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INVESTMENT ALLOWANCES FOR PRIMARY PRODUCERS *

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The purpose of this article is to show that the scheme of investment allowances outlined below would be preferable to the present system of special depreciation allowances as a means of encouraging investment by primary producers, especially investment by low-income farmers. The need for increased primary production for balance of payments reasons is assumed and increased investment is the major means of bringing this about.[1] The main determinant of the ability of farmers to invest is the excess of their disposable incomes over the costs of maintaining a required standard of life.[2] The effectiveness of the above schemes depends largely upon the extent to which they increase these surpluses. The empirical studies to date suggest that special depreciation allowances have not been very effective in encouraging investment in primary production, especially by low-income farmers.[3] Furthermore, it appears that low-income farmers are not always aware of the existence of special depreciation allowances.[4] Their effectiveness is even further reduced by this ignorance.

The article is in four sections. Section (1) contains a description of special depreciation allowances and of the proposed scheme of investment allowances. In the remaining sections the impact of both schemes on investment is analysed for different situations, and the relative merits of the two schemes are assessed.

Section (1)

Special Depreciation Allowances

Special depreciation allowances for primary producers were introduced in July, 1951. They entitled primary producers to depreciate for

* The writers are indebted to the members of the Departments of Economics and Commerce, University of Adelaide, for their criticisms of this article. The responsibility for the views expressed is, of course, the writers'.

[1] See Sir John Crawford, "Australian Trade Policy: Comment and Question," *The Australian Journal of Agricultural Economics,* Vol. 3, No. 1, July, 1959, pp. 1-10.

[2] See Keith O. Campbell, "Some Reflections on Agricultural Investment," *The Australian Journal of Agricultural Economics,* Vol. 2, No. 2, December, 1958, pp. 98-99; H. W. Arndt and Burgess Cameron, "An Australian Consumption Function," *The Economic Record,* Vol. XXXIII, No. 64, April, 1957, pp. 108-115.

[3] See, for example, F. H. Gruen, "Capital Formation in Australian Agriculture," *Proceedings of the Conference of Agricultural Economists,* Sydney, February, 1957, p. 107; R. A. Pearse, "An Empirical Micro-Study of Some Factors Influencing Farm Net Investment," *The Economic Record,* Volume XXXI, No. 61, November, 1955, p. 271; Keith O. Campbell, *op. cit.,* p. 102; F. G. Jarrett and D. H. Penny, *An Economic Survey of the Reclaimed Area of the Lower Murray,* (to be published shortly).

[4] See D. B. Williams, *Economic and Technical Problems of Australia's Rural Industries* (Melbourne University Press, 1957), p. 70.

tax purposes their assets[5] acquired since this date at 20% per annum of prime cost.

Investment Allowances

Under the proposed investment allowances scheme, depreciation rates would be based on the effective working lives of assets, and taxable incomes would be calculated in the normal way. Income tax would be assessed on the basis of these taxable incomes. Actual tax payable would be these assessments *less* a fixed proportion of the costs of investments carried out during the year. This investment allowance rate would be fixed by Parliament. For example, if the rate were fixed at 10%, a farmer with a taxable income of £5,000 would be liable (at 1958-59 rates) for £1,700 in tax. If he had bought a tractor for £1,000 during the year, he would receive an investment allowance of £100 and his actual tax liability would be reduced to £1,600. Unlike special depreciation allowances, these investment allowances would be allowed only in the year of the investment.

Section (2)

The impact of special depreciation allowances and investment allowances on investment will be analysed, first, for a single act of investment and then for a series of investments.

