriculture, FAO, Geneva 1961, Part 1 General Review, p. 27.

4. This is because we do not know whether the rising allowance to be made for depreciation over the years has, as yet, caught up with the Statistician's depreciation estimate which is composed mainly of items where the 20% special allowances apply.

TABLE II.
Income and Spending Power of Farmers after Tax

Line No.	Item	1947-8	1948-9	1949-50	1950-1	1951-2	1952-3	1953-4	1954-5	1955-6	1956-7	1957-8	1958-9	1959-60	1960-1
1.	Farm Income £m.	343	321	448	756	441	572	499	447	443	520	347	455	472	(467)
2.	Gross Spending Power £m.	362	344	486	804	485	636	583	548	567	643	482	592	612	(611)
3.	Income Tax Paid (Credited to assessment year) £m	20.9	38.2	48.7	170.4	66.9	100.5	105.4	83.7	62.9	56.4	80.1	40.8	41.8*	not avail-able
4.	Real income after Tax per rural non-employee £†	2087	1691	2151	2809	1492	1663	1359	1234	1241	1439	834	1282	1298	„
5.	Index of 4 1952-3/53-4 = 100	138	112	142	186	99	110	90	82	83	95	55	85	86	„
6.	Real Gross spending Power after tax per rural non-employee† £	2210	1826	2353	3040	1667	1889	1649	1578	1646	1821	1255	1706	1720	„
7.	Index of 6 1952-3/53-4 = 100	125	103	133	172	94	107	93	89	93	103	71	97	97	„

*Estimated by Commissioner of Taxation.

†Deflated by BAE "Living Expenses" Series.
For comments on the tax series used see Appendix.

The rise in urban incomes possible as a result of the depression of farm incomes has been relatively small—as it is spread over a much larger proportion of the working population. A substantial degree of income redistribution could have been achieved—with considerably less social stress and personal hardship in the farm sector—by allowing urban incomes to rise as the real income of the community increased, without depressing real farm incomes.

On grounds of economic efficiency it has been argued that the decline in farm incomes has reduced farmers' ability to invest and thus their ability to contribute to the growth of export receipts which seems so badly needed. The validity of this argument—at least in this bald form—seems doubtful. As shown in line 7 of Table II there has been virtually no change in the real value of farmers' gross spending power after payment of tax since 1953 (though there was a temporary drop of considerable magnitude in 1957-58). Broadly speaking this was because the Statistician's depreciation allowance has arisen by around £70 million and tax payments have declined by around £60 million. The decline in farm investment is not then due to any decline in the net money receipts of the farming community (i.e. after paying cash costs and tax). It may be due to (a) a redistribution of income in the farm sector away from those who traditionally invest a large proportion of their income (but no definite evidence exists on this point); (b) a decline in the profitability of farm investment which had made farmers less inclined to maintain previous levels of investment and (c) the high level of investment in our base period of 1952-54. Part of the high level of capital expenditure in the early half of the fifties probably represented expenditure which had been deferred earlier because of shortages of materials in the immediate post-war years and possibly because of the low level of farm incomes before 1945.

What *has* happened to the level of farm investment? As pointed out by Professor Campbell and other members of this Society, our data on farm investment are very unsatisfactory. I have had to rely on a number of partial indicators; none of them wholly satisfactory. The indicators available are a mixed bag—some refer to gross capital formation, others to net investment. Most of the indicators are reproduced in Table III.

In all cases I have attempted to estimate changes in physical volume by deflating by the most appropriate price series available. I do not propose to discuss these different indicators separately; for those interested I have included a description of the derivation of each measure and their separate limitations as general indicators of the level of farm investment. The general impression which I have formed from these and related data—and it can be little more than an impression—is that the volume of farm investment has recovered somewhat during the last two years—namely 1959-60 and 1960-61 and is possibly around 15 to 20% below 1953 levels in real terms.⁵ Allowing for the high rate of investment in the base period, and the tendency to reduce the least productive types of investment first, it seems to me reasonable to expect a further growth of Australian farm output in the near future, at a rate which may not fall short of output increases during the last five or six years.⁶

5. The volume of investment considered in this context is not only the purchase of depreciable assets, but also investment in pasture improvement, clearing etc. which can be written off completely in the year when the expenditure was incurred.

6. This assessment is of course conditional on the maintenance of reasonably favourable seasonal conditions.

TABLE III.
Some Indications of the Volume of Australian Farm Investment
(Base 1952/3-1953/4 = 100)

Year	Volume of Structural Improvements— New South Wales	Capital Additions on BAE Sheep Survey Farms	Pasture sowings— New South Wales and Victoria (ex- cluding Wheat- Sheep Zone)	A.N.Z. Bank Index of Production in Australian Agricul- tural Machinery In- dustry*	Index of Australian Agricultural Ma- chinery Output minus exports plus imports	Acreage Cleared — Western Australia
1949/50	51	Not available	Not available	Not available	99	69
1950/51	51	" "	" "	" "	127	79
1951/52	69	" "	6	" "	136	86
1952/53	94	} 100	31	" "	91	93
1953/54	106		169	100	109	107
1954/55	83	106	181	98	115	93
1955/56	66	101	219	93	106	109
1956/57	62	108	183	67	91	96
1957/58	66	102	67	77	101	91
1958/59	58	74	-17	93	92	104
1959/60	57	80	64	110	108	107
1960/61	63	Not available	214	123	Not available	114

*Base 1953/54 = 100
For comments on data see Appendix.

