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ECONOMIC ASPECTS OF FARM POVERTY

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The results of the Henderson Poverty Inquiry's 1973 farm household income survey are discussed and supplemented by income distributions based on taxation returns from 1968/69 to 1972/73. It is concluded that much low income 'poverty' is temporary, being the product of the instability of agriculture. A case is made for the inclusion of wealth in farm and non-farm welfare comparisons. Proposals aimed at directly increasing incomes are discussed and hypothetical income distributions are presented to indicate the impact of the Henderson Inquiry's guaranteed income scheme on farm income distributions.

Introduction

The dimensions of the low income problem among Australian farmers were highlighted by McKay (9) using data from various Bureau of Agricultural Economics (BAE) farm industry surveys of the early 1960's. The welfare implications of McKay's figures were challenged by Davidson (4) primarily on the grounds that McKay's measuring standard failed to fully consider the implications of farm/non-farm income comparison. By placing values on the so-called perquisites enjoyed by farmers, Davidson revised McKay's estimate of 24 per cent of farmers with welfare problems to less than 10 per cent.

Later evidence of the comparative income position of farm and non-farm families, as reflected in taxation statistics, was presented by Partridge and Musgrave (10). Their main purpose was to establish a procedure to correct taxation data for the exclusion of non-taxables and the effects of partnership formation. However, the authors concluded that although primary producer incomes between 1958/59 and 1968/69 were considerably more variable than the incomes of wholesale and retail traders, a classification of taxpayers similar in a number of income earning aspects to primary producers, there was little difference between the income distributions of both groups.

The Green Paper (12) contained information on the extent of low farm incomes based on more recent BAE surveys. Their analysis explicitly recognized the importance of wealth as well as income in establishing the economic welfare of farm families, although information concerning off-farm wealth and income was incomplete. The study aimed to identify, using chosen cash income and equity capital figures, the number of farm families whose welfare was considered to be 'at risk'.

A major difficulty with these earlier studies is that they involved drawing inferences about the welfare status of farm families from data not collected for the purpose of providing such information. For ex-

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ample, despite the adjustments to published taxation data formulated by Partridge and Musgrave, income measurement is still not on a family unit basis. While the Green Paper analysis of BAE information was able to convert business net farm incomes to a cash flow basis and make appropriate adjustments for family size, the results must be interpreted separately for different agricultural industries because of the overlap between surveys. Furthermore, minimum size eligibility criteria are likely to exclude a number of low income farms.

The farm household survey of 1973 carried out for the Henderson Poverty Inquiry by the Australian Bureau of Statistics (ABS) was designed specifically to establish the incidence and nature of 'poverty' among farm *families.*

This paper commences by discussing the main results of the ABS survey in terms of the relative income concept of poverty. The paper takes an aggregate view of rural income distributions within Australia.[1] Information from a survey of taxation returns is used to provide a time dimension to the ABS survey results and to establish the extent of chronically low and periodically low farm family incomes. Some of the problems involved in making farm and non-farm welfare comparisons using money income standards are considered and a case is advanced for the inclusion of a notional income component to reflect a family's net worth. Finally, some proposals aimed at directly increasing farm family incomes, in particular, the guaranteed income scheme of the Henderson Inquiry, are discussed against the conflicting, at least in the short term, policy objectives of a 'proper' economic structure of farms on the one hand and the welfare needs of the farm family on the other.

Income Level and Poverty

Economists usually define poverty in terms of income[2] (inadequate for the needs of the family the income must support) rather than in terms of observable characteristics such as housing and health care standards. In this paper the concept of poverty adopted is income oriented. Other kinds of poverty such as cultural poverty, poverty due to social deprivation and poverty due to misspending of an otherwise adequate income (secondary poverty) are not considered here.

In proceeding to measure objectively the incidence of poverty from a financial viewpoint, several issues are raised; the appropriate definition and measure of income, the choice of an income standard with which to compare different income levels (and the need to decide whether poverty is an absolute or relative condition) and the extent to which the definition of income chosen measures economic welfare.

[1] This approach conceals the isolated pockets of depressed farm incomes known to exist. The results of studies of incomes and farm characteristics in a number of low income regions are reported in (5) and (13).

[2] Ideally, it would seem more reasonable to define poverty in terms of consumption. The actual level of consumption (rather than income) determines an individual's living standard. It is easier however, to obtain information on incomes than on consumption expenditure though it is recognized that families can often maintain consumption during periods of low income by drawing on savings. However, both such definitions of poverty *exclude* those forms of utility generation not subject to economic valuation.

Two broad approaches to income based measures of poverty can be recognized; poverty as a subsistence concept involving the adequacy of an income to obtain the necessities of life, and poverty as a relative concept—relative to the standard of living and the distribution of income and wealth of the community at large. The relative approach considers poverty to be inseparable from inequality, with people in poverty when their income falls markedly behind the incomes of the rest of the community, regardless of the absolute standard of living that income would sustain. Both approaches to income oriented poverty inevitably involve value judgements such as the composition of a subsistence budget and the difference between a person's income and that of the community before he is considered to be in poverty. Furthermore, the two approaches overlap. An austere setting of the poverty line in terms of say some fraction of average earnings may result in a benchmark similar to the subsistence needs of a family (as is the case with the Henderson Inquiry).