(i) *A Single Act of Investment.* With a single act of investment, the taxable income of a farmer for the first five years after the investment is made is reduced below what it would have been, had normal depreciation rates[6] been applied. With unchanged tax rates, the reduction in taxable income leads to lower tax payments by the farmer. Therefore, the net returns after tax from the investment in the first five years are increased above what they would have been, and the returns of subsequent years are reduced, had normal depreciation rates only been applied. The increase in returns from investment in the first five years encourages investment by making it easier for particular assets to meet the pay-off criterion—the criterion that an asset should "pay for itself" over a period considerably shorter than its effective working life. Furthermore, the supply of funds available for investment is increased in the first five years by the reduction in tax payments. Because his residual income is increased by the operation of special depreciation allowances in the first five years, the farmer will be in a position to invest more. In addition, his ability to borrow will have been increased. But in subsequent years the farmer's tax payments will be increased and his liquidity reduced.

If the farmer has a constant marginal tax rate, (that is, farmers with incomes above £16,000 and companies engaged in primary production), special depreciation allowances further encourage investment by raising expected rates of return after tax above what they would have been,

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[5] That is, any expenditure on assets "used during the year of income wholly and exclusively for the purposes of agricultural or pastoral pursuits," except motor cars. (Commonwealth of Australia, *Income Tax and Social Services Contribution Act, 1936-1959,* (Canberra: Commonwealth Government Printer), Section 57AA.)

[6] Normal depreciation rates generally are less than 20%. For example, the rate on tractors was 10% (reducing-balance or prime cost); on buildings and structural improvements, 3% or 2%

had normal depreciation rates only been applied. The total amount of tax payable over the life of the asset is not affected by special depreciation allowances but expected returns after tax are concentrated in the earlier years as a result of special depreciation allowances. However, if the marginal tax rate is progressive, special depreciation allowances could reduce the expected rates of return after tax. Total returns after tax are reduced by the progressive marginal tax rates, but since the expected returns of the first five years are increased and those of subsequent years are reduced, expected rates of return could still be higher than with normal depreciation rates.[7] If the expected rates of return are reduced by the operation of special depreciation allowances, investment by farmers may be reduced, in which case special depreciation allowances will not serve their purpose of encouraging investment.

The investment allowance will always make it easier to meet the pay-off criterion, will always increase funds available for investment (which will never have to be repaid), and will always raise the expected rate of return after tax on a project.

(ii) *Series of Investments.* However, it is more realistic to analyse the effects of these schemes on a series of investments over time, because farmers do not engage in just the one act of investment. The effect of special depreciation allowances on the current level of investment then depends not only on the size of the allowances themselves, and on the marginal tax rate, but also on how long the scheme has been operating, and on the shape of the previous stream of investment. Where the amount of investment is constant each year and the farm has been in existence for a number of years, the introduction of a special depreciation allowances scheme will reduce the taxable incomes of farmers for a transition period. The transition period is equal to the

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[7] The expected rate of return is defined as that rate of discount which makes the present value of the expected annual returns (in this case, net of tax), on a project equal to its current supply price.

Let q = expected annual return when normal depreciation allowances are given.
t = change in expected annual returns due to operation of special depreciation allowances, i.e. the difference in tax payments under the two schemes.
r = expected rate of return with normal depreciation allowances.
R = expected rate of return with special depreciation allowances.
C = current supply price of asset.
Subscripts refer to relevant years. All returns are net of tax.

Consider a project of expected life $i (i > 5)$.

With constant marginal tax rates and
(ii) with special depreciation allowances,

$$C = \frac{q_1}{(1+r)} + \ldots + \frac{q_5}{(1+r)^5} + \ldots + \frac{q_i}{(1+r)^i}$$

(ii) with special depreciation allowances

$$C = \frac{q_1 + t_1}{(1+R)} + \ldots + \frac{q_5 + t_5}{(1+R)^5} + \ldots + \frac{q_i - t_i}{(1+R)^i}$$

$$\sum_{n=1}^{n=5} t_n = \sum_{m=6}^{m=i} t_m$$

Obviously $R > r$

However, with a progressive marginal tax rate,

$$\sum_{n=1}^{n=5} t_n < \sum_{m=6}^{m=i} t_m, \text{ so that } R \gtrless r.$$

lengths of the lives[8] of the assets concerned, that is, it is a period of ten to fifteen years for most assets. The differences between taxable incomes, and therefore the annual tax remissions due to the operation of special depreciation allowances, will increase up to the fifth year; and then decline until the end of the transition period. The size of the remissions depends upon the marginal tax rate and the amount of investment. After the end of the transition period, taxable incomes with either special or normal depreciation allowances will be the same and the tax remissions then will be zero.