Furthermore I am somewhat doubtful whether it is economically advisable to encourage a more rapid expansion of Australian farm production to cope with likely balance of payments problems. Beef is probably the main product where a case could be made out for a more rapid expansion of output. According to officers of the Bureau of Agricultural Economics, investment on Queensland and Northern Territory beef properties is at an all-time record although no actual figures of the level of investment are available. The decline in the overseas prices of many of our other traditional farm exports reduces the profitability—not only to the farmer, but also to the nation—of channelling extra resources into the production of exportable surpluses of these products. While the farming industries will no doubt continue to account for some part of the growth in export earnings, it seems to me rather unrealistic—in the light of the current outlook for international trade in farm products—to expect agricultural exports to bridge the gap between the likely demand for imports and the current level of exports.⁷ This seems an appropriate point to discuss likely future trends in the international prices of farm products.

Speculating on future price trends.

Past trends in overseas prices have not been particularly auspicious. Since 1953 the United Nations' index of prices of internationally traded primary products has declined by approximately ten per cent, while prices of manufactured goods have advanced by the same percentage. Australia has fared much worse than this average. Our import prices have also risen by ten per cent but export prices have declined by more than 25 per cent. This is the result of the particular group of goods we export; the price of our most important export, wool, having declined by some 35 per cent since 1953.

United Nations economists have attributed these trends to a growing imbalance between growth in the production and the consumption of primary products in general and farm products in particular. Factors regarded as responsible for the rapid growth of production are firstly the continuing farm price and income support programmes in many countries including most of Western Europe and North America; and secondly, the rapid rise in agricultural productivity (both per man and per acre) in practically every economically advanced nation. The decline in the rate of growth of consumption of farm products is attributed partly to the slowing down of the rates of growth of non-Communist economies generally during the latter half of the sixties, partly to the stagnation in the demand for farm products as incomes increase and lastly to the adoption of new technologies which economize on raw materials or substitute new products for more conventional farm-produced raw materials.

How strongly are these factors likely to operate in the future? There is little reason to expect any reversal or slowing down in improvements in technology.

If we turn to the phenomenon of agricultural protectionism there is

7. To guard against the possibility that the above argument may be misconstrued, let me stress that I am not suggesting that a continuation of the cost-price squeeze will not affect gross spending power or farm investment adversely. My argument is: (a) due to the presence of two factors—the increase in depreciation allowances and the reduction in tax payments (both perhaps of a non-recurring nature)—some of the effects of the cost-price squeeze have so far been minimized; (b) present indications are that the rate of increase in agricultural output achieved in the last four to five years is likely to be maintained in the near future—given reasonable seasons and (c) a more rapid rate of expansion of Australian farm output than in the past is probably not in our interest.

again little evidence that it is on the wane abroad—any more than it is in this country. According to the United Nations' 1960 Economic Survey of Europe levels of agricultural protection in Europe have increased greatly in the last decade.⁸ But since the level of agricultural protection in Europe is probably still less than it was before World War II we are hardly justified in assuming that it will prove too expensive for European governments to subsidize farmers to the extent that they are now doing.⁹

Then there is the spectre of the Common Market which poses a twofold threat. Firstly, the probable British entry into the Common Market would lead to the eventual loss of British preferences for producers of dairy products, eggs, sugar, canned and dried fruit, and meat. Not only would these producers lose their preferential margins, but they would become subject to any common tariff against external suppliers. Secondly, while we do not know as yet what the level of producer prices under the common agricultural policy of "the six" will be, it seems rather likely that it will be highly protectionist and thus further encourage the growth of European agricultural output. Even under the best conditions likely—namely that the uniform Common Market prices for the different products are ultimately fixed at a weighted average of prices in member countries, the effect is still likely to be an expansionist one.

Some observers pin their hopes to the latent demand in under-developed countries. I find it difficult to find much comfort in this direction. Most of the under-developed countries are chronically short of foreign exchange and will probably remain so even if they become the recipients of much more substantial economic aid. They are not likely therefore to spend substantial amounts on imports of farm products if this can possibly be avoided. As pointed out in one recent U.N. Report "Greater self-sufficiency in food is an almost universal goal among primary producing countries—where they are not self-sufficient already. In Asia this has been a primary target of official policy throughout the post-war period".

What factors can be set against this picture of unmitigated gloom which I have painted so far? Firstly, there is the strong growth of the Japanese economy in recent years and its emergence as Australia's best customer for wool.

Even in Japan there are some small clouds on the horizon. Japan is at present experiencing some balance of payments difficulties; if these should not prove temporary, some slowing down in the rate of growth of imports will occur and this may, of course, affect imports from Australia as well. Japan too has its farm income support programme and subscribes to a policy of self-sufficiency for at least some farm products.

Secondly, farmers in other economies exporting farm products are subject to a similar cost-price squeeze. Thus in the U.S., Canada and Holland the real prices received by agricultural producers have also fallen by 15-20% since 1953. This has led to some slowing down of the growth of farm production in some countries, but as yet there is little indication of any favourable effects of this trend on international prices.¹⁰ There

8. "Economic Survey of Europe in 1960", United Nations, Geneva 1961, pp. 17-29.

9. "Food, Land and Manpower in Western Europe" by P. Lamartine Yates, Macmillan & Co., London 1960, pp. 258-260.