In establishing the extent of income determined poverty, it is necessary to use a definition of income which measures *all* funds available to an income unit.[3] Welfare standards to judge farm income are generally set in terms of non-farm incomes. Farm poverty is then considered to be a relative concept, in terms of the living standards typical of the general community. This immediately raises two questions; first, the non-farm income judged to be the welfare standard, and second, the level of farm income which provides the same effective income (in terms of living standard) as the non-farm income.

The significance of income as a measure of welfare is reduced by several factors generally thought to be more relevant to farmers than to non-farmers. These concern the preference of farmers for wealth accumulation at the expense of consumption, non-pecuniary considerations, thought to be more important in farming than in most other occupations, and the ease of transition of income into assets and vice versa during periods of unstable prices and output.

Poverty depends not only on income but on the size and type of family the income must support. Hence, to measure the number of families in poverty, we need to be able to compare income units of varying size and composition. The Inquiry's approach (used here) was to define a poverty line in terms of a standard family (household head, spouse and two children). Income of families of different size and composition was adjusted using standardized income coefficients.[4]

The poverty line reflects a judgement made by the Inquiry of the minimum standard below which a family's income should not fall. It depends on their assessment of what seems appropriate, in the light of community attitudes, economic conditions, customs and tradition. The poverty line for a standard family was set at 60 per cent of average earnings in the economy. It was assumed that 20 per cent of the income of a low income earner would be spent on housing (as rent) and that all farm families had their own housing. The relevant poverty line for

[3] Defined in terms of the family group normally supported by the income in question. In most instances, the income unit is represented by a household head, spouse and dependent children.

[4] The approach was similar to that used by Henderson in the Melbourne Poverty Survey (6).

farm families therefore becomes 80 per cent of 60 per cent of average earnings.

The poverty line is austere. It is reasonable to expect that poverty or near-poverty can exist to a greater or lesser extent on either side of the line. Hence the income distributions are computed in bands about the poverty line.

The Incidence of Income Based Poverty

The 1973 ABS farm household survey reported in (11) used two measures of income; (i) cash surplus A representing receipts from farm and non-farm sources minus cash costs (which include interest paid but exclude principal repayment on debts and exclude capital expenditure), and (ii) cash surplus B representing cash surplus A minus net capital expenditure minus repayment of principal on debts. Although cash surplus B more accurately represents *ex post* the amount of funds available to meet taxation and household expenses, these funds could have been increased by postponing capital expenditure and debt repayments. Cash drawings from savings, bank overdrafts, and other loans were not measured, so that cash income represents income from production and not necessarily all cash available for consumption. These cash drawings (together with other less liquid farm assets) undoubtedly form an important source of funds for consumption given the great year-to-year variability in receipts. There was little difference in the extent of poverty as indicated by the two definitions.

Among the main findings of the ABS survey were:

(i) Around 12 per cent of farm based income units had incomes below the poverty line in 1972/73. (This compares with about 7 per cent for non-farm households.) An unusual feature was the number of income units (estimated to be between 14,000 and 17,500) with incomes below 20 per cent of the poverty line. A closer investigation revealed that many such income units were aged, operated small acreages, and produced little commercial output.

(ii) Of those income units whose incomes were below 130 per cent of the poverty line, one-third earned less than 30 per cent of their income from farming. That is, many poor income units have only a marginal involvement in farming; they appear as farm income units only because they reside on rural holdings.

(iii) A considerable number of low income farm income units had substantial reserves of net worth, with an estimated 12,000 of the 31,000 income units below the poverty line having net worths above \$31,000. Twenty-three per cent of those with incomes below the poverty line and net worth below \$31,000 were older than 60 and 37 per cent operated sub-commercial farms. This consistently observed income-wealth 'paradox' rests uneasily with the relative approach to poverty which requires income comparisons to be made between farm families supported by self-employed proprietors working land-based assets, that is, families with both business and personal wealth, and wage earners working in conjunction with an employer's capital.

(iv) Although poverty was distributed among income units of all sizes it was somewhat more concentrated among single person units (many of whom were aged people on small holdings).

Chronic and Temporary Poverty

While the ABS survey provides a snapshot of the extent of income based poverty among farm families in 1972/73, it contains no empirical evidence of the extent to which the measured poverty in 1972/73 represents a chronic or temporary phenomenon. Cox (2) refers to a recently published U.S.A. study (17) which traced the financial status of 5,000 families for 6 years. The study found that much poverty was temporary, being determined largely by changes in family composition and in the labour force participation of family members.

The concept of temporary poverty bears similarities to the permanent income hypothesis which postulates that consumption is related to permanent rather than current income.[5] A situation of temporary poverty implies a long-run income exceeding income in the survey year. One might anticipate that farm family consumption behaviour (in view of the likelihood of large fluctuations in annual income and the access of farmers to short term credit and savings in various forms) would conform to some extent to the permanent income hypothesis.