With special depreciation allowances there will always be tax remissions when the stream of investment is increasing. These tax remissions will apply to the increased rate of investment only. They will be increasingly offset, as time goes on, by the increasing tax payments due to the absence of normal depreciation allowances on the increasing stock of assets which have been held for more than five years. With both constant and increasing investment, the tax remissions of earlier years will not have to be repaid. However, if the stream of investment declines, the tax remissions of former years will be repaid. In this case, special depreciation allowances are a negative incentive to maintain investment. None of these effects is present with investment allowances, because they relate to current investment only, are independent of the marginal tax rate, and of the previous size and rate of change of investment, and do not alter normal depreciation charges.

When investment is maintained at a constant rate, special depreciation allowances involve no cost to the government after the close of the transition period; when investment declines they recoup part of the revenue losses of previous years; when the rate of investment is increasing, the government is giving tax remissions on the additional investment. The sizes of these tax remissions depend upon the levels of the incomes of the farmers making the additional investment. Regardless of the shape of the investment stream, investment allowances will always involve a loss of taxation revenue to the government. However, the loss of revenue to the government in the current years is a minor consideration. The relevant consideration is the total effect which these allowances have on the economy, and if investment allowances are more effective at promoting investment, they are the better measure.

Special depreciation allowances can be criticised on grounds of equity. Considering, first, the case of the first five years of a single act of investment: because the marginal rate of tax on incomes is progressive, high-income farmers receive, through the operation of special depreciation allowances, larger absolute and proportional tax remissions than do low-income farmers. The following example illustrates this point. Consider two farmers, one with a taxable income of £10,000 (farmer A), the other with a taxable income of £1,000 (farmer B), both incomes reckoned after allowance for normal depreciation of (say) 15%, but before allowance for the additional special depreciation of 5%. Each buys an asset for £2,000 at the beginning of the taxation year. The effect of the tax remissions due to special depreciation

[8] As decided by the Tax authorities.

allowances on the cost of the investment for the two farmers is shown in Table 1.

Table 1

EFFECT OF SPECIAL DEPRECIATION ALLOWANCES ON COST OF INVESTMENT

	Farmer A	*Farmer B*
(1) Taxable income before special depreciation allowance	£10,000	£1,000
(2) Cost of asset	£2,000	£2,000
(3) Special depreciation allowance (5% of (2))	£100	£100
(4) Taxable income after special depreciation allowance ((1) — (3))	£9,900	£900
(5) Marginal tax rate (1958-59)	12/1 in £	3/10 in £
(6) Tax remission ((5) x (3))	£60/8/4	£19/3/4
(7) Tax remission as per cent. of asset in year of acquisition $\left(\frac{(6)}{(3)}\right)$	3%	1%
(8) Total tax remission over five years (5 x (6))	£302/1/8	£95/16/8
(9) Tax remission as per cent. of cost of asset $\left(\frac{(8)}{(2)}\right)$	15%	5%

NOTE: The averaging procedure for low-income farmers has been disregarded.

Because of the progressive marginal tax rate, farmer A is able to finance 15% of the cost of the asset, and farmer B can finance 5% only, through tax remissions. Clearly in this case the operation of special depreciation allowances is regressive on low-income farmers.

When the entire life of a single act of investment is considered, and where the marginal tax rate is progressive, the farmer will repay more than the initial tax remission. The treatment of farmers on different incomes within this range of rising marginal tax rates is then not inequitable. However, those farmers with incomes of £16,000 or more, who have constant marginal tax rates, receive a more favourable treatment than the former class and this is inequitable. Finally, if investment is constant or increasing, high-income farmers gain more, proportionately, from special depreciation allowances than do low-income farmers, which again is inequitable. To be equitable, the same benefit should be given to all farmers for the same amount of investment irrespective of their incomes. There is no justification for discriminating among farmers on the basis of their incomes, nor is there any justification for giving a greater proportionate benefit to high-income farmers. Investment allowances do not conflict with the principle of equity within farming.