10. According to the most recent FAO assessment of the World Food and Agriculture Situation there is no evidence of any improvement in agricultural terms of trade during 1961, in spite of the generally favourable demand conditions in world markets during the first half of 1961. Terms of trade are quoted at 77 for the first three quarters of 1961 (base 1952/3 = 100) compared with 80 for 1960, 82 for 1959, 84 for 1958 and 90 for 1957. Cf. "Recent Developments in the World Food and Agriculture Situation, Monthly Bulletin of Agricultural Economics and Statistics, vol. 10, No. 12 (December, 1961) p. 3.

is evidence of some decline in the size of U.S. surplus stocks and of a greater determination by the Kennedy Administration to reduce farm production.

Another factor often mentioned on the credit side is the emergence of mainland China as an important market for wheat and wool. Not much is known in the West about China's long term plans but—if only on political grounds—it would seem rather unlikely that this is more than a temporary phase.¹¹

The Chinese grain imports do suggest, however, one further reason for taking a less gloomy view. Most farm products are consumed in the countries where they are produced. For many commodities, comparatively small changes in production in major consuming countries can completely alter the balance of supply and demand on world markets. The relatively sudden emergence of the United States as a leading importer of beef is another example of this. This consideration suggests that we can continue to expect violent fluctuations in the international prices of many farm products, perhaps paralleled by large fluctuations in the export volume of products such as wheat where large surplus stocks have been accumulated. In fact the almost world-wide tendency to insulate local producers from international price trends is likely to accentuate such fluctuations.

Despite these small rays of light I think my major conclusion from this rather scrappy journey round the world must be along the following lines: Disregarding the possibility of a world conflict which would make export prices one of our less important worries, there are very few factors in sight which seem likely to counteract those making for a continuation of the long-term downward trend in export prices for farm products.¹²

Some Possible Courses of Action

What can we do about this state of affairs? May I perhaps say at the outset that I have no new panaceas to offer—in other words there are a limited number of tricks at least in this economist's repertoire.

I suppose the most immediate thing we can do is to demonstrate, protest and denounce the wicked outside world in the strongest possible terms. The Ministers of Trade and Primary Industry and their departmental officials, I feel sure, have done this at many international conferences whether they be nominally concerned with GATT, FAO or EEC. Some of them are probably doing it in some part of the world right now and they will no doubt continue to do it vigorously.

The possibilities of achieving some gains by these means should not be underestimated, but it seems to me that the broad forces which have

11. The following FAO comment may be relevant here: "... the prospects of such substantial (grain) imports by Mainland China continuing beyond 1962 seem at the moment uncertain. On the import side, foreign currency limitations provide a significant obstacle. Part of the imported grains has been officially stated to be for replenishment of stocks rather than for current consumption. Imports may not, therefore, be needed for that purpose again and the same may be true of the unknown though probably small quantities purchased by China in fulfilment of its own export commitments. Furthermore, the exportable supplies of the major exporting countries will be sharply reduced in the 1961/62 season ..." *loc. cit.*, p. 9.

12. I am aware that the type of discussion—and the evidence—presented for this conclusion is rather meagre: perhaps I can fall back on other authorities such as the Haberler Report which argued more cautiously that "it would be unwise to count upon any improvement in the terms of trade" for agricultural exporters and Dr. M. K. Atallah who suggested in a recent econometric study—again rather cautiously—that there might be a further deterioration. Cf. "Trend in International Trade", Report by a Panel of Experts, General Agreement on Tariffs & Trade, Geneva 1958, p. 6. "The Long-Term Movement of the Terms of Trade between Agricultural and Industrial Products" by M. K. Atallah, Netherlands Economic Institute Rotterdam, 1958.

been at work are unlikely to be offset completely by bargaining, however skilful or protests however sincere. This does not mean that there is any alternative way of avoiding these losses. If the world pays us less for our exports we incur a loss which can be mitigated by some policies and exaggerated by others. Again the loss can be shared among the community or it can fall entirely on one sector of the population. One of our problems is that these two considerations of equity and efficiency are often in conflict. But in the final analysis there IS a loss if world markets move against us. The actions which we can take can be divided into those likely to be effective in the short term and those which require longer periods to work. It is, of course, no accident that short run measures are those which affect the prices farmers receive, while long run measures affect their costs.

(a) *Short run measures*

(i) *International agreements.* There is a school of thought which pins its hopes to a series of international agreements—perhaps on a commodity basis—to secure profitable outlets for our major agricultural exports. Such a proposal has, I believe, been advanced by French authorities in the event of Britain's entry into the Common Market, though it has much wider implications for the international trade in agricultural products. Briefly the French proposal is that Australia and other traditional exporters to the United Kingdom be given a more restricted right of access to the British market, but that they be offered higher prices for the more limited quantities to be supplied. Such regulation of international trade would dovetail with the internal regulation of farm prices in Continental Europe. From Australia's point of view such an arrangement could possibly raise rural export earnings in the short run. For instance if the price to British producers does not change and there is no net increase in agricultural output among the Common Market countries, it can be shown that earnings of overseas suppliers will rise if the elasticity of demand for the product concerned is less than the proportion of the market supplied from overseas.¹³ This theoretical exer-

13. Let p = present price of product in the U.K.

D_t = total amount at present consumed in the U.K.

D_s = amount supplied by U.K. farmers

D_o = amount supplied from overseas

i.e. $D_t = D_s + D_o$

The revenue realized by overseas suppliers (from sales in the U.K.) is $D_o p$

The change in revenue as price is raised (to the level paid to British farmers) =

$$\frac{d}{dp} (p D_o) = p \frac{dD_o}{dp} + D_o$$

but $\frac{dD_o}{dp} = \frac{dD_t}{dp}$ since the price paid to British farmers has not been raised.