Farm family income distributions over time were extracted from a 2·5 per cent random sample of taxation returns of primary producers to assist the Industries Assistance Commission in its reference into rural income fluctuations. Personal tax returns of husband and wife were matched to permit incomes to be measured on a family unit basis, thus avoiding a major shortcoming in the use of 'taxation based' income distributions. The distributions are still less than ideal in that non-taxables are excluded and the definition of income formulated (net income[6]) understates actual cash income by an unknown amount. Business deductions may include a proportion of household costs and also include imputed deductions for depreciation and the investment allowance. Nevertheless, the distributions represent the only source of Australia-wide farm family income distributions of a time series nature. Some relevant tables are contained in Appendix A.

Table A1 shows income distributions for each of the years between 1968/69 and 1972/73. (The five-year period was characterized by substantial fluctuations in the value of output and includes a wool slump, wheat quotas and wool recovery.) The coefficient of variation of incomes is above 100 per cent in all years (standard deviation greater than the mean), with income variability greatest in 1968/69 and 1969/70 and least in 1972/73.[7]

Table A2 shows the distribution in terms of bands about the poverty line, adjusted for income size. An important feature is the much greater proportion below the poverty line in 1972/73 (20·5 per cent) than in the ABS survey (12·7 per cent). As stated earlier, net income from taxation returns generally understates the actual cash income figure. Of more interest, therefore, is the change in the proportion in poverty from year to year. In 1969/70, 1970/71 and 1971/72 the proportion below

[5] Some estimates on aggregate farm income data, suggesting that the short run marginal propensity to consume is zero, support this hypothesis (14).

[6] Net income represents total receipts from all sources less the cost of earning those receipts.

[7] It is likely that Table A1 exaggerates somewhat the variability of farm incomes when business deductions are taken into account, because of the relatively constant amounts of tax deductible consumption items from year to year.

the poverty line was some 25 to 40 per cent more than in 1972/73 indicating that the ABS snapshot view of the extent of poverty in 1972/73 considerably underestimated the amount of farm family poverty during the 'wool slump' years.

Table A3 shows the proportion of income units below the poverty line for different proportions of the 5-year period, and Table A4, the relationship of 5-year aggregate income of income units to the aggregate 5-year poverty line. The results indicate a sizeable group in chronic poverty (say three or more years below the poverty line) and an even larger group in temporary poverty during the period. Only 53 per cent of income units had remained above the poverty line in all five years. Of those who had fallen into poverty in one or more years, some 36 per cent had spent 3 out of 5 years below the poverty line and 64 per cent one or two years below the line. The extent of chronic poverty was least in Victoria and South Australia and greatest in New South Wales and Queensland. About 14 per cent of income units had aggregate incomes below the aggregate poverty line for the 5 years. This figure is considerably lower than that observed in each of the five years indicating that surpluses (above the poverty benchmark) in good years are in many cases sufficient to cover shortfalls in bad years.

Further evidence of the transitional nature of much of the low farm incomes can be deduced from poverty band transition matrices assembled from the data. Each p_{ij} element represents the probability of moving from band i in year t to band j in year $t + 1$. The four matrices derived for consecutive years were similar (the average matrix is shown in Table A5). One would expect p_{ij} for $(i \neq j)$ to be fairly high if temporary poverty was common, whereas high values along the diagonal would indicate little transition between poverty bands over the years. Elements are highest in the corners. The *NW* and *SE* values indicate both a chronically low and an adequate income group. However, values in the opposite corners indicate a fairly high probability of moving from the lowest to the highest poverty bands from one year to the next. That is, much poverty is temporary and results from the high variability of farm incomes.

Difficulties of Farm/Non-Farm Welfare Comparisons

The extent of farm family poverty, estimated in the previous section, is in terms of current cash income in relation to a poverty line. Personal impressions gained during the poverty survey (for example the lack of any visible evidence of social deprivation in farm households whose measured income was low) suggest that a more appropriate measuring standard is needed to establish the comparative welfare status of farm with non-farm families than that provided within the framework of the relative poverty line, though the development of an appropriate measuring standard is by no means straightforward. Such attempts are confronted with the unresolved difficulty of drawing interpersonal utility comparisons. Such comparisons can be made only if the fully defined utility functions of the individuals are known to whoever is making the comparisons.[8]

[8] An individual's happiness or satisfaction is dependent on what he consumes and also on what others consume. Since there is no unit of satisfaction we cannot speak of a person's economic welfare as a definite amount of anything. Criteria formulated to assist in evaluating a policy change invariably duck the issue of interpersonal comparisons.

To the extent that welfare (defined to reflect an individual's command over tangible goods and services) varies with current income, then such a measure will be of interest in welfare comparisons. The varying income requirements of farm families at different stages in the family development cycle should be noted here.

The question of the value of *net* perquisites enjoyed by poor farm families over poor non-farm families is a contentious one. It is easy to over-emphasis the value of such perquisites in view of other benefits enjoyed by poor urban families (notably easier access to education, health and other services). The major benefit, that of housing, is taken into account in the calculation of the poverty line.