Finally investment allowances have certain other advantages. They are administratively simple to operate; they are flexible because they have no repercussion on depreciation charges in subsequent years—as do special depreciation allowances—and therefore can be easily changed from year to year. If it is desired to encourage expenditure on certain types of investment projects, differential rates of investment allowances can be given. Because assets have different effective lives a uniform rate of investment allowance might encourage investment in short-term assets at the expense of investment in long-term assets.

Section (3)

Differential Income Tax Rates for Farmers as a Means of Encouraging Investment

Professor Campbell has suggested the use of differential income tax rates as a means of encouraging investment. This scheme would reduce income tax rates on farmers, thereby leaving them with higher disposable incomes.[9] As the marginal propensity to invest is less than one,[10] all of these tax remissions will not be used for investment. The tax remissions associated with the investment allowances are dependent upon the investment being done. Therefore, for a given amount of tax remission, the investment allowances scheme would be much more effective. Differential income tax rates cannot be used to encourage different types of investment within farming. Finally, equity considerations between farming and non-farming militate against the use of a differential income tax, and, in addition, it is still inequitable within farming.

Section (4)

Special Depreciation Allowances, Investment Allowances and the Efficiency of Resource Use within Farming

Which scheme is more likely to improve the efficiency of resource use within farming, that is to say, which scheme will more nearly equate rates of profit at the margin of investment by different farmers? This question has no clear-cut answer. If farmers had access to unlimited supplies of funds at the market rate of interest, and if there were no progressive income tax system, then investment by all farmers would be carried to the point where the marginal rate of profit was equal to the borrowing rate of interest. Progressive marginal tax rates on incomes make a given investment project appear more profitable *after* tax to low-income farmers than to high-income farmers. If investment is carried to the point where rates of profit *after* tax are the same for all farmers, rates of profit *before* tax must be higher for the high-income farmer. Hence the scale of investment of high-income farmers must be less than that required for the most efficient use of resources within farming. However, this is a direct consequence of society's desire for a greater income equality brought about through the use of a progressive income tax system. There is always this conflict between equity considerations and resource allocation under a progressive income tax system, and this has to be accepted.

Moreover, supplies of funds to farmers are not unlimited (this is one of the reasons why the government introduced special depreciation allowances), and investment by low-income farmers is more likely to be curtailed by lack of funds than investment by high-income farmers. This will reduce—and could even reverse—the differential between marginal rates of profit *before* tax on investments made by high- and low-income farmers. If it is the case that the marginal rates of profit *before* tax of low-income farmers are less than the corresponding rates of high-income farmers, special depreciation allowances, which give greater benefit to high-income farmers, will tend to narrow the differen-

[9] Keith O. Campbell, op. cit., pp. 102-103.
[10] F. H. Gruen, op. cit., p. 107.

tial, thereby improving the efficiency of resource use within farming. Investment allowances, by giving the same benefit to both types of farmers, will tend to leave the situation unchanged. If, because of shortages of funds for low-income farmers, their marginal rates of profit *before* tax are greater than the corresponding rates for high-income farmers, the effect of special depreciation allowances will be to widen the differential. Investment allowances again leave the situation unchanged. No evidence is available to indicate which is the more likely case. The conclusion must be that special depreciation allowances could either improve or worsen the efficiency of resource use within farming, and that investment allowances will leave the situation unchanged.

Conclusion

On grounds of both equity and effectiveness, the investment allowances scheme advocated here would be preferable to both the existing scheme of special depreciation allowances and to differential income tax rates for farmers. No definite conclusion can be drawn as to which method would be preferable on grounds of efficiency of resource use within farming.