\therefore Change in gross revenue =

$$p \frac{dD_t}{dp} + D_o = \frac{D_o}{D_t} - E$$

where $E = -\frac{p}{D_t} \frac{dD_t}{dp}$ or the elasticity of demand for the product on the British market.

Hence the change will be positive if

$$\frac{D_o}{D_t} > E$$

cise is probably of limited significance because there are so many other factors to be considered in practice.¹⁴

But there are other aspects of this proposal which I want to discuss more fully. The higher prices in the United Kingdom would reduce consumption; hence we would be faced with the problem of disposing of part of our normal export volume without depressing prices in other markets. The French solution, I understand, consists of the formation of an international body to dispose of these surpluses in underdeveloped countries. Part of the extra revenue from the sale of imported food supplies at higher prices would presumably be used to finance such a surplus disposals scheme.

There seems to me a very practical objection to such a scheme. This is briefly that the higher prices Australian exporters would realize on the U.K. market would prevail only by the grace of the British Treasury. Treasuries do not normally enjoy a reputation for carefree spending at unnecessarily high prices. Sooner or later one might expect the U.K. (and other European importers) to obtain their overseas supplies at lower real cost to them by the imposition of tariffs (or some other device)—instead of allowing the exporting country the benefit of the gap between prices paid to their local farmers and those at which supplies could be procured elsewhere. It is of interest to note that some members of the British House of Commons have already expressed their anxiety about the effect of such a proposal on the British food import bill and on Britain's balance of payments position.¹⁵

Take the case of wheat. If such a proposal were adopted as a model for the international trade in wheat the higher prices would be paid by the major importers who can afford to pay for wheat—for instance Britain, Germany and Japan. What possible interest have these countries in worsening their balance of payments? To help underdeveloped countries perhaps? But this they can do much more effectively—per £ sterling, Deutschmark or Yen spent—by direct grants to underdeveloped countries. Why should they adopt this inefficient and round-about method which would give them little of the credit for such grants? The technique of surplus disposals is a device which rich agricultural exporters may find expedient but which has no attraction to rich agricultural importers. I am doubtful therefore whether this “solution” will inspire as much enthusiasm among those who are to pay for it as it appears to have done with our Minister of Trade.

(ii) *Protection of rural industry.* The second short run measure which should be mentioned is the traditional Australian technique of cushioning any rural industry in financial difficulty—the provision of protection, usually but not universally, by means of a home price scheme.

As pointed out by Professor Giblin “the reasons for using the home price rather than any open form of taxation for giving assistance . . . are chiefly political. It has the appearance of relieving governments from direct responsibility in the matter and certainly makes the matter less liable to discussion in Parliament. This suits the producer, because a subsidy once gained in this way is likely to continue without criticism even when circumstances no longer justify it. Land values are restored or even enhanced, so that financial interests are also favourably disposed to a home price. With governments, producers and money interests

14. In particular it seems doubtful whether these higher prices would compensate for the likely loss of preferences, the level of external tariffs and the expansionary effect of the Common Agricultural Policy of the European Economic Community (It might be argued though that these adverse effects will be with us in any case !)

15. Cf. *Financial Times*, 25 January, 1962.

in the unholy alliance, criticism can safely be dismissed as 'academic' ".¹⁶

The operation of home price schemes since 1934—when the above comment was made—does not justify a wholly Machiavellian view of such arrangements. Agricultural producers of some commodities—especially wheat but also other products—subsidized Australian consumers on a substantial scale during the late forties and early fifties when export prices were buoyant. Price stabilization is therefore not merely a euphemism designed to hide protection of the local producer, but at least partly a genuine attempt to share extraordinary profits and losses from fluctuating export prices more equitably among the community as a whole. I suppose this might be regarded as a "value judgment" on the part of the society in which we live. As such, economists might regard it as one of the given factors in the situation.

But there are at least two aspects of home price schemes which need to be considered by economists: Firstly the existence of such schemes leads to shifts in production within agriculture which reduce real national income. Thus during periods of low external prices farmers switch to those products where home price schemes operate; whilst the reverse situation holds during periods of buoyant external prices. This point can be illustrated by an examination of production trends in protected and unprotected rural industries. Thus during the thirties an index of production of those commodities subject to home price schemes—namely wheat, sugar, dairy products and dried vine fruits—increased by 32 per cent whilst total farm production rose by 20 per cent. On the other hand during the forties and fifties the production of commodities subject to home price schemes increased by only 12 per cent compared with an increase of 35 per cent in total farm production (or 27 per cent excluding wool).¹⁷

It was to avoid such wasteful shifts of resources during periods of low external prices that a group of seven agricultural economists (including the writer) recommended the introduction of a quota scheme for the dairy industry. Since our original submission two years ago the case for such a scheme has been greatly strengthened. Butter prices in the United Kingdom have risen slightly, but only after agreement among exporters to withhold part of their supplies. What is being done with this excess butter is not known. A quota scheme would of course encourage a shift of resources from dairying to other rural industries—probably particularly to the beef industry. It is now generally agreed that the long term prospects for the beef industry are better than those for practically any other primary exporting industry.

The second objection to home price schemes is that they raise the internal prices for the products concerned and thus usually internal costs. Hence home price schemes make it more difficult for some important export producers—e.g. of wool, meats, coal and other minerals—to compete on world markets. Hence they will probably tend to worsen the balance of payments position.