Wealth

It was evident from the Henderson Study that income alone was inadequate as a measure of welfare among low income farm families where it often substantially underestimated their economic position (command over goods and services) compared with that of low income non-farm families with no accumulated wealth. The introduction of wealth into the analysis enables welfare to be measured in terms of the total funds a family commands, regardless of the source and time periods in which they were accumulated. The ability to command a given level of goods and services can result from capital gains, inheritance or past savings in addition to current income.

Capital accumulation by farmers in the family farm has traditionally commanded a high priority, often at the expense of consumption. The 'paradox' commonly observed in farming communities of 'living poor and dying rich' reflects farmers' tendencies to save and invest a large proportion of income back into the farm business. This behaviour is motivated by desires to reduce taxation (and encouraged by tax concessions and tax averaging provisions) as well as a concern to maintain the security of the farm business in an uncertain environment.

As wealth represents a capacity to realize income in times of need, it must be included in an assessment of economic welfare. It could be argued however, that to the extent that some assets held by farmers represent a legitimate safeguard against uncertainties in their future income streams, then the existence of such assets need not necessarily make it correct to regard the welfare levels of farmers as being in excess of that of urban workers with comparable (though more stable) income flows but little or nothing in the way of assets. But to the extent that additional accumulation at the expense of consumption represents accumulation for accumulation's sake, a notional income component should be attributed to farm assets in the calculation of welfare indicators.

In comparing the extent of capital accumulation between farm and non-farm families we need to make the distinction between physical (non-human) and human capital. Physical capital such as land, machinery and buildings can be passed on at intergenerational transfer. Human capital cannot be bequeathed (although a person can impart knowledge to others before his death). A person's current income can be considered to reflect his return from the application of both physical and human capital. To the extent that current income reflects a person's income earning potential, then accounting for income and physical wealth will have taken different levels of human capital into account.

Evidence of the extent of the income-net worth 'paradox' in agriculture (16) suggests that Australia conforms to the U.S.A. experience where any income deficiencies of the farm compared with the non-farm situation must be offset by the markedly superior position of the farm sector in relation to tangible net worth.

It could be argued that parents of non-farm families choose to pass on a large part of their wealth to heirs in the form of human rather than physical capital, that is, they might place a higher emphasis on providing increased educational opportunities for their children out of current income rather than accumulating savings in the form of potential bequests. Conversely, farmers might prefer to bequeath wealth to a greater extent as physical rather than human capital. If this were the case, it would seem reasonable to make allowances when accounting for wealth differences.

The foregoing discussion has raised problems concerning the legitimacy of accounting for wealth differences between farm and non-farm families in making welfare comparisons. These concern the extent to which a farmer holds higher levels of wealth as a reserve in a more risky income-earning environment and his preference for accumulating wealth for intergenerational transfer rather than in the form of human capital out of current income.

A further problem arises in the combination of wealth and income. Wealth is a stock and income a flow. Thus, these two quantities are non-additive. One way of overcoming this is to convert wealth into a lifetime flow by means of annuity models and add the annuity to current income.[9]

The size of the income flow from a given amount of annuitized wealth depends on the rate of discount used and the life expectancy of the farmer. That is, annuity methods of accounting for wealth imply a higher level of well-being for older farmers than for younger farmers with the same level of wealth. (The effect of the inclusion of annuitized wealth on a number of farm family income distributions derived in the Melbourne University study of rural poverty (5 p. 84) was to reduce substantially the number of families below the poverty line, formulated in terms of income only, from that which occurred from income alone.)

It should be noted that a concept of 'well-being' involving income and annuitized wealth is hypothetical in the sense that many farmers may not contemplate the conversion of their wealth into income. However, provided a satisfactory market existed for the purchase of annuities by farmers, then such a concept would be a valid one. If mechanisms existed to allow farmers to supplement current income out of accumulated wealth, it would not seem equitable that low income farmers with comparatively high net worth should have the same claim for supplementary assistance from the public purse as low income non-farmers with negligible net worth.

Suggestions have been made (3) for the use of an income definition in terms of net farm income plus changes in net worth as a measure which would better explain farm behaviour and provide a more complete

[9] See for example the work of Carlin and Reinsel (1) who found that the distribution of 'well-being' of U.S.A. farm families relative to all families in 1966 was made more equal when annuitised wealth was considered along with money income.

guide to consumption possibilities available to families at any point in time. One major difficulty in computing annual changes in net worth concerns the problem of determining realistic annual land values. To some extent, changes in real wealth due to changes in asset values have similar characteristics to current income in that they can be saved in the form of increased net worth or consumed via sale or borrowing, although the extent to which annual equity increments can be consumed by borrowing in the rural capital market is debatable. Credit programmes which increased the liquidity of capital gains to their recipients would improve the situation.

Considerations of tastes and preferences confound the problem of reconciling income and wealth differences between farm and non-farm families. What really should be measured is perhaps not the hypothetical annuity flow but the trade-off in terms of satisfaction between income and assets which an individual farm family may have, expressed in terms of the dollar income value per dollar of assets. This will of course differ between families, and hence is not a practical alternative way of accounting for wealth differences. Nevertheless, given the large wealth differences observed between low income farm and non-farm families, it would seem remiss not to add some notional income component to farm family income to obtain a better measure of economic welfare. Determining the size of this notional income component for a given wealth difference is another matter, and reflects the basic problem alluded to earlier in making interpersonal welfare comparisons—whose perception of the welfare associated with a given set of objective factors should be used?

A further criticism of traditional income standards used to measure the welfare position of farm families is that they invariably fail to incorporate non-pecuniary considerations. Standen (15) points out that unless values are placed on preference for a particular occupation, then the use of income standards need not provide a realistic evaluation of welfare in that occupation.

Although most occupations will yield some positive amount of psychic income, it is often claimed that psychic income derived by farmers from farming will exceed the psychic income from non-farmers in most other occupations. Psychic income is by definition a personal characteristic. Different persons in a particular occupation such as farming will differ in the extent of satisfaction they derive from that occupation. A disregard for the existence of psychic income in farming by policy makers could result in specification of welfare problems which may not exist, or an incorrect specification of the magnitude of these problems, and the formulation of quite unsuccessful policy measures, such as the original rehabilitation and retraining aspect of the rural reconstruction scheme. An alternative occupation to farming generally involves a radically different lifestyle, as well as a change of location. This is less often the case when a city dweller changes his occupation. If higher money incomes are available only with a change of employment and location, then strong attachment to the present location and employment could well mean that the individual concerned would *not* be better off in the alternative occupation.

The Henderson Inquiry presented farm income distributions cross tabulated with net worth, and inferences were drawn about the importance of such net worth to low income farmers. The Inquiry did not develop comparative measuring techniques which took such factors as net worth into account. The income oriented poverty line approach was often found to be misleading when observed living standard characteristics of the family were reconciled with its poverty band categorization. In view of these difficulties, there seems good reason for redirecting the emphasis to welfare comparisons *among* farmers in terms of an acceptable farm family living standard rather than persisting with the often meaningless farm/non-farm comparisons.

Policy Alternatives

While legitimate doubts may be held concerning the actual number of farm families whose welfare is below socially acceptable standards, the evidence clearly points to a sizeable group whose incomes are chronically low and a larger group whose incomes are low in some years. Undoubtedly, financial hardship, either episodic or continuous, is experienced by many such families. The survey results confirm prior expectations that in Australian circumstances, farm poverty (as measured by relative income level) is more a product of the instability of agriculture[10] than a chronic small farm problem (although a sizeable group of aged and sub-commercial farmers in chronic poverty were identified).

The Henderson Inquiry (11) considered that its primary concern was to advocate a set of policies that promote both individual welfare, on an equitable basis, and farm efficiency. It is important in treating the symptoms of poverty not to lose sight of its cause. In the case of chronically low income situations where the problem is one of inadequate resources given normal prices and yields, the policy emphasis has been on encouraging viable farms and the relocation of low income families to alternative occupations. More recently, perhaps reflecting more widespread community acceptance of the right of all families, irrespective of occupation, to a minimum income, increased prominence has been given to the need for direct welfare assistance to low income families, quite apart from the long term income earning potential of any associated business.[11] The extent to which cash assistance to temporary low income farm families with business equity should be charged against the business (to be recouped at a later stage) is of central importance in the equitable administration of such assistance.

A number of policies to alleviate farm poverty were proposed during the course of the Inquiry. These are discussed more fully in (5) and (13). In some instances, these formed part of a rural reconstruction policy package, while in others they were aimed at providing direct welfare assistance to overcome episodic periods of insufficient funds for household consumption.

Self-financing annuities were proposed (5, p. 102) in the case of older, low income farmers of sufficient net worth, to allow them to con-

[10] There are of course some well known exceptions to this generalization, in particular the chronic long-term poverty position of many farmers in the dairy industry.

[11] For example, the question of whether unemployment benefits should be extended to farmers whose incomes are temporarily low has been under Government review and liberalized in the farmers' favour. In reference to the income-business wealth of farm families it should be noted that unemployment benefits are currently extended to unemployed people irrespective of their wealth.

sume their wealth (i.e. enjoy higher incomes) during their lifetimes rather than face the substantial burdens of personal adjustment that would occur if financial circumstances forced them to leave their farms. A proposal of this nature overcomes both the low income problem of older farmers while ensuring farm adjustment in the medium term. That is, welfare and efficiency objectives do not conflict to any extent.

Several policies were proposed to the Inquiry to alleviate temporary poverty by reducing annual income fluctuations. These include:

(i) more flexible farm credit arrangements such as variable amortisation of loans according to income to help stabilize farm consumption and investment expenditures, and remove the problem of poverty that can arise in equity building periods early in the farmer's lifetime, and

(ii) the direct use of the taxation system in a manner similar to that proposed in the IAC recommendation for an income equalization deposit scheme with interest payable on the investment component of the deposit (7).