Finally this technique of protection—i.e. by means of a home price scheme—cannot be applied to bolster incomes of some major export industries such as wool because the local market is too small and in the

16. "The Home Price and Export Industries" by Professor L. F. Giblin, reprinted in "Australian Marketing Problems" edited by D. B. Copland and C. V. Jones. Angus & Robertson, 1938, p. 3.

17. In the first comparison the three year averages 1927/28-1929/30 and 1936/37-1938/39 used. In the second comparison 1936/37-1938/39 and 1956/57-1958/59. The weights used for the construction of the index of protected products were identical with those used by the Commonwealth Statistician for the construction of the Index of Quantum of Farm Production.

case of others such as meat the difficulty of standardizing quality differences has so far prevented an application of the home price technique to this group of products. Then again the existence of cheaper substitutes or of buyer resistance imposes practical limitations on the level of local prices which can be charged by any equalization authority.

It seems therefore that our traditional method of cushioning farm industries from the effects of lower overseas prices has a number of serious drawbacks which severely limit its usefulness in the future—either by extension to products not so far covered by such schemes or to protect farmers at present receiving the benefit of home price schemes against any further declines in export prices.

The provision of other forms of assistance to agricultural exporters adversely affected by declining export prices—such as for instance by the use of export subsidies—is likely to prove very expensive for the Treasury. In addition if we reach the position where all or most exports are subsidized whilst most secondary industry has been granted some degree of protection, an alteration of the exchange rate becomes a much less clumsy method of achieving similar results. This brings me to the third possible short term measure to raise farm incomes—namely a devaluation of the Australian pound.

(iii) *Devaluation of the Australian pound.* Even though an increase in farm incomes would be one important effect of devaluation, its pros and cons must be considered in a much wider context. This has been done in recent years by a number of Australian economists.¹⁸ Within the framework of my present talk I can obviously not do justice to this discussion. But let me say briefly that the case for devaluation seems to me a very strong one and the lack of interest shown in it outside the restricted circle of academic economists is rather surprising. Basically this case is that devaluation is a more efficient method of achieving an external balance than the possible alternatives. “Efficient” in this sense means that real national income will be greater with a devalued currency than with the use of other methods of attaining external balance. The other methods with which devaluation is usually compared are import restrictions, other methods of limiting imports, selective export incentives and lastly internal deflation.

Sooner or later some structural change of the economy, with more resources devoted to import competing and export producing industries will probably be necessary, even granted substantial import savings from oil discoveries on a commercial scale. It is this process of structural change which devaluation can accomplish more effectively than the other techniques proposed.

Since “growth” is the magic word of the hour, let me briefly rephrase this argument in such terms, Growth in overall productivity is usually—in part—the result of channelling more resources to the more productive sectors where productivity per head is higher or is rising faster. Thus in Britain almost half the growth of overall productivity achieved between 1924 and 1950 has been the result of shifting resources from industries where productivity is growing slowly to those where it is growing at a faster rate.¹⁹ A recent U.S. study suggests that almost one-third of the general gain in productivity there, has come from a similar source

18. Cf. “The Controversy regarding Devaluation” by R. M. Parish, *The Australian Journal of Agricultural Economics*, vol. 4, No. 1 (July, 1960) pp. 77-85 and the other references cited there.

19. “Productivity and Technical Change” by W. E. G. Salter, Cambridge University Press, 1959, p. 154.

in the period 1950-1956.²⁰ In the Australian context this implies shifting resources to areas such as mining, steel and other basic metal working industries in the non-rural sector and to the unprotected grazing industries in the rural sector. Our present, recently reinforced, policies of protection—for both industry and agriculture—achieve the exact opposite.²¹ Devaluation should be used to redress the balance to some extent.

(b) *Long term measures.*

(i) *The level of costs.* Any income gains to exporters from devaluation could be eroded fairly quickly by a continuation of cost increases at our present long term average of $2\frac{1}{2}$ -3% per annum. During the last 12 months price rises have been reduced to an annual rate of about 1% or less. But this has been accompanied by a level of unemployment which is clearly unacceptable. The Australian community places greater emphasis on the maintenance of short run growth, full employment and a high level of immigration than on price stability, however, important the latter may be for the maintenance of our long term prosperity. There is probably fairly general agreement—in the abstract—with the statement from the last annual Report of the Reserve Bank that “an annual increase of 3 per cent is still a good deal higher than the economy can afford, particularly when it is compared with the rate of increase in other exporting countries. For a variety of reasons, including stiffening competition in world markets, continually increasing costs and prices need to be more strongly resisted”.²² The question is still who is going to do the resisting and how. Basically the answer must be, I think, that governments must learn to control aggregate levels of expenditure in the economy much more finely and promptly than has been the case in the past. This requires more adequate control over hire purchase and kindred credit agencies, a greater readiness to use existing instruments of fiscal and monetary policy, not to mention more explicit guidance to wage tribunals. In a small economy like Australia's, characterized by a high degree of concentration in many manufacturing industries, additional weapons are probably required to reconcile price stability with our other objectives. In some cases the creation of a more competitive environment by the maintenance of a free flow of imports or by legislation against restrictive practices would serve a useful purpose; in others direct or indirect control over the prices which can be charged may be necessary.

The harmful effects of price increases on those sectors of the Australian economy which need to compete with overseas suppliers have not, it seems to me, been sufficiently adequately impressed on the general public. Nor has sufficient weight been given to the objective of greater price stability as a *long term* goal of government policy. Admittedly price stability (and the balance of payments) have been in the forefront of government policy during the last $1\frac{1}{2}$ -2 years. But such intermittent attention to price stability cannot give us the desired results. As pointed out frequently in the last few months, the government's attempts to steer a middle course between inflation and depression has tended to overshoot the mark in both directions. This may have stemmed partly from an inadequate knowledge of the current economic position, but perhaps more often from a natural reluctance to adopt politically unpopular measures which might turn out to be unnecessary. There is, of course, a smaller

20. “A Disaggregated View of Technical Change” by Benton F. Massell, *Journal of Political Economy*, vol. LXIX, No. 6 (December, 1961) p. 557. On the other hand Salter found that changes in the employment structure have not made a major contribution to aggregate productivity gains in the U.S. during the period 1923-1950 as in Britain (Salter, *op. cit.*, p. 171).

21. For the evidence regarding the rural sector see p. 19 above.

22. 1961 Report of the Reserve Bank of Australia, p. 14.

degree of "electoral tolerance" for unemployment than pre-war. Few would deny that this is a healthy sign, even though it makes life harder for those controlling the economy—and adequate control more important.

(ii) *Raising the productivity of labour in Australian agriculture.* The last method I want to mention which can be used to escape or minimize the cost-price squeeze consists of raising productivity. At the risk of some over-simplification let me say that we are concerned primarily with raising the productivity of labour in agriculture. While this is easier said than done, from the economy's point of view raising labour productivity represents a most rewarding method of combating the cost-price squeeze. It is rewarding in the sense that most of the success achieved here is pure gain and not—as with some other methods listed earlier—largely a transfer of incomes from other sectors of the economy. It seems worthwhile then to devote a little time to a discussion of the possibilities and problems of raising labour productivity in agriculture.

It is, I believe, no exaggeration that in practically every advanced western-type economy more or less serious structural maladjustments have appeared in agriculture over the years. By structural maladjustment I mean either that incomes in significant sections of agriculture have been considerably lower than income levels in the rest of the economy or that it has become necessary to resort to a vast variety of ingenious schemes of protection or subsidy to avoid such a development. These maladjustments have arisen because of inadequate farm size, fragmentation of agricultural holdings, the stagnation of important agricultural regions while incomes continued to grow in the rest of the economy and lastly because of the financial inability of many farmers to make the capital outlays necessary to make agricultural labour more productive.

The emergence of such agricultural problem sectors on a major scale has been delayed in Australia and New Zealand. This is attributable to a variety of factors—of which the comparative recency of settlement is probably of considerable importance. Unfortunately there are signs—at least as far as Australia is concerned—that this state of affairs is coming to an end. In many rural industries money incomes of the majority of producers are now probably below average urban incomes. Dairying in butter areas and poultry farming are two obvious examples. Again according to the BAE's Sheep Industry Survey the average producer outside the pastoral zone achieves an income level at present wool prices which is roughly comparable in money terms with the average annual earnings from wages in urban areas. Considering the investment involved and the need to plough back substantially more than the calculated depreciation allowance for investment, this is not satisfactory.

While average incomes in these industries are therefore inadequate, a minority of producers have continued to prosper and managed to operate their farms profitably, even at present cost-price ratios. The most important factor necessary for financial success is probably high output per man. This can be achieved in a variety of ways—it usually involves reasonably high standards of technical efficiency—in other words high crop yields, wool cuts per sheep, milk production per cow and so on. But in addition it requires a high ratio of animal units or crop acres per man. To demonstrate the gap between what is technically possible and the average, let me take the high rainfall zone in New South Wales as an example. According to the sheep industry survey the average number of sheep per labour unit for wool producers was 1,250 in 1959-60. At the same time there are men with merino flocks (breeding their own replacements) in this zone who are managing 3,500 sheep per man and even higher rates have probably been achieved. To attain such levels does not entail

tremendous physical exertion possible only during the peak of a man's working career, but is a question of having adequate resources available—especially land but also structures and equipment and good organization. If we could raise our labour productivity of 2,500 sheep per man, we would find present wool prices perhaps not very profitable but reasonably adequate.

Now I do not want to give the impression that farmers as a group are less competent in the management of their enterprises than any other group of small businessmen. Similar gaps in productivity have been documented in many non-rural industries.²³ In fact I would agree with a comment in a recent Current Affairs Bulletin that “in few other industries are the shortcomings of managers so blatantly exposed to public view as in farming”.²⁴ But there is perhaps a greater need to raise output per person in those farming industries which are exposed to competition from overseas and from substitutes than in the case of more sheltered industries.²⁵ This greater need is not, of course, restricted to rural industries; producers in other fields threatened by substitutes—such as for instance coal—have also had to make heroic efforts to maintain the profitability of their enterprises whilst selling at competitive prices.

What I am suggesting is firstly that the technology necessary to operate most farming enterprises profitably at current cost-price ratios is available and secondly that unless we make strenuous efforts to raise the productivity of labour in Australian agriculture more rapidly, our future economic development may easily parallel that of other advanced economies overseas where incomes in farming industries fall behind those in other sectors of the economy or require increasingly costly income support programmes.

I would also like to stress that I am discussing not only the so-called sub-marginal farmers mentioned by the Dairy Committee of Enquiry—a tail of some 10 per cent of producers. I am suggesting that the so-called high cost producers we should be considering may amount to a much larger proportion of producers in many rural industries.