Variants of negative income taxation were suggested (13, p. 157) as an automatic way of preventing short term farm income problems and the flow-on effect to the rural community. To avoid exploitation by recipients, such schemes would need to be based on a farm's actual rather than taxable income as well as taking into account increments in wealth. Direct income support (or negative income tax) arrangements are readily applicable to wage earning families. However, there is a dilemma in extending such arrangements to family businesses where incomes may be temporarily low yet business wealth high. Such wealth, if consumed, either through borrowing or sale, to supplement current income may impair future income earning potential. Policy makers need to decide whether welfare payments to such families should be in the form of loans or grants.[12]

An important issue is whether a sectoral approach to the alleviation of poverty should be adopted or whether the same welfare programmes are adequate for all poor families, whether wage earners or business proprietors. A method of short term income maintenance (Farm Household Relief Scheme) (5 p. 30) tailored to the particular needs of farm families, was proposed to the Inquiry to assist farmers through periods of temporary poverty and also to provide income assistance on humanitarian grounds to unviable farmers until a longer term solution could be found. The eligibility criteria for assistance were framed to avoid exploitation—credit sources had to be fully utilized, assets subject to a means test, the farmer fully dependent on the farm for his livelihood, and with payments available for a maximum of 12 consecutive months. The Henderson Inquiry, while recognizing the need for longer term policies to improve farm efficiency, acknowledged that short-term income support for poor farmers should be incorporated in reconstruction schemes. Rather than having a separate income maintenance scheme for farm households, the Inquiry proposed as a medium term policy objective a

[12] The IAC (8) has recently recommended household income support at unemployment benefit levels for beef cattle producers deemed to be unviable, to allow them time to adjust. The IAC considered that the terms, interest rate, and security arrangements of each household support payment should be determined by the rural reconstruction authority and where recipients had considerable business equity, payments need not be provided solely as grants.

guaranteed minimum income scheme (11, pp. 67-87) for *all* Australian families irrespective of occupation and income level, to provide a more effective alternative (in terms of minimizing poverty) to the present fragmented system of support payments. It was envisaged that upon the implementation of this scheme, short-term income grants as part of reconstruction would become unnecessary.

The Henderson Proposal

This proposal involves permanent income maintenance to all farm families. *Automatic* welfare-oriented assistance to farmers facing unstable incomes is in contrast to the present situation where Government assistance in response to financial distress through the injection of concessional credit and other subsidies is very much a salvage rather than preventative operation. The scheme, which is outlined in principle only, (the Inquiry recognized that its implementation could not be considered until more attention was given to details and ramifications), provides a radical departure from current taxation and welfare policy by aiming to replace as far as possible the current diverse, piecemeal and costly approach to social security. The scheme should be seen as just one variant of a guaranteed income scheme.

The scheme has two fundamentals; a set of regular minimum income payments to all families at a level which makes it difficult to fall into poverty, and a proportional tax on all private income. That is, disposable income = guaranteed minimum income + (private income $\times$ (1 — tax rate)). These two conditions ensure a similar result to the current system of progressive rates in that the fraction of income paid in net tax (tax minus income payments) rises as private income rises, though there will be a substantial rise in *both* taxation and refunds (as minimum income payments). The proportional tax takes the same share of income whatever the time-pattern of receipts. The scheme therefore has potential for achieving tax equity as well as income stability and supplementation of low incomes.

In determining the size of the proportional tax and minimum income payments, the Inquiry accepted as a general constraint that the amount of revenue from the proportional tax to be returned to the people by way of guaranteed income payments, as against the amount to be applied to other Government activities, should be broadly the same as under the existing taxation and income support system. The Inquiry's preferred proposal was for a proportional tax of about 40 per cent and a minimum income guarantee of about 62 per cent of the poverty line.[13]

Appendix B contains some hypothetical income distributions, based on net income from the taxation sample, assuming Henderson's preferred proposal. The distributions, of course, do not incorporate any response by farmers to a more stable cash flow situation they might face under a guaranteed income scheme.

In order to make statistical comparisons between the actual and hypothetical distributions, the former must be placed on an 'after tax' basis (see Appendix B for details). Table B3 compares two measures of dispersion, the coefficient of variation and the concentration ratio. The figures indicate that an income scheme of this type will substantially re-

[13] Extra weighting would need to be given to some categories of income units such as pensioners and large families.

duce the inequality of incomes by raising low incomes to a minimum level, although because of zero and negative incomes in some years, this minimum level may still be below the poverty line. Furthermore, the scheme makes some contribution to reducing income variability over time. The coefficient of variation of mean incomes over the period is lower under the scheme. However, mean incomes are also lower under the scheme suggesting that farm families would pay more in taxation under the Henderson scheme than is currently the case under income averaging.[14]

In practice, a scheme of this nature would require modification when applied to farm families. For example, in assessing private income, expenditure of a capital nature should be treated as out of income rather than costs (although the division between capital and consumption expenditure is often obscure).