The type of transformation envisaged here towards a more prosperous rural Australia—directly supporting perhaps two-thirds of its present labour force—will not be accomplished easily or quickly. I do not pretend to see clearly how we can best travel the road to my version of the Promised Land but there are perhaps a few obvious policies we should consider. For instance we should abandon policies which reduce labour productivity in agriculture—as many government schemes of closer settlement are apt to do.

Judging by a very brief visit to Western Australia last year, the advisers to the co-operative farm improvement clubs there are doing their utmost to impress members with the urgent need—in most cases—for an enlargement of the scale of their operations. As a result the advisers are often paving the way for the purchase of neighbouring farms by mapping out the budgets necessary to convince both farmer and lending authority of its economic advantage. Similar action could be undertaken by advisers of the Departments of Agriculture who are concerned wholly or partly with farmers' management problems.

23. See, for instance, Salter *op. cit.*, p. 48.

24. “Australian Agriculture Today”, Current Affairs Bulletin (published by the Department of Tutorial Classes in the University of Sydney), vol. 28, No. 7 (August 7th, 1961) p. 107.

25. There has been a substantial rise—probably of the order of 33%—in number of sheep per labour unit in high rainfall areas during the last 5-7 years. This has helped farmers to cope with the cost-price squeeze as well as they have done. My argument here is that, unfortunately, an even greater effort is required.

Again the result of farm surveys—for instance BAE surveys—should be presented in such a form that producers and lending authorities can find the minimum farm size necessary to earn bank interest on capital invested—given average standards of management. The provision of non-commercial sources of credit to accelerate farm amalgamation and development is perhaps another method which might usefully be employed. Most importantly I think we need a very real change in attitude towards agriculture and its place in a growing economy. A decline in our farm population is often regarded as an admission of defeat—as an admission that we are failing to develop our land resources. It is of course nothing of the kind. It should be a matter of immense pride in our skills that a comparatively small and slowly declining farm labour force of around 500,000 men and women can develop such huge areas and provide the increasing quantities of food and fibre which contribute directly and indirectly to our overall prosperity.

I am fully aware that the final dose of medicine which I have prescribed is not going to be popular. But popularity is hardly an adequate criterion of the correctness of any prescription. Our psychological needs for self-deception are already adequately catered for by various official spokesmen, backed by a formidable array of public relations experts. I see no need to add my voice to their chorus.

APPENDIX

Sources of Data of Table I:

For lines 1 to 8 for

1953-54 to 1960-61: Exhibit F₂ Table 32a, Basic Wage Enquiry, p. 501, 21/3/61, brought up to date by private communication from the Commonwealth Statistician.

1947-48 to 1952-53:

Gross Value of Production:

Primary Production Bulletin 1954-55.

Gross Costs:

Is a residual, namely: Gross Value of Production minus Company Income minus Farm Income plus J. O. Profits. J. O. Profits for 1947-8 were £10.8 million, 1948-9 £14.1 million. 1949-50 £18.6 million, 1950-1 £20.6 million, 1951-2 £0.3 million. (Source D. V. Youngman, "Estimation of Farm Income" paper read at ANZAAS 1952.)

Marketing

Wages

Depreciation

Company Income

All other costs

Youngman's paper. It will be noticed that discrepancies of £22.9 million for 1947-8, £19.2 million for 1948-9, £22.8 million for 1949-50, £32.4 million for 1950-1 and £62.3 million for 1951-2, exist between Gross Costs as estimated above and the addition of all costs listed by Youngman. These probably arise as a result of revisions of the cost figures. In Youngman's Paper there is the following warning on the accuracy of the figures: "Value figures for 1950-1 are still incomplete . . . Figures for 1951-2 are even more tentative since full production and acreage figures are not yet available. Figures for both years but especially 1951-2 are therefore subject to substantial revision".

Figures for the year 1952-3 are not covered by Youngman. Figures for Marketing and Wages are from the Primary Production Bulletin, adjusted to year ending 30th June. Figures for Depreciation and Company Income are estimated. Figure for All Other Costs is a residual.

Farm Income:

National Income and Expenditure Paper, 1955-56 for 1947-8 1958-9 and 1960-1 for subsequent years.

Gross Spending Power: Farm Income plus Depreciation.

Index of Real per capita Farm Income: Farm Income per rural non-wage earner (females counted as 55% of males) deflated by BAE "Living Expenses" Index. For 1958-59 to 1960-61 it is assumed that rural non-wage earners were the same as in 1957-58. Rural Work Force figures from Primary Production Bulletins.

Index of Real per capita Gross Spending Power: Gross Spending Power per rural non-wage earner deflated by BAE "Living Expenses" Index.

Information on the Tax Data Used (Table II)

The tax figures used are the "main" tabulations of assessments from the Annual Reports of the Commissioner of Taxation for individuals whose major source of income from personal exertion came from primary industry (i.e., Occupation Codes 2-5 in the terminology of the Reports). The tax paid is credited to the assessment year which is one year later than the year in which the income was received. Whether to credit changes in actual tax paid to the assessment year or the income year is essentially arbitrary. When incomes are rising the assessment year is the year in which increased tax is actually paid since an insignificant proportion of taxpayers alter their provisional tax assessment upwards (see Table No. 32, p. 37, 39th Report of the Commissioner of Taxation, 1959-60). However, when incomes are falling a significant proportion of taxpayers vary their provisional tax assessment downwards. However, judging by the 1957-58 income year when the *net* tax payable by primary producers dropped by £39.3 million whilst claims for a decrease in provisional tax rose by around £20 million, it would appear that the proportion of taxpayers claiming decreases of provisional tax is less than half (there were presumably some rural producers—even in 1957-58—whose tax liability increased during that income year). On balance therefore it seems more correct to assume that tax is paid in the assessment year. All figures published were also worked out on the assumption that changes in tax were paid in the income year. The difference between the two series is about 2% in 1958-59 (i.e., tax deducted in the income year yields a 2% lower index figure in lines 5 and 7 in Table II).

In the income year 1950-51 wool sales deductions amounting to £109.4 million were made which were allowed as an offset against tax payments by wool producers on their 1950-51 income. Hence in the 1950-51 income year most of the increase in tax payable was probably paid in the income year. Allowance has been made for this in the figures by transferring £109.4 million from the 1950-51 assessment year to the 1950-51 income year.

Finally the following comments on the figures should be made:

- (a) the "main" tabulations of assessments are made by the Commissioner 15 months after the completion of the income year. Some assessments have not been issued by then. A second tabulation of "late" assessments is made 3 years later (i.e., 51 months after the end of the income year). "Late assessments have been decreasing as a proportion of total assessments (i.e., "main" plus "late" assessments). Tax collected from producers under "late" assessments, as a percentage of "total" tax collected has moved as follows: Assessment year 1952-53—15%; 1953-54—19%; 1954-55—13%; 1955-56—8%. Later figures are not yet available. Hence our tax series which is based on "main" tabulations understates the decline in tax payments by primary producers to some extent.
- (b) Coding of taxpayers according to industry is based on the major source of income from personal exertion. Hence all tax paid by primary producers who have a side-line income from some other industry is included but tax paid by part-time primary producers whose main source of income is derived from some other industry is excluded.
- (c) In the assessment year 1949-50 a change in the coding procedure was made. In 1949-50 (and subsequent assessment years) wage earners whose income from other sources was greater than £100 were classified as "primary producers" (i.e. if the major source of their income from personal exertion was "primary industry"). Prior to 1949-50 anyone receiving income from wages was classified as a "wage-earner" and excluded from the industry classification. For certain assessment years it is possible to estimate the effect of this break in the series. Tax paid by primary producers receiving no wages amounted to 88.1% of all tax paid by "primary producers" (i.e., including part-time wage earners) in the assessment year 1950-51; 93.4% in 1951-52 and 91.6% in 1952-53. To allow for this break, 10% was added to the tax series prior to 1949-50 (i.e., the assumption was made that primary producers receiving no wages accounted for 91% of the total tax paid.
- (d) In the time available it has not been possible to include company tax. Tax paid by private companies whose main industry was primary production amounted to £2.1 million in the assessment year 1958-59 and tax paid by non-private companies was £0.9 million in the same year. It is obvious that this omission is unlikely to affect changes in the total amount of tax paid by Australian farmers to any significant extent.

Method of Construction of Indices used in Table III and their Limitations

Index of	Method of construction	Limitation of Index as General Indicator of Level of Farm Investment
1. Volume of Structural Improvements in N.S.W.	Value of new buildings (other than dwellings) deflated by BAE Index of Building Materials <i>plus</i> value of expenditure on new fences, yards, dams, silos deflated by BAE Index of Fencing Materials.	Expenditure on structural improvements may not be typical of all investment. Since information is restricted to N.S.W. alone some under estimation for Australia as a whole likely since (i) farm development expenditure in N.S.W. has probably been lagging behind other States and (ii) the relatively greater importance of wool in N.S.W. farming suggests that farm investment there may have declined more rapidly.
2. Investment on Sheep Industry Farms	Capital Additions on BAE Survey Farms deflated by an index composed of the BAE price indices for Building Materials, Fencing, Plant & Machinery and Motor Vehicles. The weighting of these indices was based on the relative value of survey expenditure for these items in 1959-60.	Sheep Industry incomes more severely affected by cost-price squeeze than other rural industries.
3. Increase in improved pasture	Index of Acreage increased for N.S.W. and Victoria minus the Wheat-Sheep areas (as defined by BAE).	Wheat-Sheep areas were excluded to avoid changes in pasture areas due to switch to wheat growing in recent years. Year to year fluctuations unduly affected by seasonal conditions. Trend may be influenced by greater decline of incomes from wool growing.
4. A.N.Z. Bank Index of Activity in Agricultural Machinery Industry.	A.N.Z. Bank Index coverage believed to be above 80% in the base year. Method of construction of this sub-group of the index not known.	May overstate present farm investment level since switch from wool to wheat probably stimulates machinery purchases. Also overstates growth in farmers' purchases of machinery since it makes no allowance for declining import component of agricultural machinery over the years and probably rising non-farm purchases of some agricultural machinery.
5. Index of Australian Agricultural Machinery Output minus exports plus imports.	Value of output of Australian agricultural machinery industry minus exports plus "adjusted" imports deflated by BAE farm machinery price index. Imports were adjusted to exclude that portion which is counted in the value of output of the Australian industry. (Some estimate of this is possible because of differing rates of duty on the imports of assembled and CKD items of machinery.)	The purpose of this index is to avoid the overstatement (for our purposes) in Index 4 due to declining import component. However, adjustment of imports cannot be claimed to be accurate. Also deflation by BAE price index—i.e. an index of <i>retail</i> prices of farm machinery—assumes that there are constant percentage mark ups in agricultural machinery distribution which may not be correct. Both Indices 4 and 5 suffer from defect that they ignore changes in retailers' stocks.
6. Clearing in W.A.	Index of annual acreage cleared.	May be influenced by more rapid rate of farm development than in Eastern States.