Of crucial importance is the extent to which guaranteed income arrangements will permit unviable farmers to remain. The Inquiry considered a level of support of 62 per cent of the poverty line to be adequate to raise low incomes without inducing farmers to remain indefinitely on uneconomic farms, although it seems inevitable that some such farmers will persist—hence the conflict between resource allocation and equity objectives in the provision of guaranteed income assistance. A guaranteed income scheme could be coupled in some way to farm adjustment policy to ensure that unviable farmers did leave agriculture within a certain period. This would ensure some control over the extent of the efficiency costs of income support.

However, an outcome whereby some unviable farmers are induced to remain is not inconsistent with the basic philosophy behind guaranteed income arrangements, that of the right of *all* families to income according to need, irrespective of the cause of the low income problem.

References

[1] Carlin, T. A. and E. I. Reinsel, 'Combining Income and Wealth: An Analysis of Farm Family Well-being', *American Journal of Agricultural Economics*, 55(1): 38-44, 1973.

[2] Cox, J. P., 'The National Survey of Income, Income Distribution and Temporary Poverty', paper presented to Economists' Conference, Brisbane, 1975.

[3] Cuthbertson, A. G. and A. B. Stoeckel, 'The Use of Alternative Measures of Income in Assessing Instability in Agriculture', paper presented to Australian Agricultural Economics Society Annual Conference, 1975.

[4] Davidson, B. R., 'Welfare and Economic Aspects of Farm Size Adjustment in Australian Agriculture', in Makeham, J. P. and J. G. Bird (Eds.) *Problems of Change in Australian Agriculture*, Armidale U.N.E. 1969.

[5] *Financial Aspects of Rural Poverty*, A.G.P.S. Canberra 1975.

[6] Henderson, R. F., A. Harcourt and R. J. A. Harper, *People in Poverty: a Melbourne Survey*, Cheshire Publishing Pty. Ltd. 1970.

[7] Industries Assistance Commission, Report on *Rural Income Fluctuations—Certain Taxation Measures*, A.G.P.S. Canberra, June 1975.

[8] Industries Assistance Commission, Report on *Short Term Assistance to Beef Cattle Producers in Australia*, A.G.P.S. Canberra, September 1975.

[9] McKay, D. H., 'The Small-Farm Problem in Australia', *Australian Journal of Agricultural Economics* 11(2): 115-132, 1967.

[14] Part of this difference in disposable income between the actual and hypothetical distributions could be due to an underestimation of the amount of taxation paid in converting the former to an 'after tax' basis.

[10] Partridge, A. J. S. and W. F. Musgrave, 'Two Suggested Adjustments in Farm Income Measurement Using Taxation Data', *Australian Journal of Agricultural Economics* 18(1): 48-59, 1974.
[11] *Poverty in Australia* Vol. 1. First main report of Commission of Inquiry into Poverty, A.G.P.S. Canberra 1975.
[12] *Rural Policy in Australia,* Report to the Prime Minister by a Working Group, May 1974.
[13] *Rural Poverty in Northern New South Wales,* A.G.P.S. Canberra 1975.
[14] Smyth, D. J. and P. C. McMahon, 'The Australian Short-Run Consumption Function', *Economic Record,* 48(122):220-231, 1972.
[15] Standen, B. J., 'Evaluation of the Efficiency of Resource Use on Farms and the Welfare of Farm People', *Australian Journal of Agricultural Economics* 16(1):34-44, 1972.
[16] Stoeckel, A. B., A. G. Cuthbertson and W. R. Curran, 'Income and Net Worth: Implications for Economic Welfare', paper presented to the Australian Agricultural Economics Society Annual Conference, 1974.
[17] *The Changing Economic Status of 5000 American Families—Highlights from the Panel Study of Income Dynamics,* U.S. Department of Health, Education and Welfare, Washington, May 1974.

APPENDIX A

Primary Producer Income Distributions from Taxation Data

TABLE A1

Income by Range and Year
(per cent of income units)

Range ($)	1968/69	1969/70	1970/71	1971/72	1972/73
Nil or loss	6·8	8·5	8·6	6·9	4·5
1- 999	9·8	10·6	10·2	8·7	6·6
1,000- 1,999	15·8	16·1	16·1	12·5	9·3
2,000- 3,999	30·1	29·8	28·5	26·7	22·2
4,000- 5,999	16·8	17·4	17·7	19·2	19·3
6,000- 7,999	8·8	8·2	8·5	11·1	12·3
8,000- 9,999	4·5	4·2	4·4	5·6	8·2
10,000-11,999	2·9	2·2	2·4	3·7	5·2
12,000-13,999	1·5	1·1	1·2	2·0	3·7
14,000-15,999	1·0	0·6	0·8	1·3	2·4
16,000+	2·0	1·3	1·6	2·3	6·3
Mean	3,999	3,536	3,679	4,473	6,136
Coefficient of variation (%)	109·9	115·0	123·1	107·5	100·9

TABLE A2

Income by Poverty Band
(per cent of income units)

Per cent of poverty line	1968/69	1969/70	1970/71	1971/72	1972/73
Less than 80	17·7	21·5	23·4	20·6	16·5
80- 99·9	4·2	4·7	5·2	4·7	4·0
100-119·9	4·5	4·9	6·1	5·1	4·5
120-129·9	2·3	2·7	2·8	2·7	2·0
130 or more	71·3	66·2	62·5	66·9	73·0

TABLE A3

Year to Year frequency of Income Units below the Poverty Line
(per cent of total)

Frequency	N.S.W.	VIC.	QLD.	S.A.	W.A.	TAS.	AUST.
0 out of 5 years	46·9	59·9	45·1	54·8	49·3	42·3	53·1
1 out of 5 years	16·5	17·3	18·3	22·2	20·9	25·4	18·3
2 out of 5 years	14·4	9·9	13·3	10·9	12·7	15·5	11·8
3 out of 5 years	9·4	6·0	10·6	5·4	12·7	2·8	7·7
4 out of 5 years	5·4	4·6	7·1	4·6	1·5	5·6	5·0
5 out of 5 years	7·3	2·3	5·6	2·1	3·0	8·5	4·1

TABLE A4

Five Year Income as a Proportion of the Aggregate Poverty Line

Per cent of aggregate poverty line	N.S.W.	VIC.	QLD.	S.A.	W.A.	TAS.	AUST.
Less than 80	14·2	6·5	14·7	5·9	9·7	15·5	9·8
80-99·9	3·8	3·8	5·3	5·0	2·2	1·4	4·0
100-119·9	6·4	4·6	5·3	3·3	3·7	2·8	4·8
120-129·9	4·5	3·1	1·8	2·9	2·2	1·4	3·0
130 or more	71·2	82·0	72·9	82·8	82·1	78·9	78·4

TABLE A5

Average Poverty Transition Matrix

Below poverty line in year t	Below poverty line in year $t+1$				
	<80	80-99·9	100-119·9	120-129·9	130+
Less than 80	0·50	0·08	0·06	0·03	0·33
80- 99·9	0·34	0·11	0·11	0·06	0·38
100-119·9	0·23	0·11	0·12	0·06	0·49
120-129·9	0·20	0·09	0·11	0·06	0·54
130 or more	0·09	0·03	0·04	0·02	0·82

APPENDIX B

Hypothetical Income Distributions assuming Henderson's Guaranteed Income Scheme

TABLE B1

After-tax Income by Range and Year
(per cent of income units)

Range ($)	1968/69	1969/70	1970/71	1971/72	1972/73
Nil or loss	0	0	0	0	0
1- 999	8·9	8·7	7·9	2·4	1·7
1,000- 1,999	22·4	23·8	21·7	20·0	12·9
2,000- 3,999	41·9	42·3	41·8	39·4	33·4
4,000- 5,999	16·2	16·7	18·4	23·0	25·1
6,000- 7,999	5·9	5·3	6·0	8·4	12·5
8,000- 9,999	2·5	1·6	2·1	3·7	6·4
10,000-11,999	0·8	0·7	1·0	1·5	3·4
12,000-13,999	0·7	0·4	0·4	0·6	1·9
14,000-15,999	0·3	0·2	0·2	0·4	0·9
16,000+	0·4	0·3	0·5	0·6	1·8

TABLE B2

Income by Poverty Band
(per cent of income units)

Per cent of poverty line	1968/69	1969/70	1970/71	1971/72	1972/73
Less than 80	9·8	12·1	12·7	10·7	8·0
80- 99·9	4·7	5·5	6·6	6·4	4·8
100-119·9	6·8	8·0	8·2	7·4	6·8
120-129·9	3·2	3·8	5·2	4·2	3·9
130 or more	75·5	70·6	67·6	71·3	76·4

TABLE B3

Comparison of Actual and Hypothetical Distributions

	1968/69	1969/70	1970/71	1971/72	1972/73
Actual[a]					
mean	3711	3349	3503	4145	5502
coefficient of variation (%)	88·9	86·1	89·6	84·2	81·4
concentration ratio[b]	0·430	0·419	0·427	0·417	0·418
Hypothetical					
mean	3349	3196	3394	3931	5000
coefficient of variation (%)	76·6	70·4	74·7	70·3	73·4
concentration ratio	0·355	0·337	0·340	0·328	0·349

[a] The income distribution was converted to a post-tax basis using information published in the annual report of the Commissioner of Taxation. A schedule relating net income to actual tax paid per individual was constructed. It was assumed that each income unit consisted of two taxpaying individuals, each with the same net income.

[b] The concentration ratio is a widely used measure of inequality. It was computed from the grouped data as

$$\sum_{2}^{k} P_{i-1} Q_i - \sum_{2}^{k} P_i Q_{i-1}$$

where P_i is the cumulative proportion of families receiving income within or below the ith range and Q_i is the cumulative proportion of income received by those families. In terms of the traditional Lorenz curve diagram, it is the ratio of the area between the Lorenz curve and the diagonal (egalitarian line) to the area of the triangle below the diagonal. A concentration ratio of 0 represents perfect equality (each family receives the same income) and 1 represents perfect inequality (one family receives all the